General Operations Manual
Part (A) Volume (1)
(OMA.GOM)

Issue No.: (04)	Rev. No.: **(07)**
Issue Date: Jan. 2018	Rev. Date: **Oct. 2023**
Document # : NMA - OMA.GOM - 1001	

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Attachment (C)

Operations Manual Approval /Acceptance Form

Part I : to be completed by the Operator

- Operator Name :- **Nesma Airlines**
- Manual Title :- **Operations Manual Part (A)**

Issue No. : **04**
Revision No. : **07**
Date : **October 2023**

- Prepared by :

Name : **Mr. Mouadh Mustapha**
Title : **Operations Library in Charge**
Signature :
Date : **October 2023**

- Revised by :

Name : **Capt. Sherif El Messiri**
Title : **Director of Operations**
Signature :
Date : **October 2023**

- Revised by :

Name : **Eng. Bahy Metkies**
Title : **Safety & Quality Director**
Signature :
Date : **October 2023**

- Accountable Manager :

Name : **Mr. Karim Baky**
Title : **Accountable Executive**
Signature :
Date : **October 2023** 1-10-2023

Nesma Airlines
نسما للطيران
CEO

(Operator Stamp)

Part II :to be completed by ECAA

ECAA : Acceptance ☑ Approval ☐

Ops Inspector :

Name Maha Mahmoud Signature Maha Date : 19-10-2023

Certification G.D :

Name Signature Date :

FOCA Administrator :

Name Ashraf ABoshady Signature Date : 19/10/2023

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A. Description of Changes:

OMA Issue 4 Rev. 6 Rev 07 Rev. Date Oct. 2023		
Chapter 00		
Area Changed	**Description of Changes**	**Pages**
Table of Content CH 00	• Table of Content Chapter 00	1
0.1. Record of Approval	• Latest Company Approval	2
0.2 Foreword	• Update the OCC Address	3
0.4 List of effective pages	• Vertical bar added for the changed pages and remove the previous one.	6 to 34
0.5.8 Synonyms	• Remove A319	54
0.6.5 Flight Operations Manual Distribution List	• Updated the Type of Copy DC instead of CD and add Hard copy for Operations Library	61
0.6.5.1 Distribution of Other Parts of the Operations Manual	• Updated the Type of Copy DC instead of CD	62
0.6.7 Record of Temporary Revisions	• The new Temporary Revision No. 2 and Date of Revision added date May. 2023	64
Chapter 01		
Area Changed	**Description of Changes**	**Pages**
Table of Content CH 01	• **Table of Content**	1
1.2 Names and Titles of Nominated Post-Holders	• **Chief Pilot Name has been updated**	5
1.5.4 Chain of Command	• **Chain of Command added**	37
Chapter 08		
Area Changed	**Description of Changes**	**Pages**
Table of Content CH 08	• Table of Content	1,11,16,17,18
8.1.2.3.2 Takeoff Alternate Aerodrome	• Remove A319	32
8.4.5.5 LVTO with RVR between 400m and 150m	• Remove A319	231
8.12.4 EFB Hardware	• Update the Class of EFB Class I & II	300-301
8.14 Reserved	• This Section has been reserved	348-354
8.15 Runway Excursions	• New Item Added	355-356
Chapter 09		
Area Changed	**Description of Changes**	**Pages**
Table of Content CH 09	• Table of Content	1
9.1.1 Terminology	• Update the Technical instructions for the Safe Transport of DGR as Per ECAR 121 *issue 6 Rev. 07 April 2023*	3-4

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9.1.11 Terminology	• Update the Technical Instructions	**4**
9.1.2 Policy for the Transport of Dangerous Goods by Passengers and/or Crew	• Editorial Changes as Per ECAR 121 *issue 6 Rev. 07 April 2023*	**4**
	Chapter 13	
Area Changed	**Description of Changes**	**Pages**
Table of Content	• Table of Content	**1**
13.1.3 Dispatch Release	• Update the New Form of Dispatch Release	**6**
13.2.5 Emergency Equipment layout	• Emergency Equipment Layout updated for Company fleet (NMG, NML and NMR)	**35-36**

Administration and Control of Manual

Chapter 0

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Table of Content

Chapter 0 Administration and Control of Manual

0.1 Record of Approval

This Manual complies with the requirements of the ECAA of Egypt and is issued under the authority of the Director of Operations.

	Name	Signature	Position	Date
Prepared by	Mr. Mouadh Mustapha		Operations Library in Charge	OCT 23
Prepared by	Capt. Sherif Elmessiri		Director of Operations	OCT 23
Reviewed by	Eng. Bahey Metkies		Safety & Quality Director	OCT 23
Approved By	Mr. Karim Baky		Accountable Executive	OCT 2023

0.2 Foreword

This Operations Manual is produced by Nesma airlines Flight Operations. It is a guide to Nesma Airlines Operation personnel based on ECAA requirements**.** It is Operations personnel responsibility to make themselves familiar with applicable laws, rules, procedures, limitations and/or restrictions pertinent to the performance of duties in areas and conditions where operations are conducted.

Its content does not supersede any requirements mandated by the ECAA nor does it supersede or amend fleet type specific documentations such as AFM, FCOM, MMEL or any other approved documentation.

In case of conflict with the applicable ECAA regulations, the latter apply.

This manual contains guidelines, regulations and examples that adapted to Nesma Airlines' policies and regulations.

Use and duplication (in whole or part, in all media) of this manual is authorized for internal purposes of Nesma Airlines departments only. Any commercial use is strictly excluded.

No references to ILS CAT III approaches and Cargo are applicable until Nesma Airlines crew and Aircraft be approved for such an operation.

Should any part(s) of this Manual that would necessitate a change, kindly fill in the form (see "Forms" Section), and submit it to Director Flight Operations.

Nesma Airlines is certified and authorized to function in the commercial air transport for passengers under the Companies Law No.159/81 and its complimentary supporting directives and Sub-Laws under Commercial License No. 308313-ELGEIZA provided:

Nesma Airlines shall operate in compliance with the ECARs Part 121 and its approved Operation Specifications under IFR Day / Night Operation.

The Ministerial Orders granting the permissions to practice the above functions

a. Order No. 466/T for the year 2009 (Passengers)

Nesma Airlines is an Egyptian Company based and registered in Cairo, Egypt, a Member State. The fleet consists of Three A320 aircrafts registered under:

SU-NMG, SU-NML and SU-NMR.

<u>Nesma Airlines Head Office is located at: -</u>

5 El Madina St., El Nozha El Gedida, Cairo, Egypt.

<u>Nesma Airlines Base Operations is located at: -</u>

Nesma Airlines OCC, Terminal 1, Cairo International Airport, Cairo, Egypt.

TELEFAX + (202) 26 23 97 72

E-mail info@nesmaairlines.com

Any change(s) to the above location is to be advised to the civil aviation authority at least 15 days prior to propose shifting.

0.2.1 Means of Compliance with Air Operator Certificate (AOC)

An Air Operator's Certificate (AOC) is a certificate authorizing Nesma Airlines to carry out specified commercial air transport operations. Nesma Airlines shall not operate an airplane for the purpose of commercial air transportation not in accordance with, the terms and conditions of an AOC.

Nesma Airlines shall ensure that it complies with the terms and conditions of the ECAA issued AOC (Certificate Number: AOC 070). For this, Nesma Airlines will employ qualified personnel and provide equipment and procedures to meet the defined tasks in order to limit the inherent risks to the lowest level possible.

Nesma Airlines will monitor its performance continuously to detect discrepancies in the earliest possible stage and shall, once a discrepancy has been found, take action to re-establish the desired standards. Nesma Airlines must also ensure that the administrative requirements of an AOC shall be maintained as per the ECAA requirements.

The contents of an AOC specify the following:

1) Operator Identification (Name and location);
2) Date of issue and period of validity (one year);
3) Description of the type of operations authorized;
4) Type(s) of aircraft authorized for use;
5) Authorized areas of operation or routes;
6) Exemptions, deviations and waivers (listed by name);
7) Special authorizations to include, as applicable:
    - Low visibility takeoff (LVTO);
    - CAT II and/or III approaches;
    - Head-up displays (HUD) and enhanced vision systems (EVS) operations (if such systems are used to gain operational benefit);
    - GPS approaches;
    - RVSM operations;
    - MNPS operations;
    - RNAV/RNP operations, to include approved applications and, when applicable, the associated approved RNP levels required to operate within a defined airspace;
    - Transport of dangerous goods (if AOC authorization is required for the transport of dangerous goods);

Note: The Original copy of the current AOC issued to Nesma Airlines will be held by the Company.

The AOC shall be kept on-board the aircraft in 'Aircraft Certificate and Documents folder',

0.3 Reserved

0.4 List of Effective Pages (LEP)

The List of Effective Pages (LEP) lists all the pages that are in the manual. The manual after revision shall comply with the LEP.

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Chapter (3) Quality System				
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Chapter (4) Crew Management				
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Chapter (8) Operating Procedures				
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Chapter (9) Dangerous Goods and Weapons				
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Chapter (10) Security				
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Chapter (11) Safety Management System				
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35.	04	Jan. 2018	06	Dec. 2022
36.	04	Jan. 2018	06	Dec. 2022
37.	04	Jan. 2018	02	Nov. 2018
38.	04	Jan. 2018	02	Nov. 2018
39.	04	Jan. 2018	02	Nov. 2018
40.	04	Jan. 2018	02	Nov. 2018
41.	04	Jan. 2018	02	Nov. 2018
42.	04	Jan. 2018	02	Nov. 2018
43.	04	Jan. 2018	02	Nov. 2018
44.	04	Jan. 2018	02	Nov. 2018

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45.	04	Jan. 2018	02	Nov. 2018
46.	04	Jan. 2018	02	Nov. 2018
47.	04	Jan. 2018	02	Nov. 2018
48.	04	Jan. 2018	02	Nov. 2018
49.	04	Jan. 2018	02	Nov. 2018
50.	04	Jan. 2018	02	Nov. 2018
51.	04	Jan. 2018	02	Nov. 2018
52.	04	Jan. 2018	02	Nov. 2018

Chapter (14) Performance Engineering				
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1.	04	Jan. 2018	00	Jan. 2018
2.	04	Jan. 2018	00	Jan. 2018
3.	04	Jan. 2018	00	Jan. 2018
4.	04	Jan. 2018	00	Jan. 2018
5.	04	Jan. 2018	00	Jan. 2018
6.	04	Jan. 2018	00	Jan. 2018
7.	04	Jan. 2018	00	Jan. 2018
8.	04	Jan. 2018	00	Jan. 2018
9.	04	Jan. 2018	00	Jan. 2018
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11.	04	Jan. 2018	00	Jan. 2018
12.	04	Jan. 2018	00	Jan. 2018
13.	04	Jan. 2018	00	Jan. 2018
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15.	04	Jan. 2018	00	Jan. 2018
16.	04	Jan. 2018	00	Jan. 2018
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19.	04	Jan. 2018	00	Jan. 2018
20.	04	Jan. 2018	00	Jan. 2018
21.	04	Jan. 2018	00	Jan. 2018
22.	04	Jan. 2018	00	Jan. 2018
23.	04	Jan. 2018	00	Jan. 2018
24.	04	Jan. 2018	00	Jan. 2018
25.	04	Jan. 2018	00	Jan. 2018
26.	04	Jan. 2018	00	Jan. 2018
27.	04	Jan. 2018	00	Jan. 2018
28.	04	Jan. 2018	00	Jan. 2018
29.	04	Jan. 2018	00	Jan. 2018
30.	04	Jan. 2018	00	Jan. 2018
31.	04	Jan. 2018	00	Jan. 2018
32.	04	Jan. 2018	00	Jan. 2018
33.	04	Jan. 2018	00	Jan. 2018
34.	04	Jan. 2018	00	Jan. 2018
35.	04	Jan. 2018	00	Jan. 2018
36.	04	Jan. 2018	00	Jan. 2018
37.	04	Jan. 2018	00	Jan. 2018
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Chapter (15) Aircraft Leasing				
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1.	04	Jan. 2018	00	Jan. 2018
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4.	04	Jan. 2018	00	Jan. 2018

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Appendix A				
Page No.	**Issue No.**	**Issue Date**	**Revision No.**	**Revision Date**
1.	04	Jan. 2018	05	Dec. 2019
2.	04	Jan. 2018	05	Dec. 2019
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5.	04	Jan. 2018	05	Dec. 2019
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7.	04	Jan. 2018	05	Dec. 2019
8.	04	Jan. 2018	05	Dec. 2019
9.	04	Jan. 2018	05	Dec. 2019
10.	04	Jan. 2018	05	Dec. 2019
11.	04	Jan. 2018	05	Dec. 2019
12.	04	Jan. 2018	05	Dec. 2019
13.	04	Jan. 2018	05	Dec. 2019
14.	04	Jan. 2018	05	Dec. 2019
15.	04	Jan. 2018	05	Dec. 2019
16.	04	Jan. 2018	05	Dec. 2019
17.	04	Jan. 2018	05	Dec. 2019
18.	04	Jan. 2018	05	Dec. 2019
19.	04	Jan. 2018	05	Dec. 2019
20.	04	Jan. 2018	05	Dec. 2019
21.	04	Jan. 2018	05	Dec. 2019
22.	04	Jan. 2018	05	Dec. 2019
23.	04	Jan. 2018	05	Dec. 2019
24.	04	Jan. 2018	05	Dec. 2019
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0.5 Introduction

0.5.1 Operations Manuals

OPERATIONS MANUAL is issued on the authority of the Director of Operations. It complies with **E**gyptian Civil **A**viation **R**egulations (ECAR) and **A**ir Operator (Nesma Airlines) **Operations** Certificate (AOC) as well as with the applicable National Regulations and Laws.
It has been prepared in the English and Arabic language as a common language prescribed in.
The Operations Manual is developed in a manner that ensures they are useable, identifiable and consistent with manufacture specifications. Any differences from procedures and checklists provided by manufacture are not applicable in Nesma airlines operations unless mentioned and approved by the manufacture itself.
The procedures and instructions contained in the operations manual are based on the latest technical data and operational experience. They have been established to plan and execute commercial air transport flights in accordance with Nesma Airlines policy & it shall:

- **i)** Contains legible and accurate information;
- **ii)** Is written in language(s) understood by flight operations personnel (English & Arabic);
- **iii)** Is presented in a format that meets the needs of flight operations personnel;
- **iv)** Approved by the ECAA Authority if mandated by regulations
- **v)** Designed in accordance with the human factor's principles (ref. corp. manual ch.2)

0.5.2 Operations Manual Basis

Nesma Airlines provides commercial air transportation and hence it ensures that all parts of Operations Manuals must be prepared in accordance with the requirements given in ECARs Part
121. In addition, the Operations Manuals shall also contain the applicable National rules and regulations as well as applicable ICAO Standards and Procedures as far as they apply.
The Operations Manual directs and guides the conduct of all relevant operation duties within Nesma Airlines in order to assure Safe, Economic and Effective conduct of all Flight Operations activities.
The Operations Manuals are published in English, which is recognized operating language of Nesma Airlines.
Note: As the matter of simplicity, the Male gender is used throughout Operations Manuals, but the contents apply as well to Female as to Male employees of Nesma Airlines.
Human Factors principles shall be observed in the design of Operations Manuals, in order to create a high degree of user friendliness and shall be achieved by:

- Clearly laid out policies and procedures, checklists and other guidance or information necessary for compliance with applicable regulations, laws, rules and Nesma Airlines standards;
- Providing a comprehensive Table of Contents;
- Discouraging the repetition of information;
- Providing cross-references;
- Providing a comprehensive Index;
- Being easily accessible; and
- Being responsive to the end user by encouraging all manual holders to provide feedback on any errors or anomalies contained within.

0.5.3 Operations Manuals Structure and Content

The **Operations Manual** consists of the following parts:

Part A: General / Basic (Operations Manual or Flight Operations Manual –'OM-A')

Part A defines all non-type and some type related operational policies, procedures, instructions and guidance necessary for Nesma Airlines flight operations personnel to perform their duty and needed for a safe operation. Part A is made of this Operations Manual.

In case of Operations Manual Part B, Nesma Airlines exclusively utilizes the manufacturer's checklist and procedures. Should there be a requirement to customize any checklist and procedures, Nesma Airlines shall ensure that such customization is based on operational considerations and be controlled in accordance with the 'Documentation and Records Management' process detailed in the Document Control Procedure Manual.

OM- Part A divided into four volumes as follow:

<u>Volume 1</u>: Flight Operations Manual.

<u>Volume 2</u>: Operational Control& Flight Dispatch Manual. (OCDM)

<u>Volume 3</u>: Stations Operations Manual. (SOM)

<u>Volume 4:</u> Cabin Crew Manual (CCM)

Part B: Airplane Operating Matters (Aircraft Operations Manual – AOM 'OM-B')

Part B comprises all type-related instructions and procedures needed for a safe operation. It takes account of any differences between types, variants or individual aircraft used by Nesma Airlines, if any.

Material produced by Nesma Airlines for this Part is supplemented or substituted by applicable parts of the following manuals for the operated aircraft:

- Airplane Flight Manual (AFM) including the Configuration Deviation List (CDL) and Applicable Airworthiness Directives (AD).
- Customized Minimum Equipment List (CMEL).
- Flight Crew Operating Manual (FCOM)
- Quick Reference Handbook(QRH)
- Weight and Balance Manual (WBM).
- Flight Crew Techniques Manual (FCTM)

Part C: Route and Airport Instructions and Information ('OM-C')

Part C comprises all instructions and information needed for the area of operation.

Material produced by Nesma Airlines for this Part is supplemented or substituted by applicable Route Guide material produced by specialized professional company as follows:

- Jeppesen Airways Manual including airport/En-route data/charts and applicable ICAO annex's
- National AIP's and relevant NOTAM's

Part D: Training ('OM-D')

Part D comprises all training instructions as required by Egyptian CAA.

All flight crewmembers will have their personal digital controlled copy of the Operations Manual OM-A volume 1 and OM-B. All other operations personnel will have easy access to the parts relevant to their respective duties.

The Authority has been provided with a controlled copy of the Operations Manual and received all the amendments and revisions.

All operating staff is required to adhere to instructions laid down in this manual and any deviations should be reported, the reasons for such deviation being given.

Nothing contained in the Operations Manual shall keep personnel from exercising their own best judgment during any irregularity for which the Operations Manual gives no provisions or emergencies.
Should any individual consider that all or any part(s) of a procedure or instruction requires to be amended, he should notify Operations (through 'Amendment Request Form', refer to Chapter 13 Forms)

0.5.4 Editorial Convention

- For conciseness, the pronoun "he" is used throughout the text. Where appropriate, "she" should be added to or substituted for "he"
- When used in the Operations Manual, the following terms shall have the following meaning:
  - “**Shall**”, "**will**", "**must**" or an action verb in the imperative sense means that the application of a rule or procedure or provision is mandatory.
  - “**Should**” means that the application of a procedure or provision is recommended.
  - “**May**” means that the application of a procedure or provision is optional.
  - “**No person may...**” or “a person may not...” mean that no person is required, authorized, or permitted to do the act concerned.
  - "**Approved**" means the Authority has reviewed the method, procedure or policy in question and issued a formal written approval.
  - "**Acceptable**" means the Authority or the airline has reviewed the method, procedure or policy and has neither objected to nor approved its proposed use or implementation.
  - "**Prescribed**" means the Authority or the airline has issued a written policy or methodology which imposes either a mandatory requirement, if it states “shall", "**will**"
  - "**Must**" or an action verb in the imperative sense, are commended requirement if it states "should" or a discretionary requirement if it states "may".
  - "**Note**" is used when an operating procedure, technique, etc., is considered essential to be emphasized.
  - "**Caution**" is used when an operating procedure, technique, etc., may result in damage to equipment if not carefully followed.
  - "**Warning**" is used when an operating procedure, technique, etc., may result in personnel injury or loss of life if not carefully followed.

0.5.5 Operations Manual Priority

The procedures and instructions contained in the Operations Manuals are based on the latest technical data and accumulated operational experience at the time of publication. They have been established to plan and execute commercial air transport flights in accordance with policies and regulations.
When a conflict exists between Operations Manuals concerning operational policy or procedural matters, the Operations Manual Part A, volume 1 shall take precedence over all others but does not supersede or amend Nesma Airlines aircraft type documentation or any other approved documentation.

0.5.6 Acronyms

AAL	Above Aerodrome Level	**AC**	Advisory Circular, Alternating Current
ABM	Abeam	**A/C**	Aircraft
AC	Advisory Circular, Alternating Current	**ACARS**	ARINC Communication Addressing and Reporting System
A/C	Aircraft.	**ACAS**	Airborne Collision Avoidance System
ACARS	ARINC Communication Addressing and reporting System	**ACJ**	Advisory Circular Joint
ACAS	Airborne Collision Avoidance System	**ACMS**	Aircraft Condition Monitoring System
ACJ	Advisory Circular Joint	**ACN**	Aircraft Classification Number
ACMS	Aircraft Condition Monitoring System	**AD**	Airworthiness Directive
ACN	Aircraft Classification Number	**ADC**	Air Data Computer
AD	Airworthiness Directive	**ADD**	Acceptable Deferred Defect
ADC	Air Data Computer	**ADI**	Attitude Director indicator
ADD	Acceptable Deferred Defect	**ADIRS**	Air Data Inertial Reference System
ADI	Attitude Director indicator	**ADF**	Automatic Direction Finder
ADIRS	Air Data Inertial Reference System	**ADS**	Automatic Dependent Surveillance
ADF	Automatic Direction Finder	**ADV**	Advisory
ADS	Automatic Dependent Surveillance	**AEA**	Association of European Airlines
ADV	Advisory	**AFM**	Airplane Flight Manual
AEA	Association of European Airlines	**AFM**	Automatic Flight System
AFM	Airplane Flight Manual	**AFTN**	Aeronautical Fixed Telecommunication Network
AFS	Automatic Flight System	**AGL**	Above Ground Level
AFTN	Aeronautical Fixed Telecommunication Network	**AH**	Alert Height
AGL	Above Ground Level	**AIP**	Aeronautical Information Publication
AH	Alert Height	**AIRS**	Aircrew Incident reporting System
AIP	Aeronautical Information Publication	**AIS**	Aeronautical Information Service
AIRS	Aircrew Incident reporting System	**ALS**	Approach Light System
AIS	Aeronautical Information Service	**ALT**	Altitude
ALS	Approach Light System	**ALTN**	Alternate
ALT	Altitude	**AMC**	Acceptable Means of Compliance
ALTN	Alternate	**AMJ**	Advisory Material Joint
AMC	Acceptable Means of Compliance	**AMM**	Aircraft Maintenance Manual
AMJ	Advisory Material Joint	**AMSL**	Above Mean Sea Level
AMM	Aircraft Maintenance Manual	**AOA**	Angle Of Attack
AMSL	Above Mean Sea Level	**AOC**	Air Operator Certificate
AOA	Angle Of Attack	**AOC**	Airline Operations Communications

AOC	Air Operator Certificate	**AOG**	Aircraft On Ground
AOC	Airline Operations Communications	**AOM**	Airplane Operations Manual
AOG	Aircraft On Ground	**AOT**	All Operators Telex
AOM	Airplane Operations Manual	**A/P**	Auto-Pilot
AOT	All Operators Telex	**APA**	Accident Prevention Adviser
A/P	Auto-Pilot	**APQ**	Airline Pre-qualification
APA	Accident Prevention Adviser	**APU**	Auxiliary Power Unit
APQ	Airline Pre-qualification	**ARINC**	Aeronautical Radio Inc.
APU	Auxiliary Power Unit	**ARPT**	Airport
ARINC	Aeronautical Radio Inc.	**ASAP**	As Soon As Possible
ARPT	Airport	**ASDA**	Accelerate-Stop Distance Available
ASAP	As Soon As Possible	**ASI**	Air Speed Indicator
ASDA	Accelerate-Stop Distance Available	**ASR**	Airport Surveillance Radar
ASI	Air Speed Indicator	**ASR**	Air Safety Report
ASR	Airport Surveillance Radar	**ASU**	Air Starter Unit
ASR	Air Safety Report	**ATA**	Actual Time of Arrival
ASU	Air Starter Unit	**ATA**	Aeronautical Transport Association
ATA	Actual Time of Arrival	**ATC**	Air Traffic Control
ATA	Aeronautical Transport Association	**ATD**	Actual Time of Departure
ATC	Air Traffic Control	**ATHR**	Auto-thrust
ATD	Actual Time of Departure	**ATIS**	Automatic Terminal Information Service
ATHR	Auto-thrust	**ATM**	Air Traffic Management
ATIS	Automatic Terminal Information Service	**ATN**	Aeronautical Telecommunication Network
ATM	Air Traffic Management	**ATPL**	Airline Transport Pilot License
ATN	Aeronautical Telecommunication Network	**ATS**	Air Traffic Services
ATPL	Airline Transport Pilot License	**ATS**	Auto Thrust System
ATS	Air Traffic Services	**ATSU**	Air Traffic Services Unit
ATS	Auto Thrust System	**ATT**	Attitude
ATSU	Air Traffic Services Unit	**AVGAS**	Aviation Gasoline
ATT	Attitude	**AWO**	All Weather Operations
AVGAS	Aviation Gasoline	**AWY**	Airway
AWO	All Weather Operations	**CMS**	Crew Management System
AWY	Airway	**CMSM**	Crew Management System Manual
EEP	ETOPS Entry Point	**GPWS**	Ground Proximity Warning System
EFIS	Electronic Flight Instrument System	**GS**	Ground Speed
EFOB	Estimated Fuel On Board	**G/S**	Glide Slope
EGPWS	Enhanced GPWS	**GW**	Gross Weight
EGT	Exhaust Gas Temperature	**H**	Hour
EIS	Electronic Instrument System	**HDG**	Heading

ELEC	Electrical	**HF**	High Frequency (3 to 30 MHz)
ELEV	Elevator, Elevation	**HF**	Human Factors
ELT	Entry Level Training	**HG**	Mercury
ELT	Emergency Locator Transmitter	**HI**	High (altitude or intensity)
EMER	Emergency	**HIALS**	High Intensity Approach Light System
ENG	Engine	**HIL**	Holding Items List
EFB	Electronic Flight Bag	**HIRL**	High Intensity Runway Lights
ENGG	Engineering	**HMU**	Height Monitoring Unit
EO	Engine Out	**HP**	High Pressure
EOSID	Engine Out SID	**HPA**	hector Pascal
EPR	Engine Pressure Ratio	**HSI**	Horizontal Situation Indicator
EST	Estimated	**HUD**	Head Up Display
ETA	Estimated Time of Arrival	**HYD**	Hydraulic
ETD	Estimated Time of Departure	**HZ**	Hertz (cycles per second)
ETOPS	Extended Twin Engine Operations	**IAF**	Intermediate Approach Fix
ETP	Equip-Time Point	**IAP**	Instrument Approach Procedure
EUROCAE	European Organization for Civil Aviation Equipment	**IAS**	Indicated Air Speed
EXP	Exit Point (ETOPS)	**IATA**	International Air Transport Association
EXT	External	**ICAO**	International Civil Aviation Organization
F	Fahrenheit	**ID**	Identity (Number)
FAA	Federal Aviation Administration	**IDENT**	Identification
FADEC	Full Authority Digital Engine Control	**IDG**	Integrated Drive Generator
FAF	Final Approach Fix	**IEM**	Interpretation/Explanation Material
		IFS	In-flight services
FANS	Future Air Navigation System	**IFR**	Instrument Flight Rules
FAP	Final Approach Point	**IFSD**	In-Flight Shut Down
FAR	Federal Aviation Regulations	**IFTB**	In-Flight Turn Back
FBS	Fixed Base Simulator	**IL**	Information Leaflet
F/C	Flight Crew	**ILS**	Instrument Landing System
FCL	Flight Crew Licensing	**IMC**	Instrumental Meteorological Conditions
FCOM	Flight Crew Operating Manual	**in, IN**	Inch(ES)
FCTM	Flight Crew Training Manual	**INFO**	Information
FCU	Flight Control Unit	**INIT**	Initialization
FD	Flight Director	**INOP**	Inoperative
FF	Fuel Flow	**INS**	Inertial Navigation System
FFS	Full Flight Simulator	**IOE**	Initial Operating Experience
FIR	Flight Information Region	**IRS**	Inertial Reference System
FL	Flight Level	**ISA**	International Standard Atmosphere
FLT	Flight	**ISO**	International Standard Organization
FM	Flight Manual	**ISA**	International Standard Atmosphere
FMA	Flight Mode Annunciator	**JAA**	Joint Aviation Authorities
FMGS	Flight Management and Guidance System	**JAR**	Joint Aviation Regulations
FMGES	Flight Management, Guidance and (flight)	**kg, KG**	kilogram

Envelope	(protection) System	**kHz**	kilohertz
FMS	Flight Management System	**km, KM**	kilometer
F/O	First Officer	**kt, KT**	knot
FOB	Fuel On Board	**l, L**	Littre
FOD	Foreign Object Damage	**LAT**	Latitude
FOM	Flight Operations Manual	**lb**	pound (weight)
FOQA	Flight Operations Quality Assurance	**LCD**	Liquid Crystal Display
FOT	Flight Operations Telex	**LCN**	Load Classification Number
F-PLN	Flight Plan	**LDA**	Landing Distance Available
FPV	Flight Path Vector	**LDG**	Landing
FQI	Fuel Quantity Indication	**LEP**	List of Effective Pages
ft, FT	Foot (Feet)	**L/G**	Landing Gear
FTL	Flight Time Limitation	**LH**	Left Hand
FU	Fuel Used	**LLZ**	Localizer
FWD	Forward	**LO**	Low
g, G	Gram	**LOAS**	Line Operations Assessment System
GA	Go Around	**LOC**	Localizer
GEN	Generator	**LOFT**	Line Oriented Flight Training
GLONASS	Global Orbiting Navigation Satellite System	**LONG**	Longitude
GMT	Greenwich Mean Time	**LOVT**	Low Visibility Takeoff
GMU	GPS (height) Monitoring Unit	**LP**	Low Pressure
GNLU	Global Navigation and Landing Unit	**LPC**	Less Paper Cockpit (Airbus concept)
GNSS	Global Navigation Satellite System	**LRNS**	Long Range Navigation System
GPS	Global Positioning System	**LROPS**	Long Range Operations
GPU	Ground Power Unit	**LRU**	Line Replaceable Unit
LSK	Line Select Key	**SAE**	Society of Automotive Engineers
LVL	Level	**SARPS**	Standards And Recommended Practices
LVP	Low Visibility Procedures	**SAT**	Static Air Temperature
LVTO	Low Visibility Take-Off	**SATCOM**	Satellite Communication
LW	Landing Weight	**SATVOICE**	Satellite Voice Communication
M	Mach	**SB**	Service Bulletin
m, M	meter	**SEL**	Selector
MABH	Minimum Approach Break off Height	**SELCAL**	Selective Calling
MAC	Mean Aerodynamic Chord	**SFE**	Seller Furnished Equipment
MAG	Magnetic	**SI**	International System of units
MAINT	Maintenance	**SID**	Standard Instrument Departure
MAN	Manual	**SIGMET**	Significant Meteorological report
MAP	Missed Approach Point	**SIL**	Service Information Letter
MASPS	Min. Aviation Systems Performance Standards	**SITA**	Société Int. de Telecomm. Aéronautiques
MAX	Maximum	**SOP**	Standard Operating Procedures
mb,	MB Millie-bar	**SOPAC**	South Pacific
MBOH	Minimum Break Off Height	**SPECI**	Aviation selected special weather report

MCC	Multiple Crew Co-operation	**SPD**	Speed
MCC	Maintenance Control Centre	**SRA**	Surveillance Radar Approach
MCDU	Multipurpose Control and Display Unit	**SRE**	Survey. Radar Element of precision approach
MCT	Maximum Continuous Thrust	**SSR**	Secondary Surveillance Radar
MDA/H	Minimum Descent Altitude / Height	**STAR**	Standard Terminal Arrival Route
MEL	Minimum Equipment List	**STD**	Standard
MET	Meteorological	**STS**	Status
METAR	Meteorological Aerodrome Report	**SYS**	System
MFF	Mixed Fleet Flying	**t, T**	Ton, Tone, Temperature
MHz	Megahertz	**TA**	Traffic Advisory
MID	Middle Runway Portion	**TACAN**	Tactical Air Navigation
MIALS	Medium Intensity Approach Light System	**TAF**	Terminal Aerodrome Forecast
MIN	Minimum, Minute	**TAS**	True Air Speed
MIRL	Medium Intensity Runway Light	**TAT**	Total Air Temperature
MLS	Microwave Landing System	**TAWS**	Terrain Awareness and Warning System
MLW	Maximum Landing weight	**TBC**	To Be Confirmed
mm, MM	Millimeter	**TBD**	To Be Determined/Defined
MME	Maintenance Management Exposition	**TCAS**	Traffic alert and Coll. Avoidance System
MMEL	Master Minimum Equipment List	**TDZ**	Touch Down Zone
MMO	Maximum Operating Mach	**TEMP**	Temperature
MMR	Multi-Mode Receiver	**TEMPO**	Temporary
MNPS	Min. Navigation Performance Specification	**TERPS**	(US) St. for Terminal Instrument Procedures
MOCA	Minimum Obstruction Clearance Altitude	**TFU**	Technical Follow-Up
MOE	Maintenance Organization Exposition	**THR**	Thrust
MOR	Mandatory Occurrence Reporting	**THS**	Trimble Horizontal Stabilizer
		TK	Tank
MORA	Minimum Off-Route Altitude	**TLA**	Thrust Lever Angle
MRVA	Minimum Radar Vectoring Altitude	**TMA**	Terminal Maneuvering Area
MSA	Minimum Safe (or Sector) Altitude	**T/O**	Take-Off
MSG	Message	**TOC**	Top Of Climb
MSL	Mean Sea Level	**TOD**	Top Of Descent
MSN	Manufacturer's Serial Number	**TODA**	Take-Off Distance Available
MTBF	Mean Time Between Failure	**TOGA**	Take-Off/Go-Around
MTOW	Maximum Take Off Weight	**TOGW**	Take-Off Gross Weight
MWE	Manufacturer's Weight Empty	**TORA**	Take-off Run Available
MZFW	Maximum Zero Fuel Weight	**TOW**	Take-Off Weight
N/A	Not Applicable	**TR**	Temporary Revision
NAI	Nacelle Anti Ice	**TRE**	Type Rating Examiner
NAT	North Atlantic	**TRI**	Type Rating Instructor
NAV	Navigation	**TRK**	Track
NAVAID	(Radio) Navigation Aid	**TRTO**	Type Rating Training Organization
NCD Non	Computed Data	**TWR**	Tower

ND	Navigation Display	**TWY**	Taxiway
NDB	Non Directional Beacon	**UHF**	Ultra High Frequency (300 - 3000 MHz)
NIL	No Item Listed (Nothing)	**UIR**	Upper Information Region
NM	Nautical Miles	**ULD**	Unit Load Device
NORM	Normal	**UM**	Unaccompanied Minor
NOPAC	North Pacific	**US**	United States
NOTAM	Notice To Airmen	**U/S**	Unserviceable
NOTOC	Notice To Crew	**UTC**	Universal Time Co-ordinated
NPA	Non Precision Approach	**V**	Volt
NTO	NO Technical Objection	**V1**	Critical engine failure speed
OAT	Outside Air Temperature	**V2**	T/O safety speed
OBRM	On Board Replaceable Module	**VAPP**	Final Approach Speed
OCA/H	Obstacle Clearance Altitude / Height	**VASI**	Visual Approach Slope Indicator
OCC	Operational Control Centre	**VDF**	Very high frequency Direction Finding
OCDM	Operational Control & Flight Dispatch Manual.	**VOR**	VHF Omni-directional Range
OEB	Operations Engineering Bulletin	**VDR**	Very high frequency Data Radio
OEW	Operating Empty Weight	**VFE**	Maximum Velocity Flaps/slats Extended
OIT	Operator Information Telex	**VR**	Rotation speed
OM	Outer Marker	**VREF**	Landing reference speed
OM	Operations Manual	**VS**	Stall speed
ONC	Operational Navigation Chart	**V/S**	Vertical Speed
OPS	Operations	**VSI**	Vertical Speed Indicator
OPT	Optimum	**WAI**	Wing Anti Ice
OTS	Oceanic Track System	**WBM**	Weight and Balance Manual
OXY	Oxygen	**WGD**	Windshield Guidance Display
PA	Passenger Address	**WGS**	World Geodetic System
PAC	Pacific	**WPT**	Waypoint
PACOTS	Pacific Oceanic Track System	**WX**	Weather
PANS	Procedures for Air Navigation Services	**WXR**	Weather Radar
PAPI	Precision Approach Path Indicator	**XCVR**	Transceiver
PAR	Precision Approach Radar	**XFR**	Transfer
PAX	Passenger	**XMTR**	Transmitter
PB	Pushbutton	**XTK**	Cross track error
PCN	Pavement Classification Number	**Z**	Zulu time (UTC)
PERF	Performance	**ZFCG**	Zero Fuel Centre of Gravity
PF	Pilot Flying	**ZFW**	Zero Fuel Weight
PFD	Primary Flight Display		
PIREP	Pilot Report		
PIC	Pilot In Command		
P/N	Part Number		
PNR	Point of No Return		
PM	Pilot Monitor		
PM	Position		
PROC	Procedure		

PROF	Profile		
PPR	Prior Permission Required		
PSI	Pounds per Square Inch		
PT	Point		
PTS	Polar Track System		
PVI	Para visual Indicator		
PWR	Power		
QA	Quality Assurance		
QAR	Quick Access Recorder		
QDM	Magnetic bearing to facility		
QDR	Magnetic bearing from facility		
QFE	Field elevation atmosphere pressure		
QFU	Magnetic orientation of runway		
QGH	Procedure or facility to be used		
QNE	Sea level St. atmosphere (1013 hPa or 29.92" Hg)		
QNH	Sea level atmosphere pressure		
QRH	Quick Reference Handbook		
RA	Radio Altitude/Radio Altimeter		
RA	Resolution Advisory		
RAIM	Receiver Autonomous Integrity Monitoring		
RAS	Repair Approval Sheet		
RAT	Ram Air Turbine		
REF	Reference		
REV	Reverse		
RH	Right Hand		
R/I	Radio Inertial		
RMI	Radio Magnetic Indicator		
RNAV	Area Navigation		
RNP	Required Navigation Performance		
RPL	Repetitive flight plan		
RPM	Revolutions Per Minute		
RQRD	Required		
RSV	Reserves		
RTA	Required Time of Arrival		
RTCA	Requirements and Technical Concepts for Aviation		
RTO	Rejected Take Off		
RTOW	Regulatory Take Off Weight		
RVR	Runway Visual Range		
RVSM	Reduced Vertical Separation Minima		
RWY	Runway		
VFR	Visual Flight Rules		
VFTO	Velocity Final T/O		
VHF	Very High Frequency (30 - 300 MHz)		

VMC	Visual Meteorological Conditions		
VMCA	Minimum Control Speed in the Air		
VMCG	Minimum Control Speed on Ground		
VMIN	Minimum operating speed		
VMO	Maximum operating speed		

0.5.7 Definitions

- **Accountable Executive**: The person acceptable to the Authority who has corporate authority for insuring 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 operator.
- **Accelerate-Stop Distance Available**: The length of the takeoff run available plus the length of stop way, if such stop way is declared available by the appropriate Authority and is capable of bearing the mass the airplane under the prevailing operating conditions
- **Aerodrome:** 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.
- **Aerodrome elevation**: The elevation of the highest point of the landing area.
- **Aeronautical Information Publication**: A publication issued by or with the authority of a State and containing aeronautical information of a lasting character essential to air navigation.
- **Aeronautical Information Circular (AIC):** A notice containing information that does not qualify for the origination of a NOTAM or for inclusion in the AIP, but which relates to flight safety, air navigation, technical, administrative or legislative matters.
- **AIRAC:** An acronym (aeronautical information regulation and control) signifying a system aimed at advance notification, based on common effective dates, of circumstances that necessitate significant changes in operating practices.
- **Aircraft (Airplane) Flight Manual**: A manual, associated with the certificate of airworthiness, containing limitations within which the aircraft is to be considered airworthy, and instructions and information necessary to the flight crewmembers for the safe operation of the aircraft.
- **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.
- **Airline Pre-Qualification (APQ)**: Training course designed to prepare pilots transition into advanced technology aircraft.
- **Air Operator Certificate (AOC)**: A certificate authorizing an operator to carry out specified commercial air transport operations
- **Air proximity incident**: A situation in which, in the opinion of a pilot or controller, the distance between aircraft as well as their relevant positions and speed have been such that the safety of the aircraft involved was or may have been compromised.
- **Air traffic**: All aircraft in flight or operating on the maneuvering area of an aerodrome.
- **Air Traffic Control**: A service that promotes the safe, orderly, and expeditious flow of air traffic at aerodromes and during the approach, departure, and en route environments.
- **Air traffic control clearance**: Authorization for an aircraft to proceed under conditions specified by an air traffic control unit.
- **Air traffic control instruction**: Directives issued by air traffic control for the purpose of requiring a pilot to take a specific action.
- **Air traffic control service**: A service provided for the purpose of preventing collisions between aircraft, and on the maneuvering area between aircraft and obstructions, Expediting and maintaining an orderly flow of air traffic.

- **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 aerodrome control service).
- **Airway**: A control area or portion thereof established in the form of a corridor equipped with radio navigation aids.
- **Airworthiness release**: A certification signed by a licensed mechanic authorized by the AOC holder indicating that work was performed in accordance with the AOC holder's maintenance manual, was inspected by licensed mechanic, and the aircraft was found satisfactory for safe operation.
- **Alerting service**: A service provided to notify appropriate organizations regarding aircraft in need of search and rescue aid, and assist such organizations as required.
- **Alternate aerodrome**: An aerodrome to which an aircraft may proceed when it becomes either impossible or inadvisable to proceed to or to land at the aerodrome of intended landing. Alternate aerodromes include the following:
  <u>Take-off alternate:</u> An alternate aerodrome at which an aircraft can land should this become necessary shortly after take-off and it is not possible to use the aerodrome of departure.
  <u>En-route alternate</u>: An aerodrome at which an aircraft would be able to land after experiencing an abnormal or emergency condition while en route.
  <u>Destination alternate:</u> An alternate aerodrome to which an aircraft may proceed should it become impossible or inadvisable to land at the aerodrome of intended landing.
  Note: The aerodrome from which a flight departs may also be an en-route or a destination alternate aerodrome for that flight.
- **Altitude**: The vertical distance of a level, a point or an object considered as a point, measured from mean sea level.
- **Appropriate authority**: (see also Authority)
  - Regarding flight over the high seas: the relevant authority of the State of Registry.
  - Regarding flight other than over the high seas: the relevant authority of the State having sovereignty over the territory being over flown.
- **Approved**: The Authority has reviewed the method, procedure or policy in question and issued a formal written approval.
- **Apron**: A defined area, on a land aerodrome, intended to accommodate aircraft for purposes of loading or unloading passengers, mail or cargo, fueling, parking or maintenance.
- **Aquaplaning**: is a situation where the tires of the aircraft are largely separated from the runway surface by a thin fluid film.
- **ATS route**: A specified route designed for channeling the flow of traffic as necessary for the provision of air traffic services.
  Note: The term "ATS route" is used to mean variously, airway, advisory route, controlled or uncontrolled route, arrival or departure route, etc.
- **Authority**: The competent body responsible for the safety of civil aviation in the state of the applicant or operator.
- **Base training**: Flight training required by Airworthiness Authorities to obtain the aircraft type rating.
- **Braking action**: a report on the conditions of the airport movement areas, providing pilots the quality or degree of braking that may be expected. Braking action is reported in terms of good, medium to good, medium, medium to poor, poor, and nil or unreliable.

- **Calendar day**: The period of elapsed time, using Co-ordinate Universal Time or local time, that begins at midnight and ends 24 hours later in the next midnight
- **Cabin attendant**: A crewmember who performs, in the interest of safety of passengers, duties assigned by the operator or the Pilot in Command of the aircraft, but who shall not act as a flight crewmember.
- **Certifying staff**: Those personnel who are authorized by the Approved Maintenance Organization in accordance with a procedure acceptable to the Authority to certify aircraft or aircraft components for release to service.
- **Circling**: The visual phase of an instrument approach to bring an aircraft into position for landing on a runway, which is not suitably located for a straight-in approach.
- **Civil aircraft**: Any aircraft on the civil register of a state, other than those which that state treats as being in the service of the state, either permanently or temporarily.
- **Commercial air transport operation**: An aircraft operation involving the transport of passengers, cargo or mail for remuneration or hire.
- **Contaminated runway**: A runway is considered to be contaminated when more than 25% of the runway surface area (whether in isolated areas or not) within the required length and width being used is covered by the following:
  - Surface water more than 3 mm (0.125 in) deep, or by slush, or loose snow, equivalent to more than 3mm (0.125 in) of water; or
  - Snow which has been compressed into a solid mass which resists further compression and will hold together or break into lumps if picked up (compacted snow); or
  - Ice, including wet ice
- **Contingency fuel**: A quantity of fuel carried to compensate for items such as:
  - Deviations of an individual Airplane from expected fuel consumption data
  - Deviations from forecast meteorological conditions
  - Deviations from planned routings and/or cruising levels/altitude
- **Co-pilot**: Pilot serving in any piloting capacity other than as pilot in command, but excluding a pilot who is on board the aircraft for the sole purpose of receiving flight instruction for a license or rating.
- **Course**: A program of instruction to obtain an airman license, rating, qualification, authorization, or currency.
- **Crewmember**: A person assigned by an operator to duty on an aircraft during flight time.
- **Crew Resource Management (CRM)**: A program designed to improve the safety of flight operations by optimizing the safe, efficient, and effective use of human resources, hardware, and information through improved crew communication and co-ordination.
- **Critical phases of flight**: Those portions of operations involving taxiing, takeoff and landing, and all flight operations below 10,000 feet, except cruise flight
- **Cross Crew Qualification (CCQ)**: An Airbus Industry term for applying the concepts of FAA AC 120-53 to related aircraft type like the A320, A330, and A340. The term is intended to provide for the carryover of credit from one aircraft type to another based on the common design characteristics, and if applicable to transition between types as well as mixed fleet flying of different types of aircraft.
- **Cruising level**: A level maintained during a significant portion of a flight.

- **Damp runway**: A runway is considered damp when the surface is not dry, but when the moisture on it does not give it a shiny appearance.
- **Dangerous good:** Articles or substances that are capable of posing significant risk to health, safety or property when transported by air, which are classified according to ICAO Technical Instructions.
- **Deadhead Transportation**: Time spent in transportation on aircraft (at the insistence of the AOC holder) to or from a crewmember's home station
- **Decision altitude/height (DA/DH)**: A specified altitude or height (A/H) in the precision approach at which missed approach must be initiated if the required visual reference to continue the approach has not been established.
  Note 1: "Decision altitude (DA)" is referenced to mean sea level (MSL) and "decision height (DH)" is referenced to the threshold elevation.
  Note 2: The "required visual reference" means that section of the visual aids or of the approach area that should have been in view for sufficient time for the pilot to assess the aircraft position and rate of change of position, in relation to the desired flight path.
- **Dry lease**: Is when the airplane is operated under the AOC of the lessee.
- **Dry runway**: A dry runway is one which is neither we nor contaminated, and includes those paved runways which have been specially prepared with grooves or porous pavement and maintained to retain "effectively dry "braking action even when moisture is present.
- **Electronic Flight Bag**: an electronic information management device that helps flight crews perform flight management tasks more easily and efficiently with less paper.
- **Elevation**: The vertical distance of a point or a level, on or affixed to the surface of the earth measured from mean sea level.
- **Exemption**: A formal authorization issued by the Authority providing relief from part or all of the provisions of the EGYPTIAN CAA. The authorization may or may not be conditional
- **Extended over-water operation**: An overwater operation at a horizontal distance further than 50 NM from the nearest shoreline.
- **Fail-Operational flight control system**: A flight control system is fail-operational if, in the event of a failure below alert height, the approach, flare and landing, can be completed automatically. In the event of a failure, the automatic landing system will operate as a fail-passive system.
- **Fail-Passive flight control system**: A flight control system is fail-passive if, in the event of a failure, there is no significant out-of-trim condition or deviation of flight path or attitude but the landing is not completed automatically. For a fail-passive automatic flight control system the pilot assumes control of the airplane after a failure.
- **Filed flight plan**: The flight plan as filed with an ATS unit by the pilot or his designated representative, without any subsequent changes.
  Note: When the word "message" is used as a suffix to this term, it denotes the content and format of the filed flight plan data as transmitted.
- **Final reserve fuel**: An amount of fuel for all turbine powered airplanes, calculated to fly 30 minutes at holding speed at 1500 ft. above the aerodrome elevation in standard conditions, calculated with the estimated mass on arrival at the alternate or the destination, when no alternate is required.
- **Flight control system**: A system which includes an automatic landing system
- **Flight crewmember**: A licensed crewmember charged with duties essential to the operation of an aircraft during flight time.

- **Flight level**: A surface of constant atmospheric pressure which is related to a specific pressure datum, 1013.2hectopascals (hPa), and is separated from other such surfaces by specific pressure intervals.
  Note 1: A pressure type altimeter calibrated in accordance with the Standard Atmosphere:
  – When set to QNH altimeter setting, will indicate altitude
  – When set to QFE altimeter setting, will indicate height above the QFE reference datum
  – When set to a pressure of 1013.2 hectopascals (hPa) may be used to indicate flight levels.
  Note 2: The terms "height" and "altitude", used in Note 1 above, indicate altimetry rather than geometric heights and altitudes.
- **Flight plan**:
  – **ATC Flight Plan**: Specified information provided to air traffic services units, relative to an intended flight or portion of a flight of an aircraft.
  – **Operational flight plan**: The operator's plan for the safe conduct of the flight based on considerations of aircraft performance, other operating limitations, and relevant expected conditions on the route to be followed and at the aerodromes or heliports concerned.
- **Flow control**: Measures designed to adjust the flow of traffic into a given airspace, along a given route, or bound a given aerodrome, so as to ensure the most effective utilization of the airspace.
- **Friction coefficient**: Relationship between the friction force acting on the wheel and the normal force on the wheel. The normal force depends on the weight of the aircraft and the lift of the wings.
- **Glide path**: A descent profile determined for vertical guidance during a final approach.
- **Ground visibility**: The visibility at an aerodrome, as reported by an accredited observer.
- **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, measured from a specified datum.
- **Hydroplaning:** Refer to Aquaplaning
- **Infant**: A person who has not yet reached his second birthday.
- **Initial Operating Experience (IOE)**: Operational support given to pilots newly type rated. The objective of IOE is to improve the efficiency of pilots in revenue operation, route and airport qualification using only the Airbus or the airline approved documents: FCOM, MEL and OEBs
- **Inspection**: The examination of an aircraft or aeronautical product to establish conformity with a standard approved by the Authority.
- **Instrument approach procedure**: An instrument approach, or instrument approach procedure (IAP), is a series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the initial approach to a landing or to a point from which a landing may be made visually
- **Instrument meteorological conditions**: Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling, less than the minima specified for visual meteorological conditions.

- **JAA operator**: An operator certificated under Egyptian CAA–OPS by one of the JAA Member States.
- **Journey log** (**Voyage Report**): A form signed by the Pilot In Command of each flight that records the airplane's registration, crewmember names and duty assignments, the type of flight, and the date, place, and time of arrival and departure.
- **Low Visibility Procedures**: Procedures applied at an aerodrome for ensuring safe operations during Category II and III approaches and Low Visibility Takeoffs.
- **Low Visibility Take-Off:** A take-off where the Runway Visual Range (RVR) is less than 400 m.
- **Maintenance**: Tasks required ensuring the continued airworthiness of an aircraft or aeronautical product including any one or combination of overhaul, repair, inspection, replacement, modification, and defect rectification.
- **Maintenance release**: A document containing a certification that inspection and maintenance work has been performed satisfactorily in accordance with the methods prescribed by the Authority.
- **Missed approach procedure**: The procedure to be followed if the approach cannot be continued.
- **Net flight path**: Is a flight path determined for engine(s) failure case. It is established in such a manner that it represents the actual climb performance diminished by a gradient of climb of:
  - Take-off (one engine failure): 0.8 % for two-engine aircraft 0.9 % for three-engine aircraft1.0 % for four-engine aircraft
  - En-route (one engine failure): 1.1 % for two-engine aircraft 1.4 % for three-engine aircraft1.6 % for four-engine aircraft
  - En-route (two engine failure): 0.3 % for three-engine aircraft0.5 % for four-engine aircraft
- **Night**: The hours between the end of evening civil twilight and the beginning of morning civil twilight or such other period between sunset and sunrise. Civil twilight ends in the evening when the center of the sun’s disc is 6 degrees below the horizon and begins in the morning when the center of the sun's disc is 6degrees below the horizon.
- **Non-precision approach**: Instrument approach with lateral guidance only from the FAF to the runway environment. Descent limit is the MDA, and obstacle clearance (including go-around) is guaranteed if the approach is discontinued no farther than the MAP. Approaches with lateral guidance from localizer, VOR, NDB or GPS are considered non-precision approaches. Although often a helpful tool for lateral and vertical navigation during approach, FMS guidance is not a certified approach aid.
- **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
- **Obstacle clearance altitude/height (OCA/H)**: The lowest altitude (OCA), or alternatively the lowest height above the elevation of the relevant runway threshold or above the aerodrome elevation as applicable (OCH), used in establishing compliance with the appropriate obstacle clearance criteria.

- **Operational control**: The exercise of authority over the initiation, continuation, diversion or termination of a flight in the interest of the safety of the aircraft and the regularity and efficiency of the flight.
- **Operator**: A person, organization or enterprise engaged in or offering to engage in an aircraft operation.
- **Pilot Flying (PF)**: The pilot, who for the time being, is in charge of the controls of an aircraft.
- **Pilot-in-command**: 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 flight to another suitable qualified pilot.
- **Pilot Monitor (PM)**: The pilot who is assisting the pilot flying in accordance with the multi-crew co-operation concept, when the required flight crew is more than one.
- **Precision approach**: Instrument approach with lateral and vertical guidance from the FAP 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. ILS, MLS and PAR are considered precision approaches.
- **Pre-flight inspection**: The inspection carried out before flight to ensure that the aircraft is fit for the intended flight.
- **Pressure-altitude**: An atmospheric pressure expressed in terms of altitude, which corresponds to that pressure in the Standard Atmosphere.
- **Quality Assurance**: All those planned and systematic actions necessary to provide adequate confidence that operational and maintenance practices satisfy given requirements.
- **Quality System**: The organizational structure, responsibilities, procedures and resources for implementing quality management. (Refer to Chapter 3)
- **Rating**: An authorization entered on or associated with a license or certificate and forming part thereof, stating special conditions, privileges or limitations pertaining to such license or certificate.
- **Repair**: The restoration of an aircraft/aeronautical product to a serviceable condition in conformity with an approved standard.
- **Repetitive flight plan (RPL)**: A flight plan related to a series of frequently recurring, regularly operated individual flights with identical basic features, submitted by an operator for retention and repetitive use by ATS.
- **Reporting point**: A specified geographical location in relation to which the position of an aircraft can be reported.
- **Required Navigation Performance (RNP)**: A statement of the navigation performance accuracy necessary for operation within a defined airspace.
- **Runway**: A defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft.
- **Runway visual range**: The range over which the pilot of an aircraft on the center line of a runway can see the runway surface markings or the lights delineating the runway or identifying its centerline.
- **SIGMET information**: Information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified en-route weather phenomena that may affect the safety of aircraft operations.
- **Slush**: Water-saturated snow which with a heel-and-toe slap-down motion against the ground will be displaced with a splatter; specific gravity: 0.5 up to 0.8

- **Snow (on the ground):**
  - Dry snow: Snow which can be blown if loose or, if compacted by hand, will fall apart upon release; specific gravity: up to but not including 0.35.
  - Wet snow: Snow which, if compacted by hand, will stick together and tend to or form a snowball; specific gravity: 0.35 up to but not including 0.5.
  - Compacted snow: Snow which has been compressed into a solid mass that resists further compression and will hold together or break up into chunks if picked up; specific gravity:0.5 and over.
- **Stabilized approach**: An approach without speed and/or configuration changes during final descent.
- **Stabilized approach procedure**: An approach procedure along the extended runway centerline with a constant, in-flight verifiable descent gradient from the final approach altitude to the runway touchdown zone. Except for offset-localizer approaches, an ILS approach is inherently a stabilized approach procedure. On-precision approaches can be constructed as a stabilized approach procedure by choosing the FAF accordingly and by publishing a distance-versus-altitude (VOR+DME, NDB+DME, LOC+DME) or waypoint-versus-altitude table (GPS) to be able to verify adherence to the (imaginary) glide path.
- **Taxiing**: Movement of an aircraft on the surface of an aerodrome under its own power, excluding takeoff 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.
- **Technical log**: A document carried on an aircraft that contains information to meet ICAO requirements; a technical log contains at least two independent sections: a journey record section and an aircraft maintenance record section.
- **Threshold**: The beginning of that portion of the runway usable for 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).
- **Transition altitude**: The altitude at or below which the vertical position of an aircraft is controlled by reference to altitudes.
- **Transition level**: The lowest flight level available for use above the transition altitude.
- **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.
- **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.
- **Visual approach**: An approach when either part or all of an instrument approach procedure is not completed and the approach is executed with visual reference to the terrain.
- **Visual meteorological conditions**: Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling, equal to or better than specified minima.
- **Waypoint**: A specified geographical location used to define an area navigation route or the flight path of an aircraft employing area navigation.
- **Wet lease**: Is when the airplane is operated under the AOC of the lessor.

- **Wet runway:** A runway is considered wet when the runway surface is covered with water, or equivalent, less than or equal to 3 mm or when there is sufficient moisture on the runway surface to cause it to appear reflective, but without significant areas of standing water.

0.5.8 Synonyms

Due to the lack of standardization of terminology, the following list of synonyms cross-references the terms used in this manual with the terms that may be encountered in the operation. Word in the left-hand column is interchangeable with word(s) in the right hand column.

Term	Synonyms
A320	Airbus 320
Aerodrome	Airport
Aeroplane	Airplane, Aircraft
At The Same	Time Simultaneously
CAT I, II And III	Category I, II And III
Commander	Pilot-In-Command, Pilot In Command, PIC, CP, CPT, Cpt, Captain
Co-Pilot	Co-Pilot, First Officer, FO, F/O
Country	State
Crewmember	Crew Member
Data link	ACARS
Dead-Head	Flight Crew Member Travelling As Passenger, Proceeding En-Route Enroute, En Route
Evacuation Route	Emergency Escape Path
Flight Deck	Cockpit
Library	Technical Library For The Control Storage And Distributions Of Both Engineering And Operations Documentations.
Live Vest	Life Jacket
New Hire	Ready-Entry, Direct Entry
Operations Personnel	Flight Crew, Flight Dispatcher, Cabin Crew And Other Relevant Operations Staff.
Seat Belts	Safety Belts

0.6 System of Amendment and Revision

0.6.1 Amendments to the Operations Manual

Director of Operations is responsible for the issuance of amendments and revisions to this Operations Manual.
A revision service is provided for each manual. Amendments to the Operations Manual are normally promulgated by means of normal revisions issued whenever necessary to cover corrections and to add new data.
All amendments will be in the form of printed, replacement pages and/or Authorized Digital Copy. They are accompanied by filing instructions and an updated List of Effective Pages (LEP).
A brief outline of the purpose and the nature of each change are included in the transmittal sheet attached to each amendment.
A vertical bar in front of the line indicates any change in the text.
The contents of Operations Manual (OM) and the respective revisions shall be controlled and authorized by the Director Flight Operations.
All publications and/or revisions requiring an approval / acceptance by the ECAA shall be forwarded to them before publication by the Director Flight Operations. After receiving the approval/acceptance of the Authority, the publication shall be issued via the Operations Library to an authorized holder.
If time does not permit to achieve prior approval from the ECAA, information requiring immediate notification or safety related items will be issued without such approval.
In such cases the information is issued via a Temporary Revisions (TR) clearly indicating that this is of temporary nature and will be followed either by a permanent approved revision or will be withdrawn after a defined period. A list indicating the TRs issued and still enforce is kept with the Operations Library.

0.6.1.1 Manual Holder Responsibility

Each authorized holder of an Operations Manual or parts thereof is personally responsible that his copy is properly amended and/or revised. This is to be documented by filling in their vision record that is part of each copy. Unscheduled inspections shall be performed to verify compliance. Non-conformities shall be reported to the Director of Operations.
Certificates of amendments should be returned to the secretary Director of Operations as soon as amendments have been incorporated.
For the Digital Copy of the Operations Manual or part of it, each Manual Holder is responsible to destroy any old copies, which is previously dated before last revision date.

0.6.1.2 Manuals Distribution

Digital and electronic copies of the manuals are given precedence in case appropriate control procedures are present. In case manual distribution control cannot be done digitally/electronically, distribution of hardcopies shall be used.
The manuals including amendments or revisions are distributed to the authorized holders in accordance with the distribution list and in the relevant format (digital or printed). The Library shall be responsible to maintain an up-to-date list of manual holders together with their copy numbers and name/appointment as appropriate.
In order to exercise positive control of the manual distribution, each manual shall bear a numerical digit number and shall be registered within the Library.
Manual distribution using Distribution list form (F300) (refer to corporate manual) to the authorized users shall be carried out as expeditiously as possible. The normal notification and/or distribution is done via Flight Operations Library or via e-mail.

0.6.1.2.1 Operations Manuals Electronic Distribution

Electronic distribution of the Operations Manuals for relevant personnel may be used if unique electronic fingerprint is granted to each user. In this case, the platform used for distributing the manual shall have an assigned administrator whose responsibilities include:

- Prevent fraudulent access or alteration of content
- Maintain system security and assure uniqueness of fingerprints

Nesma Airlines' E-learning system allows the assignment and delivery of documents to all users, this feature will allow Nesma Airlines to use its E-learning portal to distribute Flight Operations Manuals in accordance with the security and administrative measures cited in OM-D, chapter 6. In such case, the operations technical office shall be responsible for assuring the delivery of the document to all relevant users in accordance with 1.6.2.3 Management and Control of Electronic Communication Tools.
Electronic manual distribution through E-learning system is given precedence; however, digital copies may also be distributed alongside. Email notification shall be sent to all concerned personnel requiring the view/download of the assigned document so it appears in the log file as a certificate of delivery. Documents shall be retained on the server until another revision of issue is uploaded. The notification email shall include the name of the manual, its revision date and effective date if applicable.
In case of system failure or inability to track users' digital or hard copies shall be distributed.
EFB operations, a digital copy shall be handed to the EFB administrator who is in charge of distributing the copy to the aircraft libraries

0.6.1.2.2 Outsourced Documents Receipt and Distribution

Manuals from original equipment manufacturer (OM-B), in Nesma Airlines case these documents are received from Airbus.
An online portal is used as a communication tool between Airbus and Nesma Airlines called "Airbus World". Through this tool, Nesma Airlines receives notifications regarding the latest manual updates, revisions or issues. Manuals are received from Airbus in both Portable Document Format (PDF) and/or eXtensible Mark-up Language (XML). Manufacturer manuals shall not be reproduced.
Once a manual is received, it shall be distributed through the same procedures illustrated in 0.6.1.2 Manuals Distribution and is distributed to EFB as illustrated in 8.12.6.2 Process of the Documentation.

0.6.1.3 Authorized Copies (Controlled Copies)

Hard Copies: Authorized hard copies shall be identified by "Controlled Document" Stamp on the Front Page.
Digital Copies: Authorized Digital copies shall be identified by "Controlled Document" Stamp on the Front Page of the digital copy.

0.6.1.4 Non-Authorized Copies (Uncontrolled copies)

Non-authorized copies shall not be used for the conduct of flight operations.

0.6.1.5 Handwritten Amendments

Hand-written amendments and revisions are not permitted except in situations requiring immediate amendment or revisions in the interest of safety.

0.6.1.6 Revisions

0.6.1.6.1 Normal Revisions

Issued periodically to cover non-urgent corrections, changes and/or to add new data. They are accompanied by Filing instructions and an updated List of Effective Pages (LEP).
A normal revision record sheet mentioning the issue date is provided in 0.2.7.

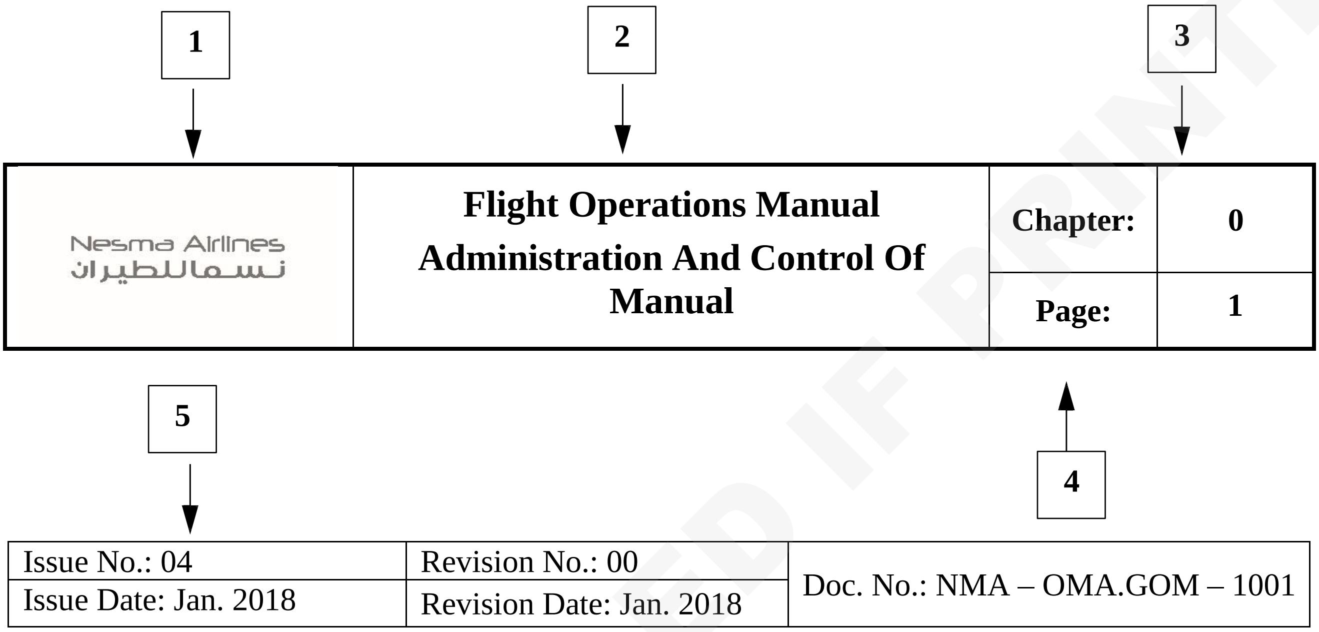
0.6.1.6.2 Temporary Revisions (TR)

Temporary revisions, printed on yellow paper are issued to cover urgent matters arising between normal revisions. They are accompanied by filing instructions.
A temporary revision record sheet is provided in 0.2.8.
Each change will be marked by a vertical **black line** at the left-hand side of such change.

0.6.2 Pagination

A vertical line indicates revised or newly published text on the pages. It will not be used to indicate format or page number changes. Editorial revisions e.g. spelling corrections may have revision bar with no associated highlights.

The header and footer of each page contains:



- **Header :**
  (1) : Nesma Airlines' Logo
  (2) : Name of manual and the Chapter title
  (3) : (At top) and Sub chapter title (at bottom).
  (4) : Chapter Number and Page Number.

- **Footer :**
  (5) : Date of issue in the left-hand corner; Revision number in the middle. The Date of Issue and revision indicates the actual date of effectivity of the published revision.
  (6) : Document Control Number.

0.6.3 Filing Instructions

Use the filing instructions as follows:
REMOVE: The page must be removed. It may be replaced by a new page if associated with an INSERT instruction. If not, the page is cancelled.
INSERT: The page must be inserted. If not associated with a REMOVE instruction, the page is new and does not replace an existing one

0.6.4 Comments - Questions - Suggestions

All manual holders and users are encouraged to forward their questions and suggestions using COMMENTS - QUESTIONS - SUGGESTIONS sheet provided at the end of the manual (See Forms chapter).

0.6.5 Flight Operations Manual Distribution List

Flight Operations Manual distribution list must be specified in this paragraph as well as the associated Flight Operations Manual number.

No.	Operations Manual Holders	Control Number	Type of Copy
1	Egyptian Civil Aviation Authority	**01**	Hard Copy
2	Accountable Executive	**02**	Hard Copy/ DC
3	Director Flight Operations	**03**	Hard Copy/ DC
4	Chief Pilot	**04**	DC
5	Safety and QA Director	**05**	DC
6	Operations Training Manager	**06**	DC
7	Operations Control Center Manager	**07**	DC
8	Operations Library	**08**	Hard Copy / DC
9	In-Flight Service Manager	**09**	DC
10	Technical Director	**10**	DC
11	Security Manager	**11**	DC
12	Ground Handling Manager	**12**	DC
13	IT office	**13**	DC
14	EFB Administrator/Aircraft Library	**14**	DC
15	Technical Office Manager	**15**	DC
16	Flight Deck Crewmembers* (According to the active crewmember's number)	**15**	EC (or DC)

Note:

- DC: Digital Copy/Electronic Copy (EC): the copy on Nesma Airlines' intranet or Electronic Library.
- The ground handling Manager shall distribute a copy from this Manual as applicable to Nesma Airlines local and outside stations.
- The operations technical office shall use the e-learning system to distribute manuals in accordance with Electronic Manual Distribution procedures. For Electronic distribution, the control copy of the operations training manager is used.

* Flight Deck Crewmembers copy takes the same control number as the technical office manager if the copy is distributed electronically of digitally.

0.6.5.1 Distribution of Other Parts of the Operations Manual

Other parts of the operations manuals (Operations Manual part B) shall be distributed to the following list

No.	Operations Manual Holders	Control Number	Type of Copy
1	Director Flight Operations	**01**	EC/ DC
2	Chief Pilot	**02**	EC/ DC
3	Operations Training Manager	**03**	EC/ DC
4	Operations Library	**04**	EC/ DC
5	Technical Library	**05**	EC/ DC
6	IT office	**06**	EC/ DC
7	EFB Administrator/Aircraft Library	**07**	EC/ DC
8	Technical Office Manager	**08**	EC/ DC
9	OCC manager	**09**	EC/ DC
10	Flight Deck Crewmembers* (According to the active crewmember's number)	**10**	EC (or DC)

0.6.6 Record of Normal Revisions (NR)

When receiving a revision, insert the "Date filed", "Filed by" and sign in the "Signature" box.

Issue. No.	Issue Date	Revision No.	Revision Date	Effective Date
04	JAN 2018	0	JAN 2018	FEB 2018
04	JAN 2018	01	APR 2018	MAY 2018
04	JAN 2018	02	NOV 2018	DEC 2018
04	JAN 2018	03	APR 2019	MAY 2019
04	JAN 2018	04	OCT 2019	DEC 2019
04	JAN 2018	05	DEC 2019	FEB 2020
04	**JAN 2018**	**06**	**DEC 2022**	**Jan 2022**
04	**JAN 2018**	**07**	**OCT. 2023**	**OCT. 2023**

0.6.7 Record of Temporary Revisions (TR)

When receiving a Temporary Revision, insert the "Issue date", "Date filed", "Filed by" and sign in the "Signature" box.

TR No.	Issue Date	Date filed	Filed by	Signature	Remarks
01	Feb. 2023	Feb. 2023	Director of Operations		
02	May. 2023	Jun. 2023	Director of Operations		

0.6.8 Revision Highlights

Chapter	Item	Page	Amended	Added	Deleted	Replaced

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Organization and Responsibilities

Chapter 1

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Contents

Chapter 1 Organization and Responsibilities

1.1 Organizational Structure

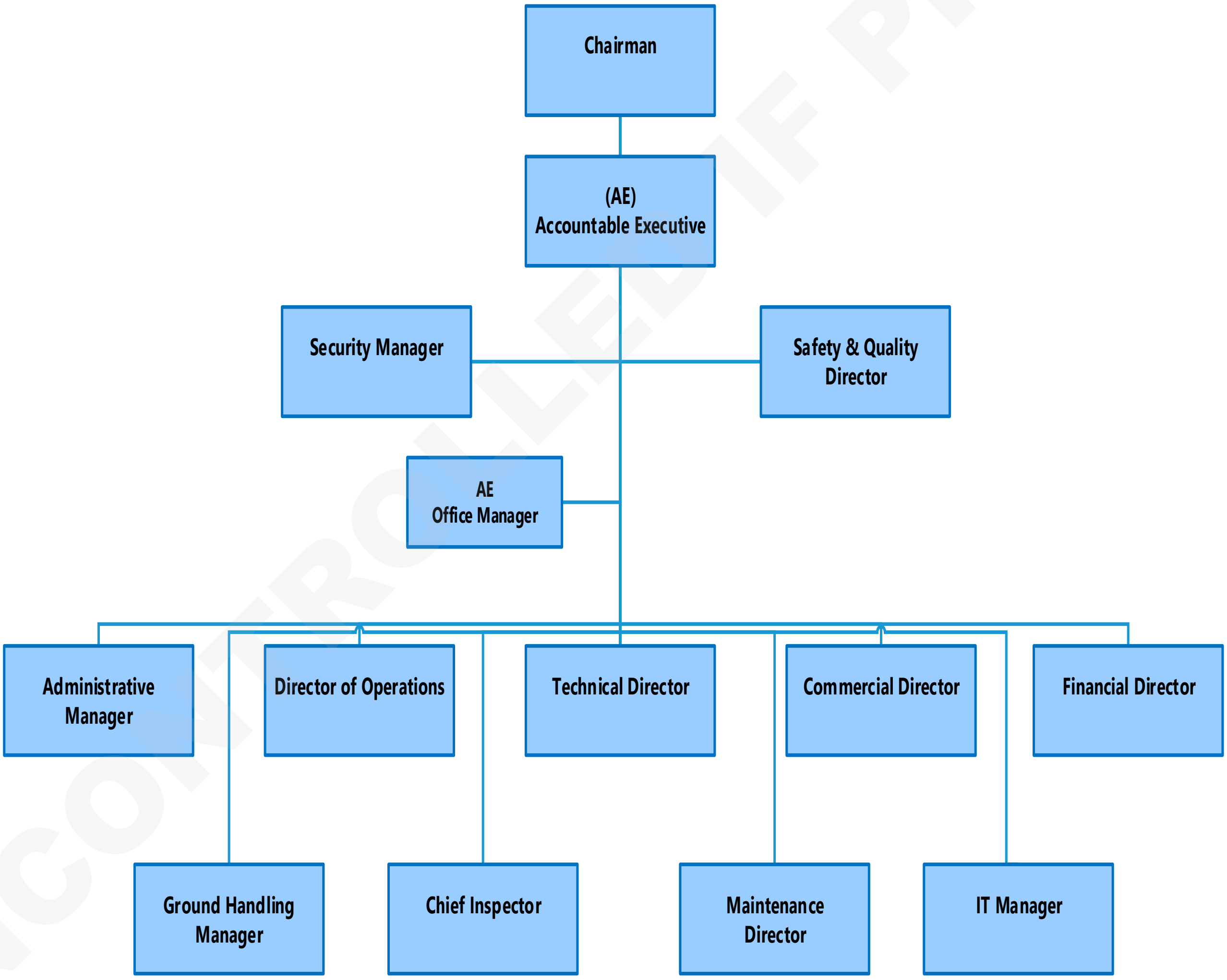
Ref. Corporate Manual Ch.1

The following organization chart depicts the company and the flight operations department organizational structure.

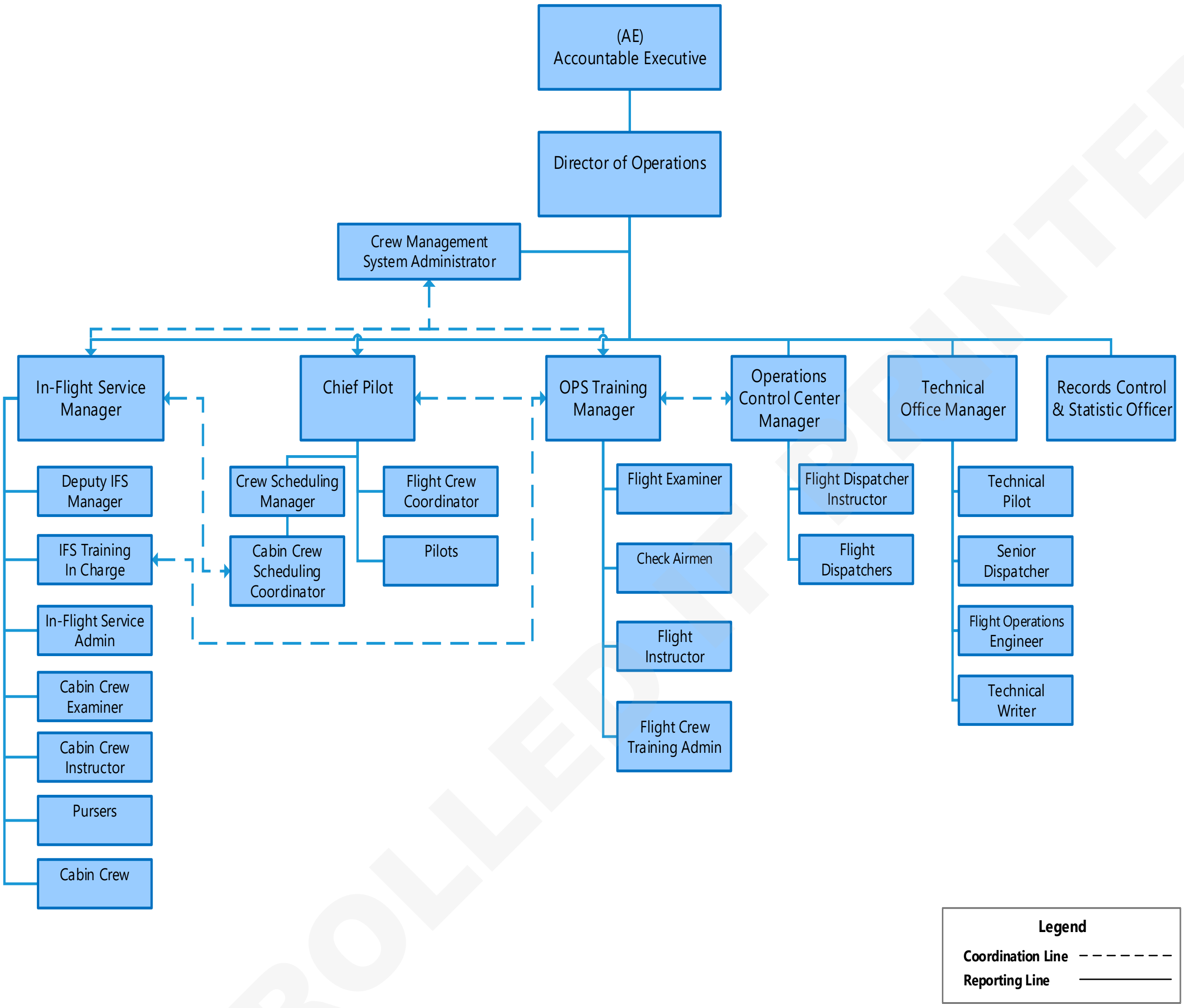
They show the relationship between the various departments of the company and the associated subordination and reporting lines and control of flight operations and the management of safety and security outcomes.

Director of Operations ensures that communication within his department and between departments are established in a way that guarantees the exchange of relevant operational information.

1.1.1 Company Organization



1.1.2 Operations Department Structure



1.2 Names and Titles of Nominated Post-Holders

ECAR 121.59, 145.13
Ref. Corporate Manual Ch.1
This section mentions the names and describes the functions of the company post holders acceptable to the Authority as required by the Egyptian Civil Aviation Regulations.
In the absence of any of the post-holder, his deputy shall ensure continuity of control and supervision.

	Name	Title and/or Post
1	Mr. Karim Baky	Accountable Executive
2	Capt. Sherif El Messiri	Director of Operations
3	Eng. Medhat El Sayed	Maintenance Director
4	Capt. Nashaat Ayad	Chief Pilot
5	Eng. Bahy Metkies	Safety & Quality Director
6	Eng. Osama Mansour	Chief Inspector

ECAA shall be notified within 10 days of any vacancy in any position or any change in personnel listed above and will not in charge unless get an acceptance from ECAA.
Titles of other Management Personnel

	Title and/or Post
7	Operation control and dispatch Manager
8	Operations Training Manager
9	Flight Safety Manager
10	In-Flight Services Manager
11	Ground Handling Manager
12	Administration Manager
13	Security Manager
14	IT Manager
15	Catering Manager
16	Operations Technical Office Manager

1.2.1 Managerial Positions Delegation Process

Nesma Airlines has a delegation process for the delegation of duties within the management system that ensures managerial continuity is maintained when operational managers, including nominated post holders are out of office.
Refer to Corporate Manual Ch.1.2.3.
Note: the use of telecommuting technology and/or being on call and continually contactable are acceptable means for operational managers to remain available and capable of carrying out assigned work duties.

1.3 Authorities and Responsibilities of Operations Management and Non- Management Personnel

Ref. Corporate Manual Ch.1

Nesma Airlines has a flight operations management system that thoroughly defines the authorities and responsibilities of management and non-management personnel that perform functions relevant to the safety or security of aircraft operations in areas of the flight operations organization. The management system shall also specify:

- **i.** The levels of management with the authority to make decisions that affect the safety and/or security of operations;
- **ii.** Responsibilities for ensuring operations are conducted in accordance with applicable regulations and standards of Nesma Airlines
- **iii.** Lines of accountability throughout flight operations, including direct accountability for safety and/or security on the part of flight operations senior management.

1.3.1 Accountable Executive

Accountable Executive Job Description (ECAR 121.71) (a)

The Accountable Executive of Nesma Airlines who has the accountability for safety and security performance, he has the authority to take necessary actions to ensure the management system is effective.

Responsibilities:

- Irrespective of other functions, has ultimate responsibility and accountability on behalf of Nesma Airlines for the implementation and maintenance of the safety management system (SMS) throughout the organization.
- Maintain an adequate organization as required by the AOC and notify the ECAA as soon as practicable of any major changes in the organization;
- Has the authority to ensure the allocation of resources necessary to manage safety and security risks to aircraft operations
- Management of safety risks & security threats
- To ensure that a Nesma airline continues to meet applicable requirements, the Accountable Executive is authorized to designate a director/manager with the responsibility for monitoring compliance. The role of such Director/manager would be to ensure that the SMS activities of Nesma Airlines are monitored for compliance with the applicable regulatory requirements, as well as any additional requirements as established by Nesma Airlines, and that these activities are being carried out properly under the supervision of the relevant head of functional area.
- Represent the company in all matters pertaining to business.
- Manages improvement projects that are proposed by Nesma Airlines Safety Review Board.
- Allocate resources required to implement and maintain effective Safety and Quality Management System.
- Managing major operational process within the upper management level, and coordinating with other organizations concerned in cross functional activities and processes affecting their performance.

- Establishing a communication system that ensures effective communication of Regulatory requirements, company policies and operational information to the employee groups. This communication system shall also enable employees to forward operational suggestions and safety concerns upward to the management team.
- Ensuring that management team members who are required to maintain technical proficiency (such as pilots and cabin crew) will be assigned responsibilities and activities that reasonably accomplished.
- Allocating necessary resources maximize safety and quality performance.
- Ensuring that an alternate management representative is designated during the absence of critical operational managers.
- Determining, providing and maintaining the physical infrastructure and environment needed to achieve conformity with management system requirement
- Ensures compliance with organizational procedures, standards, national regulation and international regulations and standards and the regulations, standards and laws of the states to which operations are conducted.
- Ensures a feedback system that enables quality and safety related concerns to be addressed to senior management, and ensures corrective and preventative actions are implemented as necessary.
- Ensuring the establishment of Emergency Response plan within the company and continually train assigned staff to ensure its adequacy.

The Accountable Executive has the authority, which includes:

- Financial control, to make policy decisions, provide adequate resources, resolve operational quality, safety and security issues and, in general, ensure necessary system components are in place and functioning properly in accordance with Nesma airlines mission statement.
- to ensure the allocation of resources necessary to manage safety and security risks to aircraft operations
- Full control of the human resources required for the operations authorized to be conducted under the operations certificate;
- Final authority over operations authorized to be conducted under the operations certificate;
- The Accountable Executive is Responsible for: (ECAR 121.71)
- Allocation of resources as needed to ensure that all operations and maintenance activities are properly financed and carried out in accordance with Nesma Airlines standards and following regulations.
- Safety, Security and Quality Management Systems within the organization by establishment, implementation and monitoring for Safety, Security and Quality activities and processes and ensuring conformity with all regulatory requirements and Nesma airlines standards & procedures.
- Directing internal inspections, audits and surveys to monitor and ensure Safety and Implementation of corrective and preventive actions identified by quality audits or safety investigations.
- He is responsible for provisions that ensure follow-up activities include independent documentation and verification of corrective action that has been implemented.
- Ensuring the SMS is properly implemented in all areas of the organization and performing in accordance with applicable specified requirements.

- Ensuring the following programs in compliance with the regulatory requirements and company policy:
  - Drug testing program
  - Alcohol misuse prevention program

Deputized By: Technical Director

1.3.2 Director of Operations

Reference: ECAR 121.59 (a).
The Director of Operations is a nominated management position approved by ECAA and must be qualified in accordance with ECAR 121.61 (b).
Director of Operations or his deputy is the executive responsible for the day-today implementation of the company policies and for direct supervision of the line operations on all fleet. This involves implementing and maintaining whatever procedures necessary to ensure the smooth operation of all fleet.
Particularly, he determines all flight operational standards and practices. He is responsible for editing the Operations Policy Manual ensuring that revisions are submitted to the authority (ECAR) for acceptance and approval, and Operations Manuals are up to date and include all data necessary to comply with all relevant regulations and requirement and with the provision of the AOC.
The Director of Operations reports to the Accountable Executive and has the responsibility, and thus is accountable, for ensuring:

- **i.** The management and supervision of all flight operations activities;
- **ii.** The management of safety and security in flight operations;
- **iii.** Flight operations are conducted in accordance with conditions and restrictions of Nesma Airlines Air Operator Certificate (AOC), and in compliance with ECAA regulations and standards of Nesma Airlines.

Authorities
The Director of Operations has the authority to command the departments under his jurisdiction, coordinate between the operations department and other departments, control all aspects of operations, enforce procedures and processes, and represent the operations department in the management board. He also has the authority to allocate resources and hire qualified personnel for the department. He is also authorized to manage the Human Resources functions in the operations department in coordination with the administration department.

Responsibilities: (ECAR 121.71 (b))

The Director of Operations is responsible for safe flight operations. In particular, the responsibilities of the position include:

1. Management of operations and operational standards of all airplanes operate
2. Management of safety risks and security threat ensures the allocation of resources necessary for aircraft operations.
3. Ensuring compliance with regulatory, company and safety requirements.
4. Control of the human resources required for the operations authorized to be conducted under the operations certificate;
5. The identification of operations coordination functions which impact on operational control (e.g. maintenance, crew scheduling, load control, security, equipment scheduling);
6. He has the authority for supervision, organizing, managing, controlling, and maintaining the efficiency of the following areas:
   - Safety and security of flight operations;
   - Flight operations functions and/or activities;
   - Fleet operations;
   - Documentation and control;
   - Accident prevention and flight safety;
   - Human resources;
   - cabin safety;
   - crew scheduling and Roistering;
   - training programs; Safety and quality assurance program; and
   - Any other associated activities.
7. The contents of the company Operations Manual; including production and the amendment of content.
8. Liaison with the regulatory authority on all matters concerning flight operations, including any variations to the company certificate (AOC);
9. Liaison with OEM and any external entities which may affect company operations;
10. Ensuring that the company operations are conducted in accordance with current regulations, standards, conditions, restrictions of the Air Operator Certificate Ensuring that crew scheduling complies with flight and duty time regulations, and that all crewmembers are kept informed of any changes to the regulations and standards;
11. The receipt and acting of any aeronautical information affecting the safety of flight;
12. The dissemination of airplane safety information, both internal and external, in conjunction with the safety and quality assurance programs;
13. Qualifications of flight and cabin crews;
14. Maintenance of a current operations library; and
15. Promoting and implementing a non-punitive policy.
16. Ensuring long-term operational planning in regards to recruitment of Flight Deck Crew, cabin crew and Ground Staff.
17. Implementing standard operating procedures and safety requirements.
18. Attend Safety Management Review Committee meetings and ensuring all recommended safety corrective actions are carried out within the specified time period.
19. Provide the necessary resources and commitment in ensuring safety issues raised during the Safety Management Review Committee is corrected.

20. Accountable to senior management for ensuring the safety and security of flight operations
21. Ensuring compliance of all flight operation personnel with the Nesma Airlines policies and/or procedures, monitor if any wilful and deliberate violation of Nesma Airlines policies and/or procedures has been reported he shall take the necessary actions required such as company investigation to investigate the violation and if required the National Aviation Authority will be involved on the case review (Refer to OM-A 1.8.1 and 11.4).
22. Manage the committee of study of the new airports and ensure compliance with the safety and security standards presented by the commercial department (Refer to 8.1.2 Criteria for Determining the Usability of Aerodromes).
23. Do whatever is needed to assure the accomplishment of a safe flight mission within the established period to ensure customer satisfaction.

Deputized By: Chief pilot

1.3.3 Chief Pilot

Job Description

Chief Pilot is a nominated management position approved by ECAA and must be qualified in accordance with ECAR 121.61. (c)

The Chief Pilot reports to the Director of Operations and is responsible for the safe and professional standards of the flight crew.

Authorities and Responsibilities (ECAR 121.71 (d))

Chief pilot is responsible for the professional standards of the flight crews under his/her authority, and in particular:

1. Line operations supervision;
2. Crew scheduling;
3. The supervision of flight crews;
4. Management of safety risks and security threats
5. Developing and/or implementing all required approved training programs for the air operator flight crews;
6. Ensure the functioning of the Quality System within his area of responsibility;
7. Writes and keeps up to date adequate job descriptions for flight operations personnel reporting to him;
8. Monitor outsourced training activities.
9. Assure that training aids used (i.e. Simulators, Full Flight Simulators) have been approved as necessary for the kind of training administered by the Authority ECAA Develop and maintain all forms required for any kind of training administered and processes them as applicable;
10. Issuing directives and notices to the flight crews as require.
11. The processing and auctioning of any flight crew reports;
12. The auctioning and distribution of accident, incident, and other occurrence reports;
13. Delegated by the Director of Operations for the management of policies, rules and procedures governing fleet and line operations.
14. Make recommendations to the Director of Operations in terms of appointments, promotions, demotions, dismissals and any other disciplinary action within his area of responsibility;
15. Closely coordinate with the ECAA on all ECARs subject matters as they apply to his area of responsibility;
16. Liaise with other management personnel in his area of responsibility;
17. Represent Nesma Airlines on national and international training meetings;
18. Manages Nesma Airlines EFB in accordance with the control procedures and responsibilities outlined in 8.12 Electronic Flight Bag (EFB).
19. Define and set the requirements for new EFB hardware/Software.
20. Coordinate all EFB related projects with all relevant departments.
21. Manages Nesma Airlines crew management system in accordance with procedures and responsibilities outlined in Chapter 4 Crew Management.
22. assuming any responsibilities delegated by the Director of Operations; and
23. in his or her absence, all responsibilities for duties shall be delegated to another qualified individual, except that the knowledge requirements detailed under chief pilot qualifications may be demonstrated to the air operator rather than the ECAA

Deputized By: Operations Training Manager

1.3.4 Safety & Quality Director

Ref. to ECAR 19.103
Corp. Manual Ch.1
The safety & quality director is designated by the AE and reporting to him. He is accepted by the authority as a nominated post holder, and he is responsible for the day-to-day administration and oversight of SMS operation throughout the organization on behalf of the AE.
Qualifications
The safety & quality director is a nominated management position accepted by ECAA and he is qualified as per ECAR requirements 19.103 (I).
Responsibilities:

1. the day-to-day operation and oversight of SMS operation throughout the organization;
2. Planning and controlling the safety department budget;
3. Developing and maintaining of the safety policy, safety standards and safety management system;
4. Enhancing safety culture in the company using all available safety recourses;
5. Deploying the company Safety tool;
6. Corporate SMS documentation (drafting, validation, approval and maintenance);
7. Developing the company's risk management system and ensuring its relevance, adoption and proper use by the company;
8. Selecting the most appropriate risk mitigation measures for those risks deemed unacceptable; coordinating safety committees;
9. Overseeing the performance of the company's safety management activities to evaluate its effectiveness and providing advice on potential improvements to safety performance;
10. Overseeing hazard identification systems effectiveness, for example: (Occurrence investigations & Incident reporting systems & Data analysis programs);
11. Reviewing and reporting on compliance with safety management policies, plans, systems and procedures, ensuring safety issues are reported in a timely manner;
12. Providing regular reports on safety performance and giving independent advice to the AE and all departments within the company;
13. Arrangement of the safety committee meetings, including meeting agenda topics, and keeps the meetings records;
14. Establishing a system for the safety management education and safety awareness;
15. Disseminating public communications on safety issues;
16. Establishing a safety audit and surveillance system;
17. Effective interface with the ECAA regarding safety matters;
18. Establishing industry liaison on safety matters;
19. Establishing safety relations with international bodies;
20. Managing, developing, maintaining and implementing the company ERP;
21. Coordinating the regulatory authority's Mandatory Occurrence Reporting (MOR scheme);
22. Assisting with the investigation of accidents and conducting and coordinating investigations into incidents;
23. Investigates all maintenance and operations occurrences to determine the root causes and appropriate courses of action;
24. All investigation reports will be reviewed during Safety Committee meetings;
25. The performance of the quality assurance program;

26. Ensure communication and coordination with operational managers in the management of operational risk;
27. Establish the extent of the quality assurance program;
28. Identify and evaluate the risks for the audit;
29. Establish audit responsibilities;
30. Establish procedures for quality assurance program;
31. Determine necessary resources;
32. Ensure the implementation of the quality assurance program, including the establishment of audit objectives, scope and criteria of the individual audits, determining audit methods and selecting the audit team and evaluating auditors;
33. Ensure that appropriate audit program records are managed and maintained;
34. Monitor, review and improve the audit program.

Deputized by: After the Accountable Executive approval, the flight safety manager/quality assurance manager (according to availability)

1.3.5 Operations Training Manager

(ECAR 121.59 (b))

Job Description

Manage Operations Department Training for Flight Crewmembers, cabin crew and dispatchers to several requirements and aspects such as coordination, arrangements, and furnishing of materials, tools, facilities and instructors.

Those requirements are vital for generating and maintaining Standardized Operational personnel, i.e. Flight Crewmembers, Cabin Crew and Dispatchers. In this context, concerned management personnel are required to furnish highest degree of coordination with Operations Training Manager to accomplish his duties and responsibilities.

- The Operations Training Manager reports to the operations director, refer to 1.1 Organizational Structure
- Coordinate with the chief pilot to develop and implement the flight training program (to comply with ECAR 121 subpart N).
- Ensure proper training records of crewmembers are disseminated through flight operations department and updated on the respective section of the crew management system. (refer to Crew Management System Manual table 2.3 for training record management processes)
- Direct and coordinate with all operations department training responsible for developing and implementing (OCC and IFS) training program.

Minimum Qualifications:

Chosen by Operations department committee with Accountable Executive approval.

– A pilot with valid license on the company’s aircraft type.
– Has enough knowledge about the requirements of ICAO, ECAR and the state and other applicable authorities.
– Good personality with excellent communication skills
– Good computer skills.

Operations Training Manager is responsible for the professional training standards of the flight crewmembers, cabin crew and dispatchers under his responsibilities, and in particular:

1. Publish, amend and revise Nesma Airlines Operations Manual, Part D;
2. Develop, publish and revise training strategies (i.e. Training Syllabi) under due consideration of legal and other requirements as they have to be observed;
3. Publish, select and maintain in-house training software and hardware
4. Monitor and verify the adherence to training standards among the instructors;
5. Ensures that training program fulfils safety and security requirements.
6. Manages Nesma Airlines E-learning system in accordance with OM-D Chapter 6.
7. Assess the impact of the manufacturer Operations Training Telex (OTTs) on the various training activities.
8. Ensure the functioning of the Quality System within his area of responsibility;
9. Writes and keeps up to date adequate job descriptions for flight operations personnel reporting to him;
10. Monitor training provided by third parties (i.e. Egypt Air Training Centre);
11. Assure that training aids used (i.e. Simulator etc) have been approved as necessary for the kind of training administered by the Authority ECAA;
12. Develop and maintain all forms required for any kind of training administered and processes them as applicable;
13. Issuing directives and notices to the flight crews as required in coordination with direct manager(s);
14. The processing and acting of any flight crew reports related to training standards;
15. Recommend in his function as Flight Standards Training Coordinator, team procedural and standardization changes throughout Nesma Airlines Flight Operations Department; activities to the Director Flight Operations whenever this is necessary and provides justification for such proposed changes;
16. Assure on a tactical and strategic basis that an adequate number of instructors for all operations training activities to be accomplished are held available to cover Nesma Airlines operations training needs;
17. Assure that all training is conducted in such a way that qualified personnel are made available in a timely manner;
18. Make recommendations to the Director Flight Operations in terms of appointments, promotions, demotions, dismissals and any other disciplinary action within his area of responsibility;
19. Closely coordinate with the ECAA on all ECARs subject matters as they apply to his area of responsibility;
20. Ensure that crew qualifications are updated regularly on the Crew Management System
21. Assign crew training and record evaluation through the Crew Management System.
22. Direct and monitor outsourced training activities within Nesma Airlines as far as they fall under ECAR training requirements for flight operations;
23. Direct and monitor outsourced training activities within Nesma Airlines Safety, as far as they fall under ECAR training requirements for flight operations;
24. Monitor and verify the adherence to training standards among the instructors;
25. Develop and maintain relevant statistical data;
26. Liaise with other management personnel in his area of responsibility;

Represent Nesma Airlines on national and international training meetings in coordination with Chief Pilot.

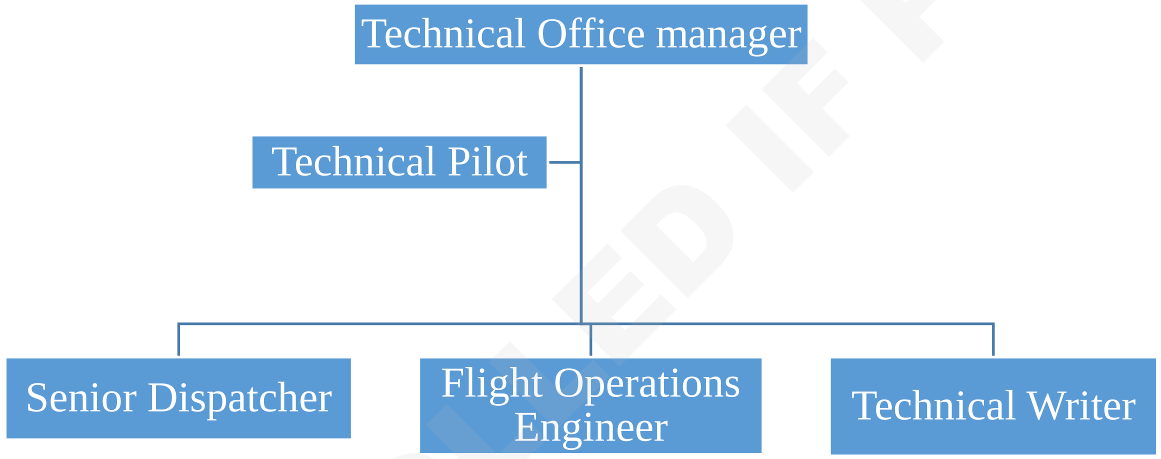
Deputized by: Most senior pilot examiner after director of operations approval

1.3.6 Technical Office

Technical office is the technical arm of the operations department and it reports directly to him. The technical office is responsible for all technical issues related to everyday operations, coordinate activities between different departments, and reports the results to the Director of Operations.

1.3.6.1 Technical office structure

The technical office shall include at least flight operations engineer, technical pilot, senior dispatcher and other personnel that are deemed suitable for the position after the approval of the Director of Operations.
One of the team members shall be appointed technical office manager responsible for taking technical decisions and representing the team in meetings.
Technical Office team structure



1.3.6.2 Technical Office Manager

Job Description
He is responsible for enhancing safety and optimizing aircraft operations by providing the latest aviation technology information to Nesma Airlines management and follow up implementation and report to Director of Operations. Technical office manager shall also be responsible for the library and the document management and/or control of the operations manuals in coordination with the quality department.
The technical office manager also acts as flight operations officer in direct contact with the manufacturer in receiving the Flight Operations Transmission/Telex (FOTs) and Operations Training Telex (OTT).
Technical office manager also works with the technical pilot on matters related to aircraft modifications, development of new SOPs and adoption of new systems on the aircraft.
Minimum qualifications:

- Holding an appropriate bachelor degree.
- 3 years of experience in flight operations field.
- Aware of the requirements of ICAO, ECAA and other regulating authorities.
- Good Computer skills
- English language proficiency

Operations Technical Office Manager Authorities and Responsibilities

1. Liaises the operations department with other departments and other suppliers of relevant operational information.
2. Control and monitor the revision status of all flight ops documents such as AFM (Aircraft Flight Manual), FCOM (Flight Crew Operating Procedure), QRH (Quick reference Handbook), FCTM (Flight Crew Training Manual) to ensure that all operational procedures are in accordance to each aircraft status
3. Responsible for the technical operational issues related to the operations department.
4. Works as the link between technical office team and other departments
5. Manages/delegates/assign projects tasks to technical office team.
6. Adopts new projects and assign test team from different departments in coordination with other managers.
7. Customize the Standard Operating Procedures (SOP) and the FCTM (Flight Crew Training Manual) in accordance with manufacturer recommendations and Nesma Airlines requirements
8. Track and closely follow-up all aircraft deliveries, commitment letters and side agreements signed with the manufacturer of aircraft and engines that are related to the operation and performance of the aircraft
9. Monitor and customize the technical content of flight operations documents in accordance with company's procedures and standards and with applicable regulations.
10. Review technical office progress and submit reports to management.
11. Take part in safety committee in issue regarding aircraft equipment specifications, fleet standardization and flight deck layout.

Deputized By: Most senior Operations Technical Office member

1.3.6.3 Operations Engineer

Job Description

Operations Engineer: He is responsible for enhancing safety and optimizing aircraft operations by providing relevant support to flight crew and flight operations personnel

Operations engineer reports to operations technical office manager and coordinates with chief pilot, OCC manager and flight safety manager as part of his performance engineering duties as elaborated in chapter 14 Performance Engineering, implements and maintains fuel management program and reduce fuel cost. He shall also manage weight and balance of aircraft as per WBM, review load and trim sheet in accordance with 8.1.8 Mass and Centre of Gravity and administer EFB.

Minimum qualifications:

- Aeronautical or electrical engineer
- Shall have basic understanding of aircraft performance
- Initial aircraft Performance Course is an advantage.
- Performance Engineering Program (PEP): software for optimizing and monitoring all aspects of aircraft performance.
- Basic knowledge computer (office + internet)
- Good command in English language.

Duties and Responsibilities

- Carrying out performance engineering calculations in accordance with chapter 14 Performance Engineering.
- Prepare and validate Take-off and Landing Performance data using Performance Engineer's Programs (PEP) or any other adequate tool.
- Liaises with the Director of Operations, Chief Pilot, Safety Manager & interfaces with the aircraft Manufacturers on all aircraft Performance issues.
- Ensures that safety and security standards are fulfilled within the operations engineering work.
- Evaluate new Service bulletin (SB) from manufacturer to determine the operational impact of each aircraft modification or new system.
- Perform Route Analysis and En-route Performance studies (incl. Aircraft Performance Monitoring; Drift down and Decompression).
- Provides an operational support to the flight dispatch in performance engineering issues.
- Study required fuel and possible payload.
- Monitor datalink and aircraft communications to make sure all communications (Ground and on board) are well established as per the company's standard.
- Participate in Datalink Systems and Projects and make sure that datalink is harmonized cross-fleets.
- Determination of MEL/CDL performance limitation applicability
- EFB performance and documentation administration
- Run the implementation of new solutions in coordination with Manager EFB systems.
- Validate the MEL and SOP changes related to EFB and ensure that it is in accordance to the regulatory recommendations
- Ensure that all operational procedures and processes are in place for any new or modified EFB system.
- Take part in safety committee in issue regarding aircraft performance

Deputized by: OCC Manager

1.3.6.4 Technical Pilot

Job Description

The Technical pilot is reporting to the Operations Technical Office Manager and he is responsible for the technical operational issues related to the operations department.

Minimum Qualifications:

- Good knowledge of the requirements of ICAO, ECAR and the state and other applicable authorities.
- Active type-rated line pilot
- Good personality with excellent communication skills
- Very good computer skills.

Duties and Responsibilities:

1. To monitor the configuration of the fleet and to establish differences between aircraft in terms of procedures, aircraft systems etc.
2. To inform chief pilot and Training manager about any change in the procedures and especially when an OEB is applicable.
3. To define aircraft operating procedures/flight standard in coordination with chief pilot and training manager.
4. To work with the aircraft manufacturer for operational issues.
5. To liaise closely with the flight operations engineering: Aircraft performance, routes and airport studies, specific operations.
6. To coordinates with the maintenance all technical matters including the establishment and distribution of the MEL.
7. To issues technical information to the pilots.
8. Customize the Minimum Equipment List (MEL) in accordance with the manufacturer Master Minimum Equipment List (MMEL) and applicable national and international regulations.
9. Prepare the MEL approval package for each MEL revision in order to seek approval from the authority before release.
10. Track all Engineering Orders (EO) for his assigned fleet and analyze their operational impact on the documentation and flight crew procedures.
11. Participate in Datalink Systems and Projects and make sure that datalink is harmonized cross-fleets.
12. Monitor and customize the technical content of flight operations documents in accordance with company's procedures and standards and with applicable regulations.
13. To liaise with maintenance/engineering and with flight operations engineering to ensure the correct setting of the OEB, the correct associated update of procedures in the QRH and FCOM and to follow the SB cancellation process.
14. Replaces the crew management system administrator in his absence.
15. EFB revisions follow up and updates
16. Carries operational control over FCOM & QRH.
17. Responsible for the aircraft library as cited in 8.1.12 On board

Deputized by: a qualified pilot after the approval of the technical office manager.

1.3.6.5 Senior Flight Dispatcher

Minimum Qualifications:

- Bachelor degree
- Valid Flight Dispatch License
- 10-year experience in Flight Dispatch.
- Thorough knowledge of the regulations and standards related to safe operations (ECAA-IOSA ...etc...)

Duties and Responsibilities:

1. Focal point between the technical office and OCC for all common issues.
2. In coordination with OCC manager Issue instructions and/or recommendation related to OCC and dispatch performance improvement and enhancement
3. Work with OCC on all current and planned aviation technology, systems and automation used in OCC functions.
4. Maintaining coordination and follow up with Flight Dispatch, technical office, flight crew and record department regarding sustainable fuel efficiency program
5. Airbus Fly smart application administrator when needed/assigned by technical office manager.
6. Work on NESMA CORSIA program
7. Liaise with OCC and Safety/Quality department regarding IOSA and other related requirements
8. JEPPESEN Flite Deck application administrator
9. Ensuring technical specifications and standard requirements for Navigation services outsourced by the company are meet and monitor data integrity and service levels of the contracted service providers this includes Flight planning System, Jeppesen and Navigation Database.
10. Work on OM-A updates and approvals in coordination with tech office manager.

1.3.7 Operation Control Center Manager

Job Description

The Operation Control Center Manager reports to the Director of Operations and has operational control over flights in order to promote safety, regularity and efficiency of operations:

Minimum qualifications:

– Operations Control Center Manager shall have an aircraft dispatcher experience for at least 5 years experiencing and performing the duties of flight dispatch, flight following and performance engineering background.
– He must be type rated on all company's A/C, and
– He should have performed the duties of flight dispatch and flight following on each aircraft type within the company routes.
– He should have gone through and positively passed all training categories needed for dispatchers and managers.
– He must demonstrate a managerial skills and good command of handling problems and irregularities.

Authority and Responsibilities

1. Manage, Supervise Nesma Airlines OCC on daily, tactical and strategic basis.
2. Management of safety risks & security threats
3. Administering staff duty rosters, leave and distribution/allocation of OCC staff duties.
4. Updating / upgrading the various systems, work procedures and environment in the OCC.
5. Has to ensure Compliance with of the Nesma Airlines & ECAA requirements, safety and security Standards related to OCC.
6. Update, amend and revise the Operational Control and Dispatch Manual.
7. Establishing a system of flight dispatch/release, crew briefing and flight watch in compliance with ECAR part 121 subpart U ensure the flight dispatcher and consequently, the flight crewmembers are provided with and totally aware of all information related to the flight such as weather reports and forecasts, NOTAM, aircraft limitation, aeronautical information, flight planning ATC flight plan, flight documentation, maintenance release with reference to MEL/CDL. Fuel availability's and fuel requirements in order to initiate and conduct the flight schedule safely.
8. Reviewing and updating training programs for flight dispatchers and Coordination with the training section for their training programs and courses in compliance with ECAA regulations, IOSA Standard Manual.
9. Ensure the functioning of the Quality System within the section.
10. Maintain job descriptions, qualification required, and availability of suitable qualified Flight Dispatch personnel and material to cover present and future needs.
11. Acquire the necessary third-party documentation to support Flight Dispatch and ensure proper functioning of the system.
12. Liaise with other Nesma Airlines departments and/or sections in his area of responsibility.

13. In times of severe disruption or diversions, and after consulting with concerned departments and assembling all possible information relating to the situation, formulating and carrying out plans of action to restore the operations to normal as quickly as possible, taking into account the level of inconvenience to the passengers, the financial cost to the company, crewing utilization and time limitation, engineering requirement and effect on the overall operations of the company.
14. To ensure that the flights are planned on the least cost and maximum safety aspects and cancelling a flight if, in his opinion or the opinion of the pilot in command, the flight cannot operate or continue to operate safely as planned.
15. To ensure uninterrupted and follow up of the continuity of subcontracted services Essential for safe Operations in the areas of his responsibility; such as (Jeppesen airway manual updates, PPS Flight Planning system, NOTAMS, weather briefings, ARINC communication system)
16. Prepare and control Dispatch quick reference Handbooks and dispatch training course material in compliance with ECAA regulations, IOSA Standard Manual and Aircraft Manufacturer.
17. supervise route selection and route analysis
18. Introduce and implement Fuel Conservation projects and awareness.
19. Coordinate and work closely with management pilots to optimize operation and enhance performance;
20. Carrying out any tasks as assigned by the Director Flight Operations.
21. Administer Jeppesen FD suite as part of his EFB administration role
22. Administer PPS Crew briefing application as part of his EFB administration role.
23. Update flight-planning system with DOW/DOI when applicable.

Deputized by: Senior Dispatcher with approval of the director of operations.

1.3.8 Crew Management System Administrator

Job Description:
Crew Management System Administrator reports to the Director of Operations and is responsible of the proper management and administration of the crew management system and the legal use of all its module to comply with all safety and security standards.
Minimum Qualification:

- Complete University Education.
- Good command in English.
- Good Computer Skills.
- Good managerial and administrative skills.
- Aviation Experience not less than 10 years.
- Enough knowledge local & international regulations and requirements.
- Flexible and adaptable to work and acceptance of changes
- Able to communicate effectively in a positive manner at all levels.
- Nominated officially by the Director of Operations

Duties and Responsibilities:

- Proper management and administration of the Crew Management System and the legal use of its entire module.
- Administer the Responsible for establishing and implementing Crew Management System Manual.
- Responsible to coordinate with each concerned department to implement the Crew Management System.
- Provide comprehensive training and support for each employee use the System and to provide of feedback and advice.
- Create all the Admin user account and assign the roles definition according to the job description of the user.
- Responsible to maintain and update all data base of the system after chief pilot approval
- Responsible for establishing and implementing the Crew Management System Manual and distributing including the necessary amendments/revisions.
- Special projects as assigned by the Chief Pilot.
- Accomplish such other duties as may be assigned by the Company

Deputized by: Technical Pilot

1.3.9 In-Flight Services Manager

Job description

The In-Flight Services Manager reports to the Director of Operations and is responsible for the safety and security management of the cabin operations and the daily operation of the In-Flight Services Department.

Minimum Qualification:

– Holding bachelor degree
– Good command in English.
– Good managerial skills.
– Flying experience not less than 10 years including 2 years as a cabin crew instructor.
– Flexible and adaptable to work and acceptance of changes
– Able to communicate effectively in a positive manner at all levels.
– She/he has enough knowledge about the requirements of ICAO, ECAR and the state and other applicable authorities.
– Nominated officially by the company and acceptable to the Authority.

Authorities and Responsibilities:

- The In-Flight Services Manager is responsible for:
- the management and supervision of all cabin operations
- Ensuring cabin operations are conducted in accordance with applicable regulations, safety and security requirements of cabin operations and standards of the Nesma airlines
- Liaison with the regulatory authorities Egyptian Civil Aviation Authority (ECAA) through the Director of Operations.
- Ensuring that all accidents, incidents and/or occurrences are reported to the safety office and that the recommended corrective actions are carried out.
- Responsible for the Ground / Line training, recruitment, and administrative functions of Cabin services.
- Ensuring the Cabin Crew establishment meets the needs of the company.
- To determine cost effective cabin services procedures.
- Directing the appointment, promotion and termination of staff.
- Ensuring in-flight sales maximize revenue and contribution (if applicable).
- Ensuring that cabin staff productivity levels and standards are maintained to the highest possible cost-effective levels.
- Preparation of departmental budget and operating within its constraints.
- Maintaining a high degree of cabin staff morale and welfare.
- Monitoring standards of services provided by other departments which are also the concern of the Cabin Services Department (i.e. aircraft cleanliness, catering, sales, etc.)
- Liaison with other Department Heads regarding cabin service issues.
- Monitoring the standards set by and services offered by other airlines, particularly competitor airlines.
- Undertaking the planning and preparing for the future, including management development and department organization.
- Seeking cost effective improvements.
- Advise on requirements and recommendations concerning galley and cabin layouts and equipment.
- Ensuring good industrial relations are maintained.
- Support physical infrastructure and work environment such as company uniforms, transportation, hotels, training center and classrooms.

- Liaison with the original equipment manufacturers through the Director of Operations.
- Liaison with the relevant external entities through the Director of Operations.

Deputized By: The Deputy In-Flight Services Manager is delegated from the In-Flight Services Manager to do all his/her authorities and responsibilities in case of his/her absence.

1.3.10 Records Control & Statistics Officer

Job Description

The records control manager reports to the direct supervision of the Director of Operations and he is responsible for the records of the operations department.

Minimum Qualifications

- Carry a certificate includes administrative ability.
- Accepted by safety and quality department.
- Has an ability of filing and administration discipline.

Duties and Responsibilities

1. Ensure that all records are accurate and within the Operations Manual Scheme and report any anomalies
2. Maintain records for all flights and cabin crewmembers (flight time, flight duty period and rest periods) in accordance with 2.1.5.5. Record Storage Period.
3. Update, set up and implement a record system for the flight release documentation in compliance with ECAR part 121 subpart V (121.695)
4. Maintain the necessary Flight Operations and OCC records
5. Analyse flight documents to ensure the completeness of flights and the compliance of flight documents with regulations and company policies.
6. Perform analysis of operational flight data and prepare reports to the management
7. Prepare pilots' hours report
8. Prepare the flying hours of the aircraft and the average operating hours for each aircraft per month and year.
9. Collect statistical data of Nesma Airlines' operations (number of passenger, fuel uplifted, etc.)
10. Prepare/Send monthly report to the ministry of civil aviation as required containing all performed flights and crew monthly hours.
11. Issue delay report every month.
12. Coordinate with each department with regard to the hours of operation, pilots' hours, etc.
13. Coordinate with the stations department in case of loss or delay of flight documents.
14. Retain the return flight documentation as per operations manual.
15. Monitor crew per diem sheets and generate monthly reports of each for cockpit crew

Deputized by: Flight Dispatcher.

1.3.11 Flight Dispatcher instructor

Job Descriptions
The flight dispatcher instructor shall be qualified as per ECAR 65.157
Duties and Responsibilities

1. Ensures high levels of performance and efficiency within the flight dispatch training course;
2. He performs the training agenda for initial, transition and recurrent training or any other flight dispatcher course in compliance with the international and local regulation requirement and company policies;
3. He performs the flight dispatcher competency check.
4. He evaluates and update the training course material;
5. He shall notify the OCC Manager with the attendance or absence of Flight Dispatchers during training courses and evaluation;
6. Dispatcher instructor will conduct the checking for flight dispatchers, in turn report the result of the checking and his comments to the OCC Manager, if some areas of emphasis need to be reviewed and covered in immediate training or his next due;
7. He has to comply strictly with the instructions and duties indicated in the OM;
8. He has to carry out any other similar tasks that may be assigned to him.

1.3.12 Flight Dispatchers

Reporting to the operations control center manager.
Duties and Responsibilities
Refer to OCDM

1.3.13 Crew Scheduling Office

1.3.13.1 Crew Scheduling Manager

Reporting to Chief pilot, the crew scheduling manager schedules flight crews in accordance with Egyptian Civil Aviation Regulations and company standards.

Minimum Qualification

- High School diploma or equivalent
- Prior Crew scheduling and/or airport airline operations experience strongly preferred
- Basic PC skill competency required
- Strong communication skills
- Strong organizational skills and ability to prioritize multiple tasks
- Working knowledge of Microsoft Office
- Good command of Hitit crew management system

1. Assign crewmembers on flights using the Crew Management System (CMS) as outlined in Chapter 4 Crew Management and according to the processes elaborated in the Crew Management System Manual (CMSM)
2. Assign tasks as listed in the CMSM table 2.3
3. Assign crewmembers in a way to mitigate safety risks and security threats
4. Ensure ECAA regulations and requirements, company policies and procedures are compiled with during planning and production of crew rosters.
5. Document all procedures and ensure department policy and procedures manuals and checklist are accurate and complete
6. Conduct detailed analysis of various roster "what if" scenario, which may include, but not limited to productivity, roster quality and stability, legality, manpower, etc.
7. Analyze information and statistics to provide advice on roster impact and provide recommendation to improve roster quality to Manager Crew Planning & Rostering.
8. Liaises with the Operations Training coordinator for all flight crew checks and training events.
9. Monitor and report on crew bid satisfaction and other roster-related statistics to Senior Management which serves and important aid in enhancing system or quality rosters.
10. Ensure daily assignment of crewmembers is checked against legal requirements, special requirements, crew sickness, pairing and company standards
11. Coordinate with OCC to ensure optimum utilization of crews during maintenance and/or weather irregularities
12. Maintain daily crew assignments, legality checks, and resolution of any pending legality problems.
13. Allocating tasks to team to ensure the job responsibility of timely publication of roster is met.
14. Maintain surveillance of each scheduled trip and reassign crews according to their qualifications, applicable contractual restrictions, governmental requirements, and most economical reschedules.
15. Record pilot flight time information on the monthly flight time record and check for compliance and limitations.
16. Monitor crew flight and duty times and generate monthly reports of each.
17. Ensure that all flight crewmembers are operated in compliance with Chapter 7 Flight Time Limitations and ECAR 121.502
18. Special projects as assigned by the Manager of Crew scheduling & Resources.

19. Accomplish such other duties as may be assigned by the Company
20. Ensure safety and security standards are followed throughout the scheduling process.
21. Ensures proper crew notification of flights.

Deputized by: Flight Crew Scheduling Coordinator

1.3.13.2 Flight/Cabin Crew Scheduling Coordinator

Job Description

Reporting to Flight Crew Scheduling Manager, Schedule flight crews in accordance with Egyptian Civil Aviation Regulations and company standards.

Minimum Qualification

- High School diploma or equivalent
- Prior Crew scheduling and/or airport airline operations experience strongly preferred
- Basic PC skill competency required
- Strong communication skills
- Strong organizational skills and ability to prioritize multiple tasks
- Working knowledge of Microsoft Office
- Good command of Hitit crew management system (ref. Chapter 4 Crew Management)

Duties and Responsibilities include, but are not limited:

1. Optimizes crew utilization and ensures that the crew composition of all flights is in accordance with the Operations Manual.
2. Liaises with the Operations Training coordinator for all flight crew checks and training events.
3. Assign tasks as listed in the CMSM table 2.3
4. Coordinate with OCC to ensure optimum utilization of crews during maintenance and/or weather irregularities
5. Create various roster scenarios in order to determine "best" solution within the given parameters for the current and future roster planning period
6. Capture all issues noticed during roster production and take corrective actions to ensure it does not recur in future.
7. Conduct periodical checks of rules and parameters within CCR and other relevant systems and get the system error rectified.
8. Maintain daily crew assignments, legality checks, and resolution of any pending legality problems.
9. Maintain surveillance of each scheduled trip and reassign crews according to their qualifications, applicable contractual restrictions, governmental requirements, and most economical reschedules.
10. Record pilot flight time information on the monthly flight time record and check for compliance and limitations.
11. Monitor crew flight and duty times and generate monthly reports of each.
12. Ensure that all flight crewmembers are operated in compliance with Chapter 7 Flight Time Limitations and ECAR 121.502
13. Maintain good, impartial relationship with all crewmembers.
14. Special projects as assigned by the Manager of crew scheduling manager.
15. Accomplish such other duties as may be assigned by the Company

Deputized by: flight and cabin crew scheduling coordinators replace each other

1.3.13.3 Crew Coordinator

Job Description
Reports to crew scheduling manager. The crew coordinator schedules crewmember logistics in out base operations, manages hotel reservations and other duties.
Minimum Qualification

- High School diploma or equivalent
- Prior Crew scheduling and/or airport airline operations experience strongly preferred
- Basic PC skill competency required
- Strong communication skills
- Strong organizational skills and ability to prioritize multiple tasks
- Working knowledge of Microsoft Office
- Good command of Hitit crew management system (ref. Chapter 4 Crew Management)

Duties and Responsibilities include, but are not limited:

1. Coordinate and monitor crew hotel accommodation, transportation and flight reservations
2. Monitor & follow up for crew accommodations and transportation in case of irregular operations.
3. Monitor all flight crewmembers on-duty and away from base. Provide scheduling-related support to those crewmembers as needed
4. Monitor cockpit crew night stop sheets and generate monthly reports of each
5. Issue weekly reports, and any other reports requested by management.
6. Special projects as assigned by the Manager of Crew scheduling & Resources.
7. Accomplish such other duties as may be assigned by the Company

1.3.14 Quality Assurance Manager

For job description, authorities, duties and responsibilities refer to Corporate Manual, items 1.2.5.

1.3.15 Flight Safety Manager

For job description, authorities, duties and responsibilities refer to Corporate Manual, items 1.2.5.

1.3.16 Security Manager

For job description, authorities, duties and responsibilities refer to Security Program, item 3.2.2.

1.3.17 Ground Handling Manager

For minimum qualifications, job description, duties and responsibilities refer to OM-A, Vol. 3 Item 1.8.1.

1.4. Authority, Duties and Responsibilities of the Pilot in Command

The Pilot in command exercises the final authority in relation to the operation of the aircraft. He is responsible for its safety as well as that of the passengers, crew and cargo as long as he retains command. Therefore, he must take all measures required for safety and security, whether on the ground, in flight, during take-off, landing or taxiing.

The Pilot in command is responsible for:

- **i.** The safety and security of the aircraft and all crewmembers, passengers and/or cargo onboard the aircraft when the doors are closed.
- **ii.** The operation and safety of the aircraft from the moment the aircraft is ready to move for taking off until the moment it finally comes to rest at the end of the flight and the engine(s) are shut down.
- **iii.** Ensuring use and compliance with all operational procedures and checklists -prior to, during and after all phases of flight, and in abnormal and emergency situations- as given in and required by the Operations Manual. In an emergency situation requiring immediate and decisive action, he may take any measures he considers necessary under the circumstances. In such cases, and only in order to ensure the safety of the aircraft and its occupants and cargo, he may deviate from rules, operational procedures and methods.
- **iv.** Delegating tasks to his crew and to other suitable personnel.
- **v.** Coordinating, supervising and checking the tasks of his crew.
- **vi.** Encouraging teamwork and ensures that his crewmembers receive all information essential for the performance of their tasks.
- **vii.** Not allowing any crewmember to perform any activity during take-off, initial climb, final approach and landing except those duties required for the safe operation of the aircraft.
- **viii.** Ensuring that, during a particular flight, the entire crew adheres to duty and rest time limitations as outlined in Chapter 7 Flight Time Limitations.

All persons on board the aircraft must obey all lawful directions given by the Pilot in command to ensure their safety.

The Pilot in command has the authority to:

- **i.** Impose any measures he deems appropriate, including restraint, upon any person who, in his opinion, has committed or is about to commit an offence against penal law. This authority extends also to acts committed by any person which the Pilot in command feels will jeopardize the safety of the aircraft, its occupants or cargo. Furthermore, any such action may be undertaken in order to enable the Pilot in command to deliver such a person to the Authority.
- **ii.** Disembark any person or any part of the cargo, which in his opinion, may represent a potential hazard to the safety of the aircraft or its occupants.
- **iii.** Reject the boarding of any person who appears to be under the influence of alcohol or drugs. Inadmissible passengers, deportees or persons in custody whose carriage may pose a risk to the safety of the aircraft or its occupants
- **iv.** Sets priorities. His decisions must give absolute priority to safety, and have due regard for economy, passenger comfort and adherence to schedule.

He coordinates the performance of flight deck related tasks and duties and decides on who acts as Pilot flying. In order to promote the aeronautical experience and knowledge of his Copilot, the Pilot in command shall give him the opportunity to plan and conduct the flight, or portions thereof, under his supervision.

If a F/O is permitted to conduct a take-off and/or landing and other adverse weather or abnormal operational conditions are encountered e.g. turbulence, equipment un-serviceability etc., the Pilot in command should carefully consider whether or not to permit the F/O to continue as the Pilot Flying.
At no time does permitting a F/O to conduct a take-off and/or landing detract from the overall responsibility of the Pilot in command for the safe conduct of the flight.
Any en route amendments to the OFP due to unforeseen condition that may effect on flight such as diversion or reroute effect on original schedule,
PIC to inform dispatcher on duty using AFIRS audio and to record this changes in the OFP.

1.4.1 Leadership

The pilot in command should:

- Lead by example;
- Motivate the Crew;
- Develop the skills of the Flight Crew;
- Demonstrate and support team working;
- Engender a good working atmosphere;
- Monitor Flight Crew performance and give constructive advice to the crewmembers;
- Involve Flight Crew in the operation and decision-making process;
- Ensure appropriate decisions are made and implemented;
- Create a climate for open communication and listen effectively;
- Co-ordinate inter-related activities concerning the flight;
- Establish good working relationships with all staff related to the flight;
- Demonstrate an understanding for the work of other staff members involved in the flight;
- Encourage Cabin crew and Ground staff optimum performance and feedback observations;
- Clearly communicates intentions and required standards.

1.4.2 Customer Service/Public Relations

The Pilot in command should:

- Project the image of the airline by personal example;
- Engender confidence in the airline's reliability and security by his leadership;
- Communicate with passengers as appropriate;
- Endeavour to ensure aircraft departure is punctual;
- Retain a sense of responsibility for passengers when off the aircraft;
- Establish good working relationships with Ground Staff and Cabin Crew to produce consistent service of high quality.

1.4.3 Commercial Awareness

The Pilot in command should:

- Have sufficient understanding of the rationale behind Marketing decisions to effectively encourage customers to fly Nesma Airlines;
- Exercise good judgment when making decisions taking into account the cost and commercial implications and alert the company to more effective ways of operating;
- Alert the company to any commercial opportunity he encounters and be provided with feedback on the decision reached.

1.4.4 Prior to Flight

Preflight information, Integrated Aeronautical information and applicable maps and charts shall be available all the time in the OCC and for flight crew at any aerodrome authorized for Nesma Airlines to use.

The Pilot in command shall strictly observe and meet the requirements of Chapter 5 in general and the provisions concerning route and aerodrome competence qualification in particular.

He shall obtain and check all available aeronautical and meteorological information pertinent to his next flight including NOTAMs, SNOWTAMs, runway and conditions, temperature/pressure reports, and upper wind and aerodrome meteorological forecasts.

- This information will enable the Pilot in command; to judge if the weather and the visibility/RVR at the aerodrome and the condition of the runway intended to be used will allow for a safe take-off and departure
- to cross-check or select destination alternate and take-off alternate aerodromes prior to flight, with due regard to the prescribed planning minima;
- to cross-check the operational flight plan, to calculate the planned/usable amount of fuel and oil being based on the expected operating conditions and sufficing for a safe completion of Flight, otherwise the flight shall not be commenced (whenever the flight plan is being calculated by third parties, it is his responsibility to ensure that these requirements are met); and
- If not already performed by ground personnel, to submit to the appropriate ATS unit a flight plan or sufficient information for the initiation of Search and Rescue (SAR) action should the flight become overdue.
- Partially share operational control responsibility with the flight dispatcher, and PIC has the final authority for final decision.

He conducts a crew briefing including Cabin Crew, relating to information and particulars pertinent to the individual flight, thus enhancing CRM techniques and Teamwork. This will include the Following:

- Trip time, Cruising Altitude, Weather En-route with possible Turbulence encounters,
- Weather at destination with expected Temperature and any defective items that affect cabin and passengers.
- Will also provide an agreed signal when he deems necessary for the cabin crew to discontinue service and have their seats due to the risk caused by heavy turbulence (PA
- Cabin Crew Take Your Seats is recommended).

He ensures that the prescribed pre-flight checks and inspections have been or are being carried out, and decides whether to accept or not to accept the aircraft with unserviceable items allowed by the CDL or MEL.

When preparing the flight, he shall, by examining the available documents and maintenance releases of authorized personnel, determine and certify by signing the appropriate documents that:

- The aircraft is airworthy;
- Ensuring for each flight, a description of known or suspected defects that affect the operation of the aircraft is recorded in ATL;
- Precluding a flight from departing until any defect affecting airworthiness is processed in accordance with the MEL/CDL;
- The aircraft configuration is in accordance with the CDL;
- The instruments and equipment required for the flight to be conducted, are available;
- The instrument and equipment are in operable condition except as provided in the MEL;

- Those parts of the Operations Manual which are required for the conduct of the flight are available;
- The documents, additional information and forms required to be available are on board;
- Current maps, charts and associated documents or equivalent data are available to cover the intended operation of the aircraft including any diversion which may reasonably be expected;
- Ground facilities and services required for the planned flight are available and adequate and where no qualified personnel are available supervise that correct type and quantity of fuel is loaded appropriately;
- The provisions specified in the operations manual in respect of fuel, oil and oxygen requirements, minimum safe altitudes, aerodrome operating minima and availability of alternate aerodromes, where required, are compiled with for the planned flight;
- the load and fuel is properly distributed and the load safely secured;
- The mass of the aircraft, at the commencement of taxiing and take-off roll, will be such that the flight can be conducted in compliance with the FCOM; and
- Any operational limitation in addition to those covered above can be complied with.
- Ensure that FMGS data base is valid.
- Ensure that EGWS data base is valid

1.4.5. Flight Crew Takeoff Briefing

Before every take-off, the Pilot in command must ensure that the Co-Pilot is familiar with the standard take-off briefing for the aircraft concerned. A monologue style brief should be avoided and all crewmembers should participate in the briefing.
Briefing should be conducted as per the specific S.O.P (Refer to 8.11 Standard Operating Procedures)
Because of their importance, procedures involving the Engine Failure, EOSID, Fire and RTO shall be included in take-off briefing. It is accepted that when the same crew are on a multi-sector duty, the Engine Failure, Fire and RTO procedures need not be re-briefed apart from EOSID before every take-off. Pilot in commands shall, however, ensure that such a briefing is given on a regular basis. When time permits other checklists, particularly those involving memory items, should be regularly discussed and rehearsed.
Prior to taxiing, he must ensure that:

- the ramp is clear;
- the aircraft's external surfaces are clear of any deposit which might adversely affect its performance and/or controllability;
- that the passenger cabin and galley(s) are secured, all equipment and baggage is properly stowed, that all exit and escape paths are unobstructed, and that relevant emergency equipment remains easily accessible for immediate use and that each assisting means for emergency evacuation that deploys automatically is armed;
- That each passenger occupies a seat or berth with his safety belt/harness properly secured and that passengers have been appropriately briefed prior to take-off, he must ensure that all crewmembers occupy their stations as prescribed and the report “CABIN SECURE” is received.

1.4.6. In-Flight

In flight, the Pilot in command continues to co-ordinate the tasks/work of his Flight Deck team so as to obtain a maximum of good airmanship for the conduct of the flight. He ensures:

- Observation of all noise abatement regulations as long as they are not detrimental to safety;
- precise navigation, observation of minimum altitudes;
- use of all available Air Traffic Services;
- observation of limitations, proper use and proper handling of the aircraft's systems, including strict use of checklists; not to operate an aircraft in a careless or reckless manner so as to endanger life or property;
- Ensuring the aircraft is operated in accordance with any applicable MEL/CDL Operational Procedure;
- observation and evaluation of the development of the meteorological situation, specifically forecasts for the route to be flown, for En-route alternates and for the destination aerodrome and its alternate(s);
- that the amount of usable fuel remaining suffices to proceed to an aerodrome where a safe landing can be made, according to Section 8.3.7;
- that the applicable provisions for preplanning the flight are met;
- timely corrective action(s), whenever system malfunctions or other variables impair the aircraft's operation;
- that, in case of such impairment, his crew and relevant ground personnel are kept informed about the situation and his decisions;
- that the Flight Data Recorder is not disabled, switched off or erased intentionally, in the event of an accident or an incident;
- that the Flight Deck Voice Recorder is not disabled or switched off unless he believes that the recorded data (which otherwise would be erased) should be preserved for investigation purposes;
- that data on a Flight Deck Voice Recorders is not manually erased in the event of an accident or incident;
- that, by keeping close contact with his cabin crew, a polite and efficient passenger service is being provided;
- that all requirements concerning cabin safety are being observed and, in particular, not only prior to taxiing but are also fulfilled prior to landing;
- that, when leaving cruising level for descent, a check is carried out to ensure that the landing distance requirements can be met, taking into account runway condition and aircraft configuration, and the MSA has been identified, and that, prior to landing, all crewmembers occupy their stations, and that the cabin crew reports "CABIN SECURE".
- That, on augmented crew operations, the rest periods is arranged such that he re-occupies his seat no later than 15 minutes before Top of Descent.
- Notify the appropriate local authority without delay in the event of any emergency situation that necessitated action in violation of local regulations and/or procedures
- Submit, if required by the state of occurrence, a report to the appropriate local authority and also to the authority of the state of the operator.

1.4.7. After Flight

The Pilot in command ensures that the Flight and Aircraft Technical Reports are completed. He prohibits erasure of data recorded on a Flight Data Recorder and a Flight Deck Voice Recorder in the event of an accident or incident having occurred which may be subject to mandatory reporting.

He hands over the aircraft to the next crew or to the maintenance personnel or parks, locks and secures the aircraft properly.

At aerodromes without handling personnel under contract to the company (e.g., after a diversionary landing) it is the Pilot in command's responsibility to ensure that all passengers, the aircraft's load (e.g., live animals) and the aircraft are well taken care of. He must also ensure the security of the aircraft.

He files written occurrence and incident reports as prescribed; communicating also by telephone or facsimile if necessitated, by the urgency of the matter. He directs the attention of appropriate personnel to technical and operational particulars and problems encountered.

All ASR's must be completed and transmitted to Operations by the most expeditious means. If the ASR involves a technical defect, a comprehensive description of the defect must be placed in the Aircraft Technical Log and the fact that an ASR has been completed must be annotated.

When any event or occurrence affecting the punctuality, or conduct of the flight is encountered, the Pilot in command shall report the event / occurrence in the Pilot Voyage Report.

1.5 Duties and Responsibilities of Crewmembers other than the Pilot in Command

1.5.1 General

The proper execution of any flight operations plan demands constant vigilance, crosschecking and sharing of information.

If a crewmember becomes aware of anything significant with which he disagrees or that causes him concern; he must bring it to the attention of the pilot in command. This does not imply that there is more than one pilot in command or it is license for argument or discourtesy. This requirement is to ensure that the Pilot in command is aware of the factors and judgments that could affect his decisions.

Each crewmember must take all reasonable steps to:

- **(a)** Operate company aircraft safely, economically and punctually in accordance with the Operations Manual.
- **(b)** Maintain familiarity with relevant air legislation, provisions of the Operations Manual and agreed aviation practices and procedures necessary to fulfill his function.
- **(c)** Support the pilot in command in the maintenance of a proper standard of professional expertise, crew discipline, conduct and personal appearance.

A crewmember shall:

- Report to the Pilot in command any fault, failure, malfunction or defect which he believes may affect the airworthiness or safe operation of the aero plane including emergency systems.
- Report to the Pilot in command any incident that has endangered, or could have endangered the safety of operation.
- Make use of the operator’s occurrence reporting schemes described in chapter 11 (Accident prevention and flight safety program) and (Handling of accidents and occurrences). In all such cases, a copy of the report(s) shall be communicated to the Pilot in command concerned.

However, nothing mentioned above shall oblige a crewmember to report an occurrence which has already been reported by another crewmember.

1.5.2 First Officer

The First Officer is responsible to the Pilot in command to assist in the safe and efficient conduct of the flight. In the event of the incapacitation of the Pilot in command, the First Officer will assume command.

It is the specific responsibility of the First Officer:

- **(a)** To prepare the Operational Flight Plan and, when necessary, file the Air Traffic Services Flight Plan with the appropriate Authority. If stored plans are used then he should ensure that the correct plan has been activated.
- **(b)** To carry out such duties concerning the flight, in accordance with the Standard Operating Procedures, including procedures, limitations and performance relating to the specific aircraft type, as are allocated to him by the Pilot in command.
- **(c)** To confirm the safe navigation of the aircraft, maintaining a continuous and independent check upon both the geographical position of the aircraft and its safe terrain clearance.
- **(d)** To safely and properly conduct the flight in compliance with the current flight plan and the pilot in command's instructions when the pilot in command is not at the controls. Any change to the current flight plan has to be notified to the pilot in command.

(e) To volunteer such advice, information and assistance to the pilot in command, as may contribute favorable towards the safe and efficient conduct of the flight. Notwithstanding the overriding authority of the Pilot in command, the First Officer should not hesitate to suggest a better course of action if he is convinced that a decision of the Pilot in command merits discussion.

(f) To seek and receive such information and/or explanation from the Pilot in command, as may be necessary to enable the First Officer to fulfill his function;

1.5.3. Cabin Crew

Cabin crew is required to be present on public transport flights to perform duties in the interest of the safety of passengers. They must be well informed about safety and policy of the Company.

The primary purpose of the cabin crewmembers is to ensure passengers safety.

They must inform passengers on emergency and safety procedures during all phases of the flight and manage procedures following an emergency in accordance with the Operations Manual and Pilot in command instructions.

Each cabin crewmember shall:

- Be well prepared and fit for the flight.
- Ensure the respect of “Fasten seat belt” and “No smoking” signs.
- Ensure the comfort and safety of the passengers.
- Ensure the passengers safely escape in an emergency evacuation.

A CDC/PUR (**Purser**) must be nominated for the flight.

The Purser shall:

- Have the overall responsibility to the aircraft pilot in command for the conduct, coordination and performance of the cabin operations and safety duties.
- Verify that all cabin crewmembers are fit for the flight and that they have their documents for flight duty.
- Co-ordinate and organize the functions and tasks of all cabin crewmembers (cabin crew briefing, delegate positions and working areas, in-flight service duties):
  - **(a)** Checking of emergency equipment, pre-flight safety briefing and reporting matters concerning safety (irregularities and malfunctions) to the Pilot in command.
  - **(b)** Debriefing with cabin crewmembers when required.
  - **(c)** Ensuring efficient communication with all flight crewmembers, cabin crewmembers and ground staff.
  - **(d)** Visiting/contacting the flight deck on regular intervals.

1.5.3.1. Cabin Crew – Duties and Responsibilities

Cabin Crew on aircraft fulfills **three** important functions:

1. They ensure, under the overall authority and responsibility of the Pilot in command, cabin safety i.e. the safety of the passengers and the security of cabin load and galleys;
2. Form the link between the passengers and the flight crew;
3. Provide an optimum of comfort and service for the company's customers, namely the passengers, and by their courtesy, efficiency, thoughtfulness and ready assistance directly shape the company's image.

Whenever more than one cabin crewmember is assigned, in flight supervisor must be nominated to:

1. Direct, co-ordinate and organize the functions and tasks of the cabin crew;
2. Be responsible to the Pilot in command for the conduct and coordination of cabin safety and emergency procedures specified in the Operations Manual, and for their observance by the cabin crew and by all passengers; and
3. Inform the flight crew of all irregularities and malfunctions and, at the prescribed times, report cabin secure or cabin not secure.

Cabin crew and the PURSER must meet the qualification and recently requirements outlined by in-flight Services Section.

Prior to flight, all Cabin Crew must participate in the Pilot in command's crew briefing, receiving information and particulars pertinent to the individual flight. Whenever due to unforeseen circumstances the Company-designated PURSER is incapacitated the Pilot in command will nominate the cabin crewmember holding the highest seniority to the duties and responsibilities of PURSER, if no alternate has been already assigned by In-flight Services. In such a case, a full review of all relevant safety/emergency provisions shall be held during the crew briefing.

Before boarding their aircraft, Cabin Crew shall carry out a cabin security check and verify the emergency equipment, other equipment and the catering equipment and immediately report deficiencies to the PURSER for further action.

For boarding of passengers, they shall take up their prescribed positions.

Before Takeoff, the purser shall notify the Pilot in Command cabin ready for takeoff after secured the cabin.

In flight, they conduct the prescribed passenger services apart from fulfilling the safety relevant tasks.

In the event of an emergency the PURSER will immediately contact the flight crew for instructions.

Before landing, The Purser shall notify the Pilot in Command cabin ready for landing after secured the cabin.

At **transit stations**, the Cabin Crew ensure proper cleaning of the aircraft's cabin and ensure re-catering for the next flight and cabin security.

Ref. to CCM 1.1.2

1.5.4 Chain of Command

The Pilot-in-Command is in charge of the aircraft at all times and is responsible for the safety of the passengers, Cabin Crew, cargo and the aircraft. He has full responsibility and authority over operation of the aircraft and the conduct of all Crew members under his command as “the first in command” during normal, abnormal, and emergency situations.

The Cabin Crew shall follow strictly the following operational Chain of Command prioritized as follows:

– PIC (Pilot-in-Command).
– First Officer (Second in Command).
– Purser.
– Other Cabin Crew in order of seniority according to flying experience.

1.6 Management Control

1.6.1 Provision of Resources

Ref: Corp. Manual chapter 1.

Nesma Airlines ensures the existence of a physical infrastructure and work environment that satisfies management system and operational requirements.

The management system identifies, provides and maintains the infrastructure necessary to produce safe and secure operations, to include operations and maintenance support facilities (when applicable), services and equipment appropriate for the area, such as:

- Buildings, workspaces and associated utilities;
- Facilities for people in the organization;
- Support equipment, including tools, hardware and software;
- Support services, including transportation and communication.

Likewise, the management system ensures a work environment that has a positive influence on motivation, satisfaction and performance of personnel in order to maximize safe and secure operations. A suitable work environment satisfies human and physical factors and considers:

- Safety rules and guidance, including the use of protective equipment;
- Workplace location(s);
- Workplace temperature, humidity, light, air flow; (When required)
- Cleanliness, noise or pollution

I-Main Office (HQ): well-furnished office located at
5, El Madina Street, El Nozha El Gedida, Cairo, Egypt
Phone : +202 2621 7591/2/3/4
Fax : +202 2624 6919
E-mail: Info@nesmaairlines.com

Includes: Chairman office, Chef Executive Officer CEO (accountable executive), operations department, technical department, safety and quality department, security department, ground handling department, financial department, commercial department, administration department, it department and operations & technical libraries

i. **Maintenance base**: At Cairo, international airport.

ii. Operations Control Center: (OCC)
Well-furnished office located at Cairo International Airport and equipped with all required facilities

iii. Support equipment, including tools, hardware and software:
The main office is a modern building equipped with adequate lighting, air condition, and main office runs by an advanced computerized system in most of the company activities such as reservation, operations, accounts, personnel, recording, engineering, planning & training. The main office is furnished with an excellent communication system, which is capable to contact any point in the world at any time and under any circumstances

iv. Support services, including transportation and communication:
Nesma Airlines has crew transportation means by its owned cars in Cairo and rented cars through contracts in other stations outside Cairo.

v. Nesma Airlines has established several communication means such as the internal communication network, mobile phones, telephone lines, Faxes, ARINC/SITA, AFIRS audio communications, reports, letters, internet and web site www.nesmaairlines.com

Nesma Airlines always tries to use any means of communication that may vary according to the size and scope of business. However, to be effective, any methods that are uncomplicated, easy to use and facilitate the reporting of operational deficiencies, hazards or concerns by operational personnel can be used. Also, refer to 1.6.2.3 Management and Control of Electronic Communication Tools.

1.6.2 Communication Systems

Ref: Corp. Manual Chapter 1.

a) Nesma Airlines has communication system that enables and ensures an exchange of operationally relevant information throughout the management system and areas where operations and maintenance activities are conducted.

b) This effective communication system ensures an exchange of relevant operational information throughout all areas of the organization, to include senior managers, operational managers and front line personnel. To be completely effective, the communication system also includes external organizations that conduct outsourced operational functions.

c) Methods of communication are as uncomplicated and easy to use as is possible, and facilitate the reporting of operational deficiencies, hazards or concerns by operational personnel.

d) Communications methods include but are not limited to:

- Telephone lines, Faxes, SATCOM communications, reports, letters, internet, web site (www.nesmaairlines.com), circulars, memos and official company email service. This is in addition to meetings and interviews.
- FlyCo content distribution as illustrated and controlled in OM-D chapter 6.
- Intranet. Refer to 1.6.2.4 Nesma Airlines Intranet.
- As part of Nesma Airlines expansion, other electronic communication tools can be used as long as they are managed and controlled as elaborated in 1.6.2.3 Management and Control of Electronic Communication Tools.

e) Communication with external organizations that conduct outsourced operational functions to Nesma Airlines always will be conducted through all/any of the mentioned communication methods in point (d).

f) The system facilitates using the safety reporting (including voluntarily and confidential reporting) system by all operational personnel and all staff to report of operational deficiencies, hazards or safety concerns (see SMS manual chapter 2.1)

g) Every department may issue other reporting forms in addition to the mentioned above to facilitate collection of data to be used for performance measurements to support operations improvements.

Safety Communication

To improve safety culture within the organization, all employees receive ongoing information on safety issues, safety metrics, specific hazards existing through different ways which includes but not limited to safety bulletins, safety circulars, flight crew safety notices, safety Magazine. (Refer to SMS Manual chapter 4.2 – Safety communication)

1.6.2.1 Meetings

Management Meetings (Review)

a. Nesma Airlines has a process to review the management system and all company activities at regular intervals, not exceeding one year, to ensure its continuing suitability, adequacy and effectiveness.

b. **Management** review is a necessary element of Nesma Airlines, as well as a powerful medium through which organizational control and ongoing improvement can be delivered. Nesma Airlines conducts a formal review of its management system (ex. Organizational structure, reporting lines, authorities, responsibilities, policies, processes and procedures, as well as allocation of resources and identification of training needs at the senior management level at least every one year

c. The meeting will include all company directors and departments' managers; it will be headed by the Chef Executive Officer CEO (Accountable Executive)

d. The meeting has an agenda that includes an assessment of the management system, and a determination by senior management that all elements of the management system are in place and functioning effectively.

e. The meetings also include an assessment of operational performance within the organization and a determination as to the suitability, adequacy and effectiveness of safety and quality management.

f. Senior management must ensure that deficiencies identified during the management meeting are addressed through the implementation of organizational changes that will improve the performance of the management system, and thus the entire operation.

Inputs to the management meetings/review process (agenda) will include, but not be limited to:

- Results of audits;
- Significant issues arising from audits.
- Findings from operational inspections and investigations;
- Operational feedback;
- Incidents and near-miss reports;
- Changes in regulatory policy or civil aviation legislation;
- Process performance and organizational conformity;
- Status of corrective and preventative actions;
- Follow-up actions from previous management reviews;
- Feedback and recommendations for management system improvement;
- Regulatory violations.
- Allocation of resources
- Structure, reporting lines, authorities, responsibilities, policies, processes and procedures.
- Training needs

Outputs from the management review process should include decisions and actions related to:

- Improvement of the processes throughout the management system;
- Safety and security requirements;
- Resource needs.

g. Management meetings/review is a formal process, and Nesma Airlines have a process for retaining records of the activity. Acceptable records include meeting schedules, agendas and minutes.

Meeting output should be recorded in comprehensive minutes or in the form of a report,
Safety Committee Meetings:
Refer to SMS Manual item 1.4 for details.

1.6.2.2 Coordination Process

Nesma Airlines has an established coordination processes that use the communication tools to cover all issues that affect operational safety and security in a coordinated way among personnel with expertise in the appropriate areas within the flight operations organization and relevant areas outside of flight operations, to include as appropriate:

- **i.** Accident Prevention and Flight Safety
- **ii.** Cabin Operations
- **iii.** Engineering and Maintenance
- **iv.** Operations engineering. Refer to 1.3.4.3 Operations Engineer
- **v.** Flight Dispatch / operational control and Navigation
- **vi.** Human Resources;
- **vii.** Ground handling, cargo and security
- **viii.** Manufacturers (AFM, AOM, operational and safety communication);
- **ix.** Regulatory Agencies or authorities.

Refer to SMS item 1.4 for coordination process through the safety committee.
Such coordination may occur in issues that could affect operational safety and security that include and not limited to:

- **i.** Regulatory requirements;
- **ii.** line operations policies, rules, instructions and procedures;
- **iii.** staffing needs to meet Nesma Airlines requirements
- **iv.** flight crew training
- **v.** aircraft modifications
- **vi.** New equipment
- **vii.** New destinations/route
- **viii.** technical operations material;
  - **a)** performance;
  - **b)** navigation;
  - **c)** fleet configuration;
  - **d)** Equipment (cockpit layout, MEL/CDL, others).

The coordination process may occur during meeting or other means of liaison using Nesma airlines communication system e.g. e-mail, circulars, mems, etc.

1.6.2.3 Management and Control of Electronic Communication Tools

As part of Nesma Airlines development and expansion, it may use any electronic, server-based and/or internet-based communication tool. These tools shall be managed and controlled by Nesma Airlines in a manner that ensures full authority of Nesma Airlines and complete access to all information.

Electronic communication tools shall be administered in a way that always allows uninterrupted access to all users. Nesma Airlines is committed to following the best practices that ensure system security and prevent fraudulent workarounds in competency assessment.

Each electronic communication tool shall have an assigned administrator that can report activities throughout the system. System administrator shall have assigned duties and responsibilities as following:

- Ensure system security that prevents fraudulent practices
- Ensure compliance with regulations
- Ensure every user is given adequate privileges that enable him to carry out his duties.
- Track users progress
- Manage record keeping and archive results
- Administer content management and distribution of uploaded documents/videos to concerned personnel.
- Handle user registration (Enable/Disable, set password, etc.)
- Hold accountability before CAA and IOSA inspectors

The following security measures shall always be met:

- Every user is given a unique account ID that is under the control of the administrators
- Administrators shall have access to user accounts that allow the administrators to scrutinize and examine user activity.
- Administrators shall have access to users' progress reports to track any malicious or fraudulent activities.
- Ensure data on the system are backed up periodically.
- Established connections through web portal or mobile applications shall be encrypted
- Log-in data shall be retained with unique ID
- Nesma Airlines shall always ensure the cloud-based web servers meet the highest security and integrity standards

In case of system failure or inability to track users' fingerprints, other communication means shall replace the hitched system.

Periodic backup shall be carried out in case dictated by the CAA or required by company policy.

1.6.2.4 Nesma Airlines Intranet

Nesma Airlines intranet is a private network accessible only to company's staff. The main purpose of an intranet is to share company information and computing resources among employees. An intranet's websites and software applications look and act just like any others, but the firewall surrounding an intranet fends off unauthorized access and use.

Intranet administration is carried out by the technical office. Through the intranet, unique account shall be created to every user in accordance with 1.6.2.3 Management and Control of Electronic Communication Tools.

1.7 Designated Common Languages

English and Arabic are the designated common language used by all Nesma Airlines flight crewmembers for communication.

Personnel who demonstrate proficiency below expert level (ICAO Level 6) should be formally evaluated at intervals in accordance with ECAR 63.9 and ICAO Annex 1 item 1.2.9.6 as follows:

- Those demonstrated language proficiency at the operational level (Level 4) should be evaluated at least once every three years
- Those demonstrated language proficiency at the operational level (Level 5) should be evaluated at least once every six years

ECAA requires level four of English language as a minimum level. All operational communications shall be established and maintained in English:

1. On the flight deck during line operation.
2. Between flight crew and cabin crew during line operation.
3. During flight crew training and evaluation activities.
4. In normal operations, abnormal and emergency situations
5. In the event of incapacitation of any crewmember

1.8 Crew Regulations

1.8.1 Rules of Conduct

General

Flight crew and Nesma Airlines Operations Personnel conduct should reflect credit upon Nesma Airlines. Crewmembers and Operations Personnel are required to comply with the rules and regulations of Nesma Airlines, as well as the established departmental policies.

Integrity is the essence of an aircraft Pilot in command's character. Nesma Airlines has the right to dismiss or discharge – according to Nesma Airlines Administrative and legal policies - a crewmember or an employee at any time for any act or conduct or willful and deliberate violation of Nesma Airlines Policies and/or Procedures which affects the airline's and the country's image or endangers safety.

- Do not make false or slanderous statements about the airline, its employees or patrons.
- **Gambling** of any kind is not permitted during night stops or while at layover stations.
- Be courteous and helpful to our patrons, passengers and visitors.
- Threatening, intimidating or otherwise interfering with other employees at any time is prohibited. This includes off duty periods.
- **Dishonesty** of any kind such as theft or pilferage of airline property, hotel property, or other properties entrusted to the airline, or misrepresentation in obtaining benefits of other employee’s privileges whether committed on duty or off duty will be **grounds for dismissal**.
- Any airline mail should be sent with the airline mail or ships papers. Postal laws and regulations forbid the carriage of personal mail.
- Operating an aircraft in a careless, reckless manner so as to endanger the life or property of another is prohibited.
- Carriage of narcotic drugs, hashish, and depressant or stimulant drugs or substances is prohibited.
- Transportation of hard currency as well as Egyptian Pounds outside the country is prohibited unless authorized by State Laws.
- Familiarize yourself with customs, immigration and currency regulations of other countries and avoid any violation. Many countries impose criminal penalties to both the employee and the airline for smuggling violations. Any time a crewmember is suspected of smuggling or has broken a regulation, he will be suspended from Nesma Airlines pending an investigation and if proven guilty, he will be disciplined or terminated.
- Compliance with all assignment schedules is mandatory; this includes meetings, training, etc.
- Unauthorized absence from work-station when on duty is prohibited.
- Crewmembers must have their ID Cards properly and visibly displayed at all times when inside Airport Terminals, Training Centers, Dispatch, the Flight Operations Department or any other restricted areas.
- Crewmembers must not board an aircraft of other carriers unless authorize.
- Off duty crewmembers must not board Nesma Airlines aircraft for any reason unless traveling as passengers or once they are officially assigned to do so.
- When meeting inbound, cockpit crew must wait until passengers and crews have deplaned the aircraft, exclusion to this is when crew change is taking place with passengers on board.

- Deadheading crew travel is restricted to crewmembers on duty. While traveling in uniform, deadheading crew shall occupy the back seats of the applicable zone and give priority to passengers.
- Pay your just debts, i.e. hotel charges and phone calls
- Smoking is not allowed in the flight deck, or the cabin. Smoking is only allowed in designated smoking areas inside terminals.
- When outside base on a flight, always use the transport provided by the airline, unless an emergency arises, then a report should be submitted.
- Crewmembers are required to comply with Egyptian Civil Aviation Regulations, concerning the change of originally submitted documents (i.e. date of birth, reports, etc.).

1.8.2 Falsification, Reproduction, or Alteration of Applications, Certificates, Logbook, Reports or Records

No person may make or cause to be made:

1. Any fraudulent or intentionally false statement on any application for a certificate rating or duplicate thereof issued under this part.
2. Any fraudulent or intentionally false entry in any logbook, records, or report that required to be kept, made, or used to show compliance with any requirements for the issuance, or exercise of the privileges, or any certificate or rating under this part;
3. Any alteration of any certificate or rating under this part, or
4. Any reproduction for fraudulent purpose, of any certificate or rating issued by ECAA is prohibited and is a basis for the ECAA to suspend or revoke any airman, ground, instructor, dispatcher, or medical certificate or rating held by that person

1.8.2.1 Extra Crew Travel Requirements

Following extra crew travel requirements have been received from Immigration Authorities, these requirements are subject to changes by the above-mentioned authorities. Therefore, you are required to obtain the latest information from Flight Operations Crew Affairs before you travel as extra crew provided that all company procedures are fulfilled and commercial authorization is granted.

1.8.3 Extra Crew Travel General Rules

Traveling as extra crew must always

- Be in uniform,
- Name on general declaration or passenger manifest whenever occupying passenger seat.
- Hold a Valid Nesma Airlines ID.
- Hold a valid passport.

1.8.4 Drugs and Alcoholic Drinks

Reference: ECAR121.429, 121.458, 121.459

1.8.4.1 Alcoholic Drinks

Alcohol concentration: No employee shall report for duty or remain on duty requiring the performance of safety-sensitive functions while having an alcohol concentration of 0.02 or greater. No certificate holder having actual knowledge that an employee has an alcohol concentration of 0.02 or greater shall permit the employee to perform or continue to perform safety-sensitive functions.

- **a) On-duty use**: No employee shall use alcohol while performing safety-sensitive functions. No certificate holder having actual knowledge that an employee is using alcohol while performing safety-sensitive functions shall permit the employee to perform or continue to perform safety-sensitive functions.
- **b)** Pre-duty use:
  1. No employee shall perform cockpit crewmember or cabin crew duties within 8 hours after using alcohol. No certificate holder having actual knowledge that such an employee has used alcohol within 8 hours shall permit the employee to perform or continue to perform the specified duties.
  2. No employee shall perform safety-sensitive duties other than those specified in paragraph (b) (1) of this section within 4 hours after using alcohol. No certificate holder having actual knowledge that such an employee has used alcohol within 4 hours shall permit the employee to perform or continue to perform safety-sensitive functions.

If as a result of the effects of alcohol, a flying crewmember is either incapable of discharging his duties or the ability to carry them out is impaired, it will be understood that he has committed gross misconduct, the penalty for which will be dismissal without notice or prior warnings.

Alcoholic drinks must not be consumed by flying staff during the eight hours before reporting for a roistered service or standby duty. There should be less than 0.02 of alcohol concentration in the blood of crew when reporting for duty.

Crews may be requested to undergo a Breathalyzer check on a random basis. Refusal or declination to participate in the process will be considered as gross misconduct. For Alcoholic Testing Program (Refer to Appendix A)

1.8.4.2 Drug Testing Program

Crews may be requested to undergo a Drug testing program on a random basis. Refusal or declination to participate in the process will be considered as gross misconduct. For Drug Testing Program (Refer to Appendix 1 & 2).

1.8.5 Behavior in Public

Each crewmember must be aware that he is a representative of Nesma Airlines and that people will identify his appearance with it. The image of an airline depends largely on the behavior of every employee.

Discussions on Company confidential subjects must not be held in public or with other crews or other crewmembers on duty, nor should negative statements be made about the Company.

Locations shall not be visited if the possibility exists of creating a wrong impression, which may be detrimental to the reputation and image of the Company. This rule equally applies to crewmembers not in uniform, and especially during night stops. All crewmembers should ensure that they and their colleagues always comply with the above regulations.

1.8.6 Personal Documents

For flight duty crewmembers must carry the following valid documents:

- License, including current medical certificate, (flight crew),
- Passport,
- Visa, if required,
- Crewmember certificate,
- Company identity card,

Each crewmember is responsible for the validity of his documents and their timely issue, renewal, and extension.

1.8.7 Crewmember Certificate

For the purpose of record keeping and updating, each crewmember or licensed personnel shall hand over his/her certificate/approval/license to his/her administration to keep a copy of that certificate/approval/license by any expeditious mean(s).

1.8.8 Company Identity Card

At the beginning of employment, an Identity Card will be issued to the crewmember. This Identity Card shows the holder to be an employee of the Company. The loss of any personal document must be reported immediately to the company's Administration Department. When leaving the company all documents, which have been provided by the company, must be returned.

1.8.9 Uniform

The Company provides each crewmember with a standard crew uniform and accessories.
The uniform portrays the image of the Company and identifies the wearer as its representative. It is imperative that the best image is presented to the public at all times and as per the policy, each crewmember will be immaculate in appearance when wearing the Company uniform (neat shave and decent hair cut). It is the Pilot in command's responsibility to ensure that his crewmembers are appropriately attired for the flight.

1.8.9.1 Crewmembers Attire

1.8.9.1.1 Badges of Rank

All flight crewmembers shall wear the following badges of ranks.
No crewmember will change his badges without a written approval by his respective manager.

1.8.9.1.2 Captains

4 Stripes

1.8.9.1.3 First Officers

3 Stripes
All upgraded crewmembers will maintain their current stripes until cleared at their new status.

1.8.9.2 Simulator Attire

All crewmembers, including instructors involved in a simulator session whether for license renewal or as support in Egypt or abroad shall wear Standard Uniform mentioned in 1.8.9 Uniform; they are not allowed to wear Jeans, corduroy or t-shirts.
Check Airmen are responsible to make sure that all crewmembers abide by this rule. A full report from the instructor must be sent to the Operations Training Section, and a copy to the Chief Pilot informs him about any violations.

1.8.9.3 Attire When Traveling As Dead Head on Duty or As Extra Crew.

Traveling as dead head on duty or as extra crew must be in uniform civilian clothes not allowed.

1.8.10 Crew Baggage

Only personal luggage will be considered as Crew Baggage. It must have a special crew label (issued by Nesma Airlines) identifying it as such. Crew Baggage will be transported in the cargo compartment. Stickers on the baggage - other than Nesma Airlines Label- are not allowed Crew Luggage must be Black or dark gray color.

1.8.11 Customs and Currency Regulations

All crewmembers have to pass through local customs, immigration, currency control, etc. as prescribed. Every person must comply with the local customs and other special immigration regulations, which may often be more restrictive for crewmembers than for passengers.
Crewmembers must declare all goods liable for duty and are responsible for duty charges. The same policy applies to restrictions on import or export of currencies.

1.8.11.1 Violation of Customs or Currency Regulations

It must be clearly understood that non-compliance with the customs regulations and other official controls is a very serious offence against Company regulations and the laws and regulations of any country.
Anybody caught smuggling or willfully breaking currency or other regulations can expect immediate dismissal from the Company as well as heavy fines or even imprisonment.

1.8.12 Duty Free Shopping

Ref: ECAR 121.393
Customs regulations must be taken into account when shopping in a duty free shop. A departure must never be delayed because the crew is duty free shopping, nor should passengers get such an impression.
Duty free shopping by crews is not allowed:

- Without the permission of the aircraft Pilot in command;
- When ground time is only 45 minutes or less;
- At intermediate stops when passengers stay on board;
- When scheduled ground time at outside stations is more than 45 minutes but due to late arrival the ground time is 45 minutes or less until scheduled time of departure;
- Early departure shall not be delayed because of Duty Free Shopping.

Precautions shall be taken to avoid leaving the aircraft unattended. When no passengers are on board, 50% of cabin crewmembers rounded down to the lower number in the case of fractions, but never less than one - must be on board to fulfill other requirements such as fueling, decision making, flight preparation etc.

1.8.13 Handling of Company Material

All crewmembers are obliged to handle all company material with great care. The company may claim compensation from a crewmember for damage caused by him. Crewmembers shall maintain the manuals, handbooks and other documents handed over to them in good condition. When the employment contract terminates, everything belonging to the company must be returned.
Crewmembers are strictly not allowed to take any articles, such as small gifts, (e.g. toys), catering items, parts of cabin or galley equipment, from the aircraft.

1.8.14 Accident / Illness

Accidents or illness must be reported immediately to:

- The Crew scheduling section and/or Operations Control (dispatch) when not on duty.
- The Pilot in command (when away from home base) and

The crewmember must inform the Company about the expected duration of illness, and any change in duration.
The crewmember must produce a sickness report from an authorized medical examiner approved by Nesma Airlines within 24 hours reporting on duty.

1.8.15 Conduct at Outside Station

At all outside stations, cockpit crew should respect the law of the land and hotel regulations, and wear the proper attire.

1.8.15.1 Layover

Should any crewmember wish to leave base where crew stay on layover trips, the following must be adhered to:

- Obtain prior approval from relevant manager and/or PIC.
- Return to base, i.e. hotel at least 24 hours prior to pick up time.
- Leave to the airport with the crew and not by any other means, i.e. neither going to the airport directly nor joining the crew at the airport.

1.8.15.2 Night Stops

Should any crewmember wish to leave the hotel on a night stop, the following must be adhered to:

- If you are going to absent yourself for longer than six (6) hours, obtain the approval of your PIC.
- Should your domicile/family be outside base city and you regularly visit them during night stops then procedure mentioned under layover applies.
- Return to base, i.e. hotel, at least one hour prior to pick-up time.
- If night stop hours are barely enough to cover the legal rest period or less than that, crewmembers are not allowed to leave the hotel.

1.8.16 Crew Hotels/Stopovers Away from Base (Outside Egypt)

All crewmembers shall comply with all instructions required for the specific country before leaving the aircraft.

Nesma Airlines will provide hotels for the crew when away from base. Nesma Airlines will pay for the room only on Bed and Breakfast (BB) basis or as contracted. All other expenses are the responsibility of the individual crewmember. All personal bills must be settled by the crewmember prior to checking out. Nesma Airlines or the handling agent will arrange crew transportation to and from the hotel. The Pilot in command will make any complaints about the transportation to Nesma Airlines.

In the case of unforeseen night stops, or when there is no reservation made by Nesma Airlines, the Pilot in command will decide which hotel is to be taken by the crew. Whenever possible, the whole crew shall stay in the same hotel. The Pilot in command shall seek the assistance of the handling agent in arranging the transport.

The Pilot in command will advise crew of pick-up time for transportation to the airport. It should be arranged so that the crew will arrive at the airport for sign-on, one hour before the scheduled time of departure.

Usually all crewmembers will use crew transport and accommodation provided by Nesma Airlines. Should a crewmember not require accommodation he must inform the Pilot in command and ask for permission prior to departing?

He must leave his contact details with the Pilot in command and must report at the hotel at least 2 hours before the pick-up time from the hotel. Each crewmember shall always observe the requirements of Chapters 7.

At check-in for flight duty the crewmembers shall present themselves to the Pilot in command.

When staying in hotel accommodation, all crewmembers shall refrain from any action or behavior that could lead to complaints from the hotel management; and refrain from making direct complaints to hotel personnel, but forward it to Nesma Airlines by the proper channels.

1.8.17 Contact of Crew Abroad

Crewmembers shall keep the Pilot in command informed of their whereabouts and must be back at the hotel from trips outside at least 2 hours before the scheduled pick up time from the hotel.
Crewmembers shall leave a contact number with the Pilot in command where they can be reached. In cases where no contact numbers are available, it is the responsibility of the crew to contact the hotel reception for any absence of more than 6 hours. Each crewmember shall always observe the requirements of Chapter 7.

1.8.18 Smoking Policy

Smoking is prohibited onboard Nesma Airlines aircraft. Crewmembers are not allowed to smoke in the cockpit.
All crewmembers must refrain from smoking when attired in the company uniform regardless of the place or time. However, Flight Deck crews are free to smoke in areas reserved for smokers in coffee shops and restaurants.

1.8.19 Local Contact of Crew

All crewmembers must have a landline, or a cellular phone. Any un-answered calls on crewmembers’ cellular phone are considered absence and/or refusal to do the pre-assigned or roistered duty.

1.8.20 Public Statement by Crewmembers

Crewmembers are not allowed to make statements to the press, media or public, unless they are authorized by Director Flight Operations.

1.8.21 Monthly Flight Duty

Flight crew monthly duty is expressed as a certain number of accumulated block hours per month calculated from blocks off to blocks on.

1.8.22 Log Books

Ref: ECAR 121.473

Crewmembers are personally responsible for maintaining their Log Book validity by logging of flight time.

a) Pilot In Command

Pilot in command flight time: An airline transport pilot may log as pilot in command, all of the flight time during which he acts as pilot in command.

b) Second in Command

A pilot may log as second in command, all of the flight time during which he acts as second in command of an aircraft.

c) Pilots administering line checks

May log all hours on flight duty not at the controls while carrying out line-check pilot duties.

Note: On monthly basis, scheduling section shall issue an individual accumulative flight duty time for each crewmember based on Flight Report (Voyage Report). All crewmembers are required to cross check their log books against the issued individual cumulative flight duty time sheet. Any discrepancy shall be corrected accordingly.

1.8.23 Basic Salary

Each crewmember's basic salary is paid in accordance with Nesma Airlines pay scale, irrespective whether the standard monthly duty hours are completed or not.

1.9 The Event of Willful or Deliberate Violation

According to Nesma Airlines policy, In the event of willful or deliberate violation to those rules, regulations, policies, and/or procedures of flight operations, the personal concerned shall become subject to disciplinary, legal or penal action however nothing contained shall prevent personal from exercising their own best judgment during any situation for which the FOM make no provisions or in an emergency.

The appropriate discipline action is handled as follow:

1. Through coordination between the concerned department head and operations director.
2. By Operations Department committee.

See also 11.1. Application of Safety Management System

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Operational Control and Supervision

Chapter 2

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Chapter 2 Operational Control and Supervision

2.1 Supervision of the Operation by the Operator

2.1.1 General

In accordance with (ECARs) Nesma Airlines must exercise operational control, establish and maintain a method of supervision and control of flight operations, flight operations functions and other associated activities in accordance with standards of Nesma Airlines and requirements of ECAA, have such method approved by the Authority. Nesma Airlines must also ensure that all operations personnel are properly instructed, have demonstrated their abilities in their particular duties and are aware of their responsibilities and of the relationship of such duties to the operation as a whole. In other words, Nesma Airlines shall ensure that operations personnel are and remain competent, proficient and qualified. Nesma Airlines shall have a Director of Flight Operations with appropriate qualifications and authority who is responsible for the performance of the flight organization. Responsibilities and qualifications refer to 1.3.1 Director of Operations.

These requirements are based upon the overriding aspect of safety. They address extremely important components of quality control.

The Director of Operations have overall responsibility for ensuring that this control and supervision are fully maintained. The Chief Pilot, Navigation, Dispatch and Performance Managers hold delegated responsibility for the control and supervision of their respective sections.

Supervision addresses the direction and management of flight safety, control includes standards of comparison, of ensuring that prescribed procedures are being followed. Supervision of the safety of flight operations and operational control with respect to flight safety are important aspects of quality control. As far as the flight operations are concerned, (in contrast to Ground Operations and Maintenance, which both play their indispensable roles in respect to overall safety) the Director of Operations bears the overall responsibility, and has the overall directive authority.

The Director Flight Operations exercises his supervisory directive power in:

1. Coordinating (through meetings, communication and/or reports) with respect to safety issues between Flight Operations and the following:
   - **i.** Accident prevention and Flight Safety;
   - **ii.** Cabin Operations;
   - **iii.** Engineering and Maintenance;
   - **iv.** Flight Dispatch / operational control and Navigation
   - **v.** Flight crew training
   - **vi.** Aircraft Performance
   - **vii.** Flight crew scheduling
   - **viii.** Human Resources;
   - **ix.** Ground Handling, Cargo, security and Dangerous goods;
   - **x.** Manufacturers (AFM, AOM, operational and safety communication);
   - **xi.** Regulatory Agencies.
   - **xii.** Flight risk analysis;
   - **xiii.** Operations engineering;
   - **xiv.** Document control

  - **i.** Regulatory requirements;
  - **ii.** Line operations policies, rules, instructions and procedures;
  - **iii.** Flight crew training;
  - **iv.** Quality assurance;
  - **v.** Accident prevention and flight safety;
  - **vi.** Technical operations material;
    - **a.** Performance;
    - **b.** Navigation;
    - **c.** Fleet configuration;
    - **d.** Equipment (cockpit layout, MEL/CDL, others).

In addition, supervising the Flight Operations departments in appointing their managers;

The Director Flight Operation's exercises operational control in:

1. Determining the usability of aerodromes,
2. The establishment of the aerodrome operating and planning minima,
3. The approval of routes to be served and of areas to be over flown and the establishment of minimum flight altitudes and of En-route operating minima.

(For an actual flight, this responsibility and this authority devolve to the Captain).

Note: Changes to the Operations Manual and related additional operational provisions and regulations will be suggested to Director Flight Operations by the designated manager and will be published, by that manager, under the direction of Director Flight Operations after prior coordination with Operational Safety Office and with ECAA for approval.
Any changes or modification(s) of checklist(s) provided by the manufacturer shall include human factors consideration.

This procedure provides the necessary element of control, a standard of comparison, and the channeling of know how.

1. Editorial responsibilities for the OM-A rests with the Flight Operations Director
2. Editorial responsibility for the OM Part ‘B’ rests with:
   - Approved Flight Manual (AFM) including the Configuration Deviation List (CDL) – Chief Inspector.
   - Minimum Equipment List (MEL) –Chief Inspector.
   - Flight Crew Operating Manual (FCOM) and Quick Reference Handbook (QRH) - Technical Pilot.
   - Weight and Balance Manual (WBM) – Ground Handling Manager.
   - Airworthiness Directives –Technical Development Manager
3. Editorial responsibilities for OM-C, rests with the OCC Manager.
4. Editorial responsibility for the Performance Manual for each individual aircraft rests with the OCC Manager.
5. Editorial responsibility for the specific Standard Operating Procedures (SOP) for each individual aircraft rests with Chief Pilot in coordination with Training Manager.
6. Editorial responsibility for the OM-D Training Manual rests with the Chief Pilot and Training Manager.
7. The editorial responsibility of the respective manager encompasses the duty to point out, to Director Flight Operations, noted discrepancies with other company publications or incompatibilities with legal requirements.

8. Drawing, in cooperation with the appropriate managers of the company's departments, appropriate conclusions from:
   - Reports provided by routine operational meetings;
   - Relevant occurrence and accident reports;
   - Hearings;
   - Check flights conducted by himself and by other supervisory pilots, and by
   - Addressing any noted deficiencies.
   - Cooperating in the audits of the Operational Safety and Quality Assurance Office and by addressing all faults and deficiencies found, particularly with respect to the standards of operations personnel; i.e. their qualification/re-qualification, competence in the performance of prescribed duties, and their adherence to company procedures.

Note: The editorial responsibility of the above named personnel encompasses the duty to point out noted discrepancies with other company procedures or incompatibilities with legal requirements.

The Flight Operations Director exercises operational control to ensure dissemination of safety critical operations information:

- Airworthiness Directives –Technical Development Manager and/or quality & Safety director.
- Manufacturer bulletins - with Technical Development Manager and/or quality & Safety director.
- Flight crew bulletins or directives – with Chief Pilot and/or Flight Safety Manager.
- NOTAMs – OCC Manager.
- Security alerts or bulletins – Security Manager.
- Any other safety critical information deemed appropriate by Nesma Airlines or the ECAA.

Where necessary, acceptance/approval by ECAA (or other authorities) for relevant procedures shall be applied for and obtained by the Director Flight Operations.

Flight Dispatch:

The responsibility for each flight devolves to Flight Dispatch. It shall ensure, for the planned flight:

1. That a Captain has been designated, and that a complete crew has been scheduled (in cooperation with Crew Scheduling sections);
2. That, for each crewmember of the planned flight, the legal requirements concerning flight time/rest time limitations have been and are being observed;
3. That the crew are given a detailed briefing regarding the departure airport, en-route, destination and alternate weather, ATC and OFP flight plans, NOTAMS, any special information necessary for the safety, and trip documents;
4. In conjunction with the Engineering & Maintenance Department, that the aircraft has undergone all maintenance - that renders the aircraft able, from a technical and legal point of view, to finish its planned flight(s) and return to home base before a major check becomes due.
5. Flight Dispatch shall react in an appropriate manner – inform, change, re-plan, reschedule, swap, restrict, suspend, cancel – to operational irregularities or emergencies such as; crewmember changes, (e.g. standby or by other means); aircraft changes; changing the aircraft's planned schedule; (early departure, delay, re-routing, cancellation of flight, diversion of flight En-route).

Once a Captain has commenced flight duty, he shall be informed of and consulted on all questions relating to his flight, his crew and his aircraft. In flight, the final authority as to the disposition of his aircraft rests with the Captain who shall responsibly co-operate with Flight Dispatch, and the Engineering & Maintenance Department, he should base his decisions on all aspects of the aircraft, its passengers and his crew's safety. Nesma Airlines controls, analyses and stores all records and required documents for the appropriate requisite period.

Pilot-in-Command:

For pilot-in-command authority delegation refer to 1.4. Authority, Duties and Responsibilities of the Pilot in Command.

2.1.2 License and Qualification Validity

The supervision of license and qualification validity is ensured –through Crew Management System- by:

- Following up qualifications, licenses validity, flight activity, and duty and rest time of the crewmembers and of the operations personnel.
- Checking that crewmembers designated to fly have medical check (depending on age and according to Egyptian Civil Aviation Regulations which laid down in the following table):

Pilot Age (Birthday)	Medical check validation
Up to 60 Years old	12 months
60-65 years old	6 months

Moreover, flight license and rate qualification valid and appropriate to the scheduled flights. Each license entitles its holder to exercise its privilege, this as long as it remains valid. It is the holder's responsibility to perform the required checks and tests for revalidation.
Flight crew licenses validity is checked regularly by the Crew Scheduling sections that is in charge of scheduling, in due time, licensed personnel for appropriate retraining and checks.

2.1.3 Competence of Operations Personnel

The supervision of the competence of the operations personnel is achieved by:

- Ensuring that the personnel assigned to, or directly involved in, ground and flight operations are properly instructed and have demonstrated their abilities in their particular duties. Qualification requirements are defined in chapter 5.
- Ensuring that the personnel can communicate in a common language and that they are able to understand those parts of the Operations Manual, which pertains to their duties and responsibilities.
- Competence of operations personnel is monitored:
- For flight crewmembers: by flight inspections, check flights or simulator sessions (by Chief Pilot, Director of Operations , Training Manager or their delegates)and automated QAR (or DFDR)analysis managed by the Safety Manager (FOQA program).
- For ground personnel: by appropriate checks conducted by department managers. For certain positions (e.g. dispatchers), a specific license or qualification ensures the required competence is fulfilled.
- Regular audits (refer to 3.5 Quality Assurance Program)

Supervision and monitoring of the competence of operations personnel will be used to adapt their recurrent training.

2.1.4 Operations Supervision

The supervision of the operations is achieved by:

- Ensuring that the operations comply with the content of the granted AOC and its associated Operations Specifications.
- Ensuring that the aircraft is operated in compliance with the terms of its valid Certificates of Airworthiness and within the approved limitations contained in its Airplane Flight Manual.
- Setting up operational procedures and instructions for all types of operation both on ground and in flight, which define duty for ground staff and crewmembers.
- Setting up a checklist system to be used by crewmembers under normal, abnormal and emergency conditions to ensure that the operating procedures of the Operations Manual are adhered to.
- Checking, analyzing and storing flight and maintenance records, pilots and cabin crew reports as well as passenger complaints for the statutory periods.
- Ensuring the Safety Manager, and if necessary, the appropriate authority get analysis of flight records showing deviations from the rules set in the Operations Manual. If necessary, corrective actions, training program and information will be initiated.
- The aircraft has all the operational and emergency equipment required for intended flight and they are serviceable.

2.1.5 Control, Analysis and Storage of Records, Flight Documents, Additional Information and Data

A full-furnished library available at Headquarter office contains the following documents and/or manuals whether in hard copy or digital copy:

- All parts of Operations Manual (Part A – B & D)
- ECARs
- Security Manual
- Corporate Manual
- Safety Management Manual
- Emergency Response Plan
- Company, Aircraft Certificates and Documents

2.1.5.1 Documents Used for the Preparation and Execution of the Flight

Flight documents to be carried for each flight are mentioned in 8.1.12. Onboard Library.
By examining and signing these documents and Dispatch Release Form (13.1.3 Dispatch Release Form) the Pilot in Command certifies that he is satisfied with the flight preparation.
Flight documents to be retained on ground at the aerodrome of departure for at least the duration of the flight are:

- A copy of the operational flight plan (hard copy of computerized flight plans needs not to be retained if it may be re-issued)
- Copies of the relevant parts of the plane Technical Log
- Route specific NOTAM documentation if specifically edited by Nesma Airlines.
- Copy of load sheet
- Special loads notification

The Authority may permit the information detailed above, or parts thereof, to be presented and retained in a form other than on printed-paper

2.1.5.2 Reports

After each flight the Pilot in Command shall ensure completion of the Technical Log (refer to 13.1.6 Technical Log Form) and of the Voyage Report (refer to 13.1.2 Journey Log (Voyage Report)) also refer to 8.1.12. Onboard Library for the list of the documents onboard. The reports contain:

- Aircraft registration,
- Flight number,
- Date of arrival and departure,
- Place and actual time of departure (ATD), arrival (ATA) and Flight Time
- Names and duty assignments of the crewmembers.
- Nature of flight (scheduled, non-scheduled, etc)
- Signature of pilot-in-command

As per ICAO annex 6 item 11.4 entries in the journey logbook should be made currently using ink or indelible pencil and completed journey logbook should be retained to provide a continuous record of the last six months' operations.
As part of Nesma Airlines EFB program, handwritten signatures on PEDs are acceptable means to sign documents on the EFB as long as the document is printed after the signature.
The PIC shall also report all occurrences as required in 11.6. Handling of Accidents/Incidents and Occurrences and special reports as in 8.1.12. Onboard Library.
As appropriate, a confidential report is submitted to the Safety and Quality Department.

2.1.5.3 Flight Recorders Data

Following an accident or incident for which reporting to the Authority is required, Nesma Airlines preserves the original recorded data pertaining to that occurrence, as retained by the recorder for a period of 60 days unless otherwise directed by the investigating authority.
Nesma Airlines, within a reasonable time after being requested to do so by the Authority, produces any recording made by a flight recorder, which is available or has been preserved.

2.1.5.4 Cockpit Voice Recorder Data

Cockpit voice recorder data may not be used for purpose other than for the investigation of an accident or incident.

2.1.5.5 Record Storage Period

Record	Retained by	Keeping period
Operational flight plan	Operations documentations/records control officer	6 months
Aircraft technical log (includes Fuel and Oil)	Maintenance	24 months after the date of the last entry
Route specific NOTAM/AIS Briefing documentation if edited by Nesma Airlines	Operations documentations/records control officer	6 months
Load Sheet	Ground Handling/ Operations documentations/records control officer	6 months
Notification of special loads including dangerous goods	Ground Handling/ Operations documentations/records control officer	6 months
ATC Flight Plan	Operations documentations/records control officer	6 months
Communications records	Operations documentations/records control officer	30 days
Dispatch release	Operations documentations/records control officer	6 months
Aircraft security Search check (Pre-service & Night Stop)	Relevant Station	3 months
Pre-Flight Security check	Relevant Station	3 months
Aircraft Daily serviceability report	Operations documentations/records control office	3 months
action taken records (release from employment or physical or professional disqualification of any crewmember or dispatcher)	Operations Department Admin, Cabin crew Admin & Occ.	6 months
In-flight medical emergency reports	Operations documentations/records control office	24 months

Reports

Record	Retained by	Keeping period
Journey log (Voyage Report)	Operations documentations/records control office	6 months
Flight report(s) for recording details of any occurrence or any event which the Pilot In Command deems necessary to report/record	Safety Office/ Operations documentations/records control office	Permanently during individual employment
Reports on extending of duty and/or reducing of rest periods	Operations documentations/records control office	6 months

Flight crew records

Record	Retained by	Keeping period
License	Training admin	As long as the flight crewmember is exercising the privileges of the license for Nesma
Training and qualification for specific operations and equipment. (LVP, RVSM, TCAS, EGPWS,.etc.)	Training admin	Permanently during individual employment
Medical status, including Medical Certificate	Training admin	As long as the flight crewmember is exercising the privileges of the license for Nesma
Basic indoctrination records; Initial qualification records; Transition and upgrade training records; and Initial Operating Experience	Training admin	Permanently during individual employment
Training and checking to operate in either pilot's seat	Training admin	3 years
Type(s) qualification;	Training admin	As long as the flight crewmember is exercising the privileges of the license for Nesma
Flight, duty and rest time	Operations documentations/records control office	12 months

Instructor/evaluator/line check airman qualification;	Training admin	3 years
Recurrent training and checking	Training admin	3 years
Route and aerodrome competence	Training admin	3 years
Dangerous goods training	Training admin	3 years
CRM	Training admin	3 years
Security training	Training admin	3 years
Successful and unsuccessful flight crew evaluations & monitoring	Training admin	12 months

Cabin crew records

Record	Retained by	Keeping period
Flight time & schedules	IFS C/C Scheduling Coordinator	1 year
Administration records	IFS C/C Admin. Coordinator	Permanently during individual employment & 1 year after employee retirement
Initial training, Transition and/or differences training (including checking)	IFS Training in-charge	Permanently during individual employment
License	IFS Training in-charge/ IFS C/C Scheduling Coordinator	Permanently during individual employment
Recurrent training 12 (including checking)	IFS Training in-charge	3 years
Recurrent training 24 (including checking)	IFS Training in-charge	3 years
Medical emergencies	IFS C/C Admin. Coordinator	2 years

Records for other operations personnel

The last three groups of records are kept in safe storage cupboards. While the digital monitoring and tracking of these records is backed-up monthly (by the end of the month) on separate compact disk and kept in another storage area (in Director of Operations Office).

Other records

Document	Retained by	Keeping period
Quality system records	Q.A. Office	5 years

2.1.5.6 Maintaining of Records

Records / files shall be maintained for a retention period related to each department compliance with its regulatory requirements as mentioned above.

2.1.5.7 Legibility of Records

All records shall have Legibility, updated and have signatures.

2.1.5.8 Retrieval of Records

- Records / files originated by the department is approved by the department director/manager, the quality department will review its Legibility
- Each department in the company shall establish an organized procedure for records / files ease of retrieval and retention of records according to its applications. This procedure may be applied according to the subjects, dates of issue…… etc. a list of the contents of each record / file is placed on the cover of the file and any new record shall be added.
- Records / files are subjected to reviewing at least once a year (internal audit) for checking updating requirements. These updates will be reflected by changing the issue number and the issue date of the concerned form.
- All records are reviewed for Legibility, update and have signatures.

2.1.5.9 Protection and Security

Each Department Head is responsible to ensure that all documents, qualifications, training records (in hard copy or in digital format) are secured and well protected in (safe box, closed wardrobe, filing cupboard…) and to be under key or under lock.

2.1.5.10 Disposal

– Disposal of records / files exceed the retention period (in accordance with ECAA requirements and company standards) and have no more retention requirement will be done after coordination between the concerned department and the quality department to be disposed through shredding machine for hard copies or through destroying in coordination with IT department for soft copies.
– Legal status and training records / files shall be kept permanently.
– All the records / files will be kept in suitable retention units.
– Nobody is allowed to make any deletion / correction for any statement using erasers or Corrector pen and when there is a need to correct the statement write an X on the statement, then write the required correction and put your signature or stamp beside it, errors that are corrected shall remain readable and identifiable, every department shall comply with the state regulations concerning the procedure of correction or deletion which applied to the records / files used by this department. The specific procedures shall be mentioned in the department's manual.
– All quality Management System records / files are subject to annual reviews.

2.1.5.11 Periodic Audit

Periodic audit shall done on pilots records to ensure records availability and validity,

2.2 System of Dissemination of Operational instructions and Information

Dissemination of information that has operational nature and supplementary to that contained in the Operations Manual, is made by Nesma airlines communication tools to ensure effective exchange of operationally relevant information and safety-critical information throughout management system for flight operations and among operational personnel within and external to the flight operations.
Nesma Airlines will receive following documents and to be disseminated in a timely manner by the concerned personnel:

a. Safety and Quality Director:
Receives and disseminates regulatory manuals and directives, such as:
- ECARS
- ICAO
- IOSA Standards Manual or revisions

b. Operations Technical Office Manager:
Receives and disseminates manufacturer manuals and documents, such as:
- FCOM
- Approved Flight Manual (AFM)
- Weight and balance data/manual
- Checklists and MMEL/CDL
- Performance Engineering Program (PEP) and its relevant documents
- Manufacturer bulletin, OEB
- Flight Operations Telex (FOT)

c. OCC Manager:
Receives and disseminates subcontracted documents, such as:
- NOTAMs. Disseminated to the flight crew during the prefight briefing.
- Airport Information Publication (AIP)
- Flight Plan (ATS)
- Weather
- Jeppesen Manuals and Airway charts
- Aircraft Database
- Aeronautical Information Circular (AIC)
- Aeronautical Information Regulation and Control (AIRAC)

e. Engineering Manager
Receives and disseminates technical data such as:
- Service Information Letter (SIL)
- No Technical Objection (NTO)
- Airworthiness directives

Each assigned manager shall ensure uninterrupted and continuous dissemination of relevant data and the continuity of the receipt of the necessary manuals and documents, essential for safe operations in his area of responsibility.

2.2.1 Internal Information System (Circulars or Notices)

The system of internal information is made of the following data issued by the concerned department responsible for its promulgation and the means of issuance.
The person responsible for the issuance of the information is also responsible for its control, distribution-distribution list, follow-up and its cancellation if applicable.
When applicable, the information shall mention the issue date and shall state the beginning and ending of its applicability. If unable to mention the applicability period, it shall mention "valid until further notice". The information is dispatched by means of paper bulletins or by electronic mail.
For newly hired crewmembers, he/she shall receive a collective copy of all circulars or notices that have been issued previously to crewmembers before his/her joining date in Nesma Airlines.

2.2.1.1 Technical Information

Issued by Chief Pilot or Technical Department:

- General technical or engineering notices, such as information on the type and qualities of the anti-icing and de-icing fluids being used.
- Specific technical notices, such as information on the aircraft technical status, or modification being progressively carried out on an aircraft type and the associated operational impact.

2.2.1.2 Operational Information

Issued by Chief Pilot, OCC Manager and Operations Engineering:

- Information on the aircraft performance that will be available on a particular runway which has been temporarily shortened because of a maintenance work for example.
- Changes of aerodrome approach procedures, minima, departure or missed approach procedures.
- Change of NAVAID frequency

2.2.1.3 Administrative Information

Issued by Crew Scheduling, Training, Security or Administration:

- Telephone number change.
- Crew scheduling
- Country regulations change (immigration, visa, and health…)
- Security measures

2.2.1.4 Safety Information

Issued by the Safety Office (see also chapter 11 -safety management system)

- To provide safety information based on airline experience or studies or following aircraft manufacturers or authorities advise.

2.2.2 Airbus Information / Constructor

A great part of the available technical, operational and safety data is provided by Airbus. NESMAAIRLINES promulgates this information as information after the concerned Director/manager has validated it and assessed its interest for the operation to ensure procedures and checklists are developed in a manner that ensures they are useable, identifiable and consistent with manufacture.

Note: Any changes in the procedures and checklist provided by the manufacture are not accepted in Nesma Airlines operations unless mentioned and approved by the manufacture itself e.g. FCOM, QRH.

- **All Operator Telex (AOT)**
  Issued any time eventful information or in-service findings which could have airworthiness implication on the fleet, and urgent action is to be taken by the operator.
- **Operator Information Telex (OIT)**
  Issued to give information on significant in-service events, but does not contain any requirement for direct action of the operator or, to give general information about maintenance and/or operations which may or may not be related to an in-service event and Airbus considers that operators should be notified quickly
- **Flight Operations Telex (FOT)**
  Issued to provide urgent information or temporary flight crew procedures or temporary limitations that must be taken into account for the safe conducts of flight.
  The FOT is not airworthiness approved.
  The FOT is distributed by Airbus to the Flight Operations department.
  FOT may be associated with an OEB and/or a temporary revision to the FCOM and/or a temporary revision to the AFM.
- **Service Information Letter (SIL)**
  Provides information of a non-urgent character (information contained in technical publication, or related to product improvement, maintenance or operational practices, economics, general organization...).
- **No Technical Objection (NTO)**
  Is a procedure of exception, generally used in case of AOG situation? It is based on the acceptability by Airbus to dispatch an aircraft. NESMAAIR must obtain prior approval by Egyptian CAA to apply the provisions and limitations contained in the NTO. A NTO does not apply to stress or structure repair issues (see RAS).
- **Repair Approval Sheet (RAS)**
  Issued by Airbus to approve a repair of the structure when the aircraft sustained a structural damage.
- **Operations Engineering Bulletin (OEB)**
  Issued to advice operators of revised or new significant technical information, flight crew procedures or limitations required to conduct safe flight operation.
  There are two categories of OEBs, distinguished by a color code:
  - White paper OEBs issued as a standard communication tool.
  - Orange paper (also called "red OEBs") issued to highlight a significant impact on safe aircraft operation. Associated with each red OEB is the issue of temporary revisions of the Quick Reference Handbook (QRH) and to the Airplane Flight Manual (AFM).

The OEBs are not airworthiness approved. They are issued on a temporary basis and a cancelled by the application of a modification or a Service Bulletin.
OEBs are sent by Airbus to the attention of each FCOM holder for incorporation into the relevant section of the FCOM.

- **FCOM bulletin**
  Published when there is a need for additional background information concerning technical, operational matters or to emphasize a particular aspect of general interest.
  They amplify or complete FCOM information. They are printed on blue paper and should be incorporated in the Bulletin chapter of the FCOM.

- **Modification Operational Impact (MOI)**
  Published when NESMAAIRLINES receives a new aircraft, in order to describe operational differences between their new aircraft and previous ones.

2.3 Operational Control

Operational control means monitoring of the whole operation and the exercise of authority to carry out the recovery from operational irregularities. If something is not proceeding according with the required procedures, this will be identified and corrective action will be taken without the loss of control over a given situation.
Operational control also comprises the exercise of authority over the initiation, continuation, diversion, termination or cancellation of a flight.
The required procedures are defined in the Operations Manual. The procedures to exercise operational control with respect to flight safety are part of the Quality System (Refer to Chapter 3 Quality System)
The Director of Flight Operations is legally responsible for establishing all operational policies, procedures, instructions and guidance given in the Operations Manual. Editorial responsibilities of associated parts of the Operations Manual are as follows:

- Operations Manual – Part A: Director of Operations
- Training Manual: Chief Pilot
- MEL: Technical Quality Assurance
- Cabin crew manual: In-Flight Service Manager
- Security Manual: Security Manager
- Route Manual: Director of Operations

The above mentioned responsible personnel shall point out to the Director of Flight Operations any discrepancy with company procedures or incompatibilities with legal requirements.
It is the duty of the Safety Office to fulfill operational control with respect of Safety. This department collects as much information and occurrences as possible by means of Air Safety reports, Human Factor reports and systematic analysis of DFDR data.

- Air Safety Report is a legal requirement to report events or facts (refer to 11.6. Handling of Accidents/Incidents and Occurrences). It is used to collect technical and operational occurrences.
- Human Factor Report is a confidential report through Aircrew Incident Reporting System (refer to 11.1.2. Voluntary Reporting System).
- DFDR flight data analysis is a confidential system decoding and analyzing DFDR data through Airbases system, to detect problems in the normal field of operation, which could even be undetected by Flight Crew (refer to 11.1.2. Voluntary Reporting System).

All the data collected shall be used to close the operational control loop by publishing recommendations, adapting the training and the procedures in order to reduce the occurrences.
For an individual flight, the operational control responsibility lies with the dispatch officer on duty. He is in charge of providing the flight crew with all data necessary to safely perform the flight. He co-ordinates with the maintenance department the availability and the status of the aircraft and supervises the progress of the flight.
Once the Pilot in Command has commenced his flight duty, the dispatch officer shall inform and consult him about all matter dealing with his flight, his crew and his aircraft.
Once the flight has commenced, the authority to dispose of the aircraft rests with the Pilot in Command who shall co-operate with Operations Control Centre (dispatch) and Maintenance.
He must report to the Chief Pilot and if necessary to the Safety office, any operational procedure deviation and any event providing useful information for the enhancement of flight safety.

2.4 Power of Authority

The Authority has the power to deliver the right to operate by means of an Air Operator Certificate (AOC).

The AOC may be varied, suspended or revoked if the Authority is no longer satisfied that our operation is safe.

The Authority has the privilege to grant an exemption from any requirement prescribed in Egyptian CAA. In such a case, the Authority is responsible for ensuring that an acceptable level of safety can be maintained.

The Accountable Executive, the Technical Director, the Director of Operations, Chief Pilot, Chief Inspector, and the Safety & Quality Director are acceptable by the Authority. The Authority has the right to interview any nominee or call for additional evidence of his suitability before deciding upon his acceptability.

The Authority has the power to:

- Determine the adequacy, relevance and consistency of the AOC holder's compliance with the requirements;
- Assess the efficiency of the operator's internal monitoring procedures and confirm the availability of sufficient resources and proper processes, as documented by the AOC holder's Quality System;
- Verify by means of inspections, compliance with the requirements and the effectiveness of the AOC holder's Quality System;

The Authority has the power to assess the continued competence of an AOC holder's by inspection and monitoring of:

- Infrastructure
- Manuals
- Training
- Crew records
- Maintenance
- Ramp
- Equipment
- Pre-flight preparation
- Release of Flight/Dispatch
- Flight
- Ground
- Dangerous Goods awareness
- Quality System and results of NESMAAIRLINES Quality audits

Any time such an inspection is conducted in the premises of NESMAAIRLINES, a competent member of the department inspected shall accompany the member of the Authority.

For flight inspections, Nesma Airlines shall ensure that any person authorized by the Authority is permitted at any time to board and fly in any aircraft operated in accordance with an AOC issued by that Authority and to enter and remain on the flight deck.

The Pilot in Command shall, within a reasonable time of being requested to do so by a person authorized by an Authority, produce to that person the documentation required to be carried on board.

However, at any time, the Pilot in Command may refuse access to the flight deck if, in his opinion, the safety of the aircraft would thereby be endangered.

The Authority has the power to issue Operational Directives, notices in the interest of safety or in the public interest when it has the perception of risk of danger. Nesma Airlines, after notification by ECAA, shall make the required revisions in the procedures. Within 30 days after Nesma Airlines receives such notice, it may file a petition to reconsider the notice with the ECAA section charged with the overall inspection of Nesma Airlines operations. The filing of a petition to reconsider stays the notice pending a decision by the ECAA. However, if the ECAA finds that there is an emergency that requires immediate action in the interest of safety in air commerce, he may, upon a statement of the reasons, require a change effective without stay.

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Quality System

Chapter 3

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Chapter 3 Quality System

3.1 Definitions

1) **Accountable Executive:** One who is acceptable to the national authority (ECAA) and has corporate authority for
2) 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 Nesma Airlines.
3) **Audit:** A systematic, independent and documented process for obtaining audit evidence and evaluating it
4) Objectively to determine the extent to which regulatory and policy criteria are fulfilled.
5) **Auditor:** A person with the qualification and competence to conduct an audit.
6) **Audited:** The department or organization upon which the audit is conducted.
7) **Controlled Document:** A Document registered, (with details such as name of issuing authority, owner of the
8) Document), issued and amended from time to time by the Document Owner through the Library.
9) **Document Control:** Control by the Document Owner of the contents of a document and its amendments, together
10) With library control of the registration and issue of document copies and their amendments, so as to ensure that only current, valid information is in general use, and that obsolete documents are withdrawn.
11) **Document Owner:** The author or editor, or sponsor of a document responsible for the integrity of the contents of the master copy of a document and its amendments.
12) **Document Sponsor:** A person within the organization who is made responsible for monitoring the integrity of the
13) Contents of an external document that is controlled externally e.g. Manufacturers manuals. The sponsor is primarily responsible for liaison with the 'external owner' and requesting amendments and changes.
14) **Document Custodian:** The person who receives a copy of a document from the Library by signing the Library
15) Register, and is thereafter responsible for the safekeeping, currency of amendment, and final return of the document.
16) **Follow-Up Audit:** An audit conducted when it is necessary to verify that corrective action was carried out after the initial audit, and that it was effective.
17) **Non-Conformance**: Evidence of a condition not in accordance with a specified requirement.
18) **Procedure:** The set of activities written in accordance with the company plans and policies to ensure consistency and efficiency of work in an organization.
19) **Process:** Well-defined and controlled activities that turn an input (in the form of materials and/or information) into an output to the customer in the form of material and /or information.
20) **Process Owner**: An individual who has the authority to resolve issues and is responsible for corrective action within his department.
21) **Quality: Degree** to which a set of inherent characteristics fulfills requirements.
22) **Quality Control:** A part of quality management focused on fulfilling requirements.

23) **Quality Assurance:** A part of quality management focused on providing confidence that quality requirements have been, or will be fulfilled.
24) **Quality Management:** The coordinated activities that direct and control an organization towards the achievement of set standards and quality objectives.
25) **Quality Document:** A Quality document describes work processes or procedures or records results that are related to the safety of operations or the efficiency and standard of work.
26) **Quality Evaluation:** A comprehensive, systematic, and documented review by the Accountable Executive and the safety & Quality Director: of the quality system, operational policies, and procedures

3.2 Corporate Policy

The Corporate Policy Statement is a commitment by the CEO indicating the intention to achieve of the Quality System.
A formal written Corporate Policy Statement is established (QM).Company Quality System shall monitor the attainment of, and continual compliance with, EGYPTIAN CAA and additional Company specified procedures implemented to enhance operational safety standards.
The Accountable Executive has overall responsibility for the Company Quality System. The management of the EGYPTIAN CAA Quality System, including the frequency, format and structure of the internal management evaluation activities, is delegated to the Quality Manager. The company designated Quality Manager is responsible for establishing and maintaining a system of quality control to ensure that the procedures and requirements as contained in the Operations Manual are adhered to by all operating staff. Compliance monitoring includes a feedback system to the Accountable Executive to ensure corrective action as necessary. The system of quality control is included in the Co.

3.2.1 Quality Standards

Nesma Airlines quality standards are defined according to the management policy.
These standards are the basis of a safe and efficient operation, and a commitment to the continual improvement of the operational standards.

3.3 Auditors

Auditors shall be nominated to carry out regular checks of pre-flight planning, returned flight documentation, flight and duty time records and technical documentation. Appropriate flying personnel (E.G Chief Pilot, nominated accompany a selection of routine flights to confirm that normal operating and flight deck procedures are being followed).

3.4 Discrepancies

Any discrepancies noted in the course of this monitoring are to be reported to the appropriate Head of Department, with recommendations of any corrective action that may be required.

3.5 Quality Assurance Program

Ref: (Corporate Manual Ch.3)

3.5.1 Purpose

Nesma Airlines applying a quality assurance program that provides for the auditing and evaluation of the management system, and of operations and maintenance functions, to ensure the organization is:

- **i)** Complying with applicable regulations and internal requirements;
- **ii)** Satisfying stated operational needs;
- **iii)** Identifying areas requiring improvement;
- **iv)** Identifying hazards to operations

3.5.2 Scope

Audits are conducted on functions throughout the organization that are relevant to the safety, quality and security of operations. Operational functions include:

1. flight operations,
2. operational control/flight dispatch,
3. maintenance operations,
4. cabin operations,
5. Ground handling.
6. Security operations
   - Audit program designed as a combination of centralized audit program, and an individual audit program in maintenance department this permits flexibility in the implementation of the quality assurance program:
   - The quality assurance program is structured for safety assurance as well, such program is considered part of the continuous improvement element of the SMS .Information gained from quality assurance audits is used in the management of operational risk. Additionally, the quality assurance program is structured to serve as a safety performance monitoring and measuring activity in an SMS.
   - IOSA Standards and Recommended Practices incorporated in the system through using IOSA check lists to ensure appropriate operational areas are audited in accordance with IOSA program requirements.
   - The audit program includes:
     - ➢ Audit initiation, including scope and objectives;
     - ➢ Planning and preparation, including audit plan and checklist development;
     - ➢ Observation and gathering of evidence;
     - ➢ Analysis, findings, actions;
     - ➢ Reporting and audit summary;
     - ➢ Follow-up and close out.

3.5.3 Responsibility

- The Safety and Quality Director is appointed to oversee the implementation of the activities and processes associated with the quality assurance program and have direct lines of communication to senior management to ensure the efficient reporting of safety and security issues, and to ensure such issues are appropriately addressed.
- Operational managers have direct responsibility for the safety and security of operations, and therefore always have the authority to develop and implement corrective action as necessary to address audit findings in their respective areas of operations.
- Operational managers have direct responsibility to ensure corrective actions taken consider the root because determined and preventing reoccurrence of the finding.

3.5.4 Executers

- Quality audit principles forbid an auditor from auditing his or her own work area (independency).
- Safety/Quality director to assure that all the members of the auditing team are familiar with the quality assurance program and they are aware of the significant problem areas by making available for them the reports/findings /corrective actions from the historical files.
- Effectively of the auditor ethics would require auditors:
  - ➢ to act in a strictly trustworthy and unbiased manner in relation to both Nesma airlines and any other organization or area involved in an audit performed by them;
  - ➢ to disclose to the Safety and Quality director any relationship they may have with the organization or department to be audited before undertaking any audit function in respect of that organization/department;
  - ➢ Not to accept any gift, commission, discount or any other profit from the organization/ department audited, from their representatives, or from any other interested person.
- Audit will be accomplished either by a single auditor or auditing team according to the scope of the auditing and the size of the Auditor / auditing team assigned by Safety / Quality director
- The Safety and Quality department will issue the company authorized auditors list signed by the safety and quality director. The list will be subjected to review every six months or be updated according to any personnel employment change.
- The audit will be done by an (Auditor) who is functionally independent from operational areas to be audited.

3.5.5 Monitoring and Corrective Action

- Safety and Quality director is responsible for the audit planning process which includes the sufficient resources required to ensure:
  i) Audits are scheduled at intervals to meet regulatory and management system requirements, generally, internal audit is planned on 6-8 month basis, and external and subcontractors audit is planned on 12 month basis;
  ii) Audits are completed within a specified time period Audit Plan; Refer to Corporate Manual
- **Scheduled audit:**
  The safety and Quality Director shall approve the safety and quality department's issued annual audit plan on form F 390 during the month of July of each year for the planning of annual audit for the following year that the plan includes an audit of all activities of the company every six months, taking into account the following:
  - Results of previous audit.
  - Degree of importance of the activity.
  - Any change that have occurred in the quality system.
  - Any inputs received.
- **Unscheduled Audit:**
  Quality assurance program carried out outside the annual plan in the event of any change in the quality management system or the presence of important recommendations and the discovery of an urgent or non-conformity;
- **Preparation of the audit**
- Auditors prepare for an audit of a particular area of operations by:
  - Define audit objectives that address ongoing compliance with regulatory requirements and Nesma airlines standard.
  - Considers relevant operational safety or security events that have occurred
  - Conducting research into any relevant incidents or irregularities that may have occurred;
  - Reviewing reports from previous audits.
  - Gather sufficient evidence to produce realistic assessments during an audit,
  - Prepare the audit documents: (Audit checklist F391, Corrective action request F392, Audit report form F393, Corrective Action Plan (CAP) form F394)
  - Prepare the safety and quality departments audit checklists which consist of IOSA checklist in addition to the other checklists prepared on form F391 for different activities.
  - Audits will be conducted according to Annual audit plan (form F390)
  - Opening meeting requirements
- The auditor will implement the audit to cover all activities in accordance with the checklist
- If more than one auditor is conducting the audit, all finding must be grouped and accepted as such by the team leader, who decides also the importance level of the finding.
- In case of any non-conformity the auditor recording the finding with witnessing in the corrective action request form F392 and Audit report form F393

- **The opening meeting**:
  The meeting at the beginning of the on-site assessment phase of the Audit that permits the Audit Team to discuss with the audited the Audit Program and other arrangements, activities and information relevant to the conduct of the Audit.
- **The closing meeting:**
  The formal meeting at the conclusion of the on-site assessment phase of an Audit that permits the Audit team to discuss with the audited information relative to Findings and Observations, the Corrective Action Plan (CAP) form F394 and other subjects relevant to the audit process.

3.6 Quality Assurance responsibilities For Sub-Contractors

Ref: Corporate Manual Ch. 3

Nesma Airlines may decide to sub-contract out certain activities to external agencies for the provision of services related to areas such as:

1. Maintenance;
2. Ground handling;
3. Performance calculations;
4. Training;
5. Manual preparation;
   - **a.** When using sub-contractors the responsibility for quality of the product or service remains with the airline. There should be a written agreement between Nesma Airlines and the sub-contractor that clearly defines the responsibilities. That part of the sub- contractor's activity contained within the agreement should be included in the operators Quality Assurance Program.
   - **b.** Nesma Airlines shall ensure that the sub-contractor has the necessary authorization or approval when required, and commands the resources and competence to undertake the task. If Nesma Airlines requires the subcontractor to conduct activity which exceeds the sub-contractor's authorization or approval, Nesma Airlines is responsible for ensuring that the sub-contractor's quality assurance takes account of such additional requirements.

3.7 Control of Documents

Ref: Corporate Manual Chapter 2

3.7.1 Purpose

- The purpose of document control is to ensure that the necessary, accurate and up-to-date documents are available to those who need them to include, in case of outsourced operational functions, employees of external service providers.
- Operations Department is committed to comply with Nesma Airlines Document Control program in accordance with Corporate Manual Chapter 2 for the management and control of cabin operations documentation and/or data used directly in the conduct or support of operations.
- Controlling our documentation will ensure that all staff have the right information available to them all the time allowing them to perform their role fully, thus facilitating smooth and compliant operations.
- The importance of reference documentation, data and the control of this information is vital to the smooth, safe operation at Nesma Airlines and the maintenance of regulatory compliance.

All information whether received or issued internally or externally which has an impact on safe operations and the airworthiness of Nesma Airlines aircraft will be accurately documented and are readily available for all relevant staff to refer to.

3.7.2 Scope

Operations Department ensures management and/or control of flight operations documents used in the conduct or support of operations through review procedures. The review procedures should ensure that every manual:

i) Contains legible and accurate information;
ii) Is presented in a format appropriate for use in operations;
iii) If applicable, is accepted or approved by the Authority.
iv) In accordance with ECAA Advisory Circular # 00-10 for Human factor requirements Management and control of documents covers all the documents issued by Nesma Airlines and includes but not limited to,

- Operations Manuals (flight, dispatch, cabin, ground)
- Training manual

The following documents from external sources are controlled by Nesma Airlines and includes as a minimum:

i) Regulations from ECAA and other states relevant to operations, as applicable; (applicable regulations imposed on Nesma Airlines by other states)
ii) Airworthiness Directives;
iii) Aeronautical Information Publications, including NOTAMS;
iv) Manufacturer's documents:

- Approved Flight Manual (AFM), including performance data and CDL items.
- Flight Crew Operating Manual (FCOM),
- Weight and balance data/manual,
- Checklists and MMEL;
- QRH and FCTM

v) Other manufacturer's operational communications, as applicable.

vi) (Bulletins or directives distributed by the manufacturer for the purposes of amending aircraft technical specifications and/or operating procedures).
vii) As applicable ICAO international standard and recommended practices

3.7.3 Responsibilities of the Director of Operations

1. Identifying, approving the contents of and revisions to each controlled manual.
2. Reviewing, administering and controlling the contents and procedures for each manual and revision as necessary to maintain the currency of information contained in documents;
3. To have an organized retention of applicable documents &information that permits easy reference and accessibility, the retention period shall be according to statuary and regulatory requirements.
4. Availability of the current version of applicable operations, maintenance and security manuals:
   a. In appropriate areas of the organization.
   b. To external service providers that conduct outsourced operational functions effective control
5. Identification and control of obsolete and/or reproduced documents and coordination with quality department for disposal
6. Retention and dissemination of documentation received from external sources, to include manuals and documents from regulatory authorities and original equipment manufacturers. Including a process of prompt distribution to relevant and interested parties.
7. Expeditious dissemination of safety critical operational information (e.g. alerts, interim manual revisions & temporary bulletins) to appropriate personnel.

3.7.3.1 Library Keepers' Responsibilities

In addition to the above responsibilities:

- Responsible for reviewing, administering and controlling the contents of the library.
- Apply documents control program on al library inclusions, internally or externally originated to ensure:
  1. Documents are examined and approved for adequacy prior to use.
  2. Documents are reviewed and updated as necessary.
  3. Changes and current revision status are identified.
  4. Documents of external origin are identified and their distribution is controlled.
  5. Documents are checked to verify they remain legible and readily identifiable. Documents are maintained, identified, revised, distributed, accessed, presented, and retained.
- Controls manuals loans for the company personnel.
- Keep records of the manuals included in the library.
- Ensure the security of the library contents.
- Coordinate for obsolete documents disposition with the quality department.

3.7.3.2 Libraries

1) Company electronic library:
   Accessed through the company server, each department will provide the IT office with a Controlled copy of its documents (mentioned in the manual distribution list) include the manual latest revision and latest approval.
2) Operations library:
   Controlled by the operations department document control responsible under the supervision of the operations department director, the library is located at the Operation Library in Charge office.
3) Technical Library

3.7.3.3 A/C library (ECAR 91-203)

Refer to 8.1.12. Onboard Library

3.7.4 Documentation Management & Control

Refer to Corporate Manual ch.2

3.8 Control of Records

Reference: Corporate Manual Ch. 3

3.8.1 Purpose

The purpose of record control is to control of operational records to ensure the content and retention of such records is in accordance with requirements of the Authority, as applicable, and to ensure operational records are subjected to standardized processes for:

- **i)** Identification;
- **ii)** Legibility;
- **iii)** Maintenance;
- **iv)** Retrieval;
- **v)** Protection and security;
- **vi)** Disposal, deletion (electronic records) and archiving.

Maintaining records in electronic files is a reliable and efficient means of short and long-term storage. The integrity of this type of record-keeping system is ensured through secure, safe storage and backup systems.

3.8.2 Scope

all records associated with operations, which includes personnel training records, and also includes any other records that document the fulfillment of operational requirements (e.g. aircraft maintenance, operational control, operational security). In an electronic records system, record files are managed and controlled (i.e. created, maintained, identified, updated, accessed, retained and deleted) using computer systems, programs and displays (e.g. a web-based system).To preclude the loss of records due to hardware or software failures, an electronic system is Programmed to create backup files on a schedule that ensures records are never lost. Typically, an electronic system provides for file backup on a daily basis

3.8.3 Responsibility

All Nesma Airlines departments and sections are responsible of the implementation of the records control program.

3.8.4 Records Management

- All Nesma Airlines records to be recorded on the forms assigned to them, these records are issued and modified according to the activities & procedures operational requirements included in the departments documents (manuals).the forms will be identified by form number, title, issue number , issue date and the concerned department.
- Records /files shall be subjected to reviewing at least once a year (internal audit) for checking updating requirements. These updates will be reflected by changing the issue/revision number and the issue/revision date of the concerned form.
- Records/files to be maintained for a retention period related to each department compliance with its regulatory requirements, these retention periods shall be included in the department's manual, (Quality Management System records retention period shall be for 5 years prior to disposal).
- Disposal of records / files exceed the retention period (in accordance with ECAA requirements and company standards) and have no more retention requirement will be done after coordination between the concerned department and the quality department to be disposed through shredding machine for hard copies or through destroying in coordination with IT department for soft copies.
- Legal status and training records / files shall be kept permanently.
- All records shall have Legibility, updated and have signatures.
- All the records /files will be kept in suitable retention units.
- Nobody is allowed to make any deletion / correction for any statement using erasers or Corrector pen and when there is a need to correct the statement write an X on the statement, then write the required correction and put your signature or stamp beside it, errors that are corrected shall remain readable and identifiable, every department shall comply with the state regulations concerning the procedure of correction or deletion which applied to the records /files used by this department. The specific procedures shall be mentioned in the department's manual.
- Each department / section in the company shall establish an organized procedure for records / files ease of retrieval and retention of records according to its applications. This procedure may be applied according to the subjects, dates of issue… etc. a list of the contents of each record / file is placed on the cover of the file and any new record shall be added.
- All quality Management System records / files are subject to annual reviews.
- Electronic system data (if applicable) used for the management and control of records shall be backed -up regularly with a memory keeping media every 24 hours and a continuous backup system is to be updated daily& shall be stored in a safe place away from the area in which the original co

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Crew Management

Chapter 4

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Chapter 4 Crew Management

4.1 Method for Determining Crew Composition

The method for determining crew composition must take into account the following parameters:

- The area and type of operation being undertaken (e.g. long range, MNPS, Polar…) revenue, non-revenue flight (See also 8.7 Non-Revenue Flights)
- Flight crewmembers' age
- The minimum crew requirement and flight duty period limitations;
- Flight crew qualification
- Recency of experience
- The designation of the Pilot in Command and of the senior cabin crewmember, and, if necessitated by the duration of the flight, the procedures for their relief.

Nesma Airlines uses a crew management system that takes into account all regulatory and company limitation in crew assignment.

4.2 Crew Management System

Nesma Airlines uses a crew management system that is provided by Hitit Bilgisayar Hizmetler ("referred to as Hitit") that takes into account all regulatory requirements and company policies in crew assignment and the calculation of respective duty times.

Nesma Airlines crew management system provides a unified, integrated platform for the assignment of crewmembers on duty that drive efficiency and improve utilization while strictly abiding by the regulatory requirements.

The crew management system infuses mobile technology and interface to deliver secure read-only information to crewmembers. Hitit crew management system is considered an electronic communication tool used for Nesma Airlines' crew management, all rules, measures, protocols, etc. set in 1.6.2.3 Management and Control of Electronic Communication Tools shall strictly apply.

4.3 Management and Administration

Crew management system lies within the jurisdiction and authority of the Director of Operations as outlined in 1.1.2 Operations Department Structure & 1.3.2 Director of Operations. Proper management and administration of the system and the legal use of all its module is the responsibility of the crew management system administrator as highlighted in 1.3.8 Crew Management System Administrator.

Crew scheduling manager administers the system and performs the daily tasks in accordance with local regulations and international standards.

4.4 Scope

Nesma Airlines crew management system has the following modules:

4.4.1 Rule Set Management

The module used to set the rules by which the system will restrict crew assignment. Rule set management is used to enter crew assignment regulations and standards. Rule setting compliance with regulations is the responsibility of the chief pilot and shall be restricted to his access. Crew scheduling department shall have no access to change the rules.

4.4.2 Pairing Management

This module allows the setting of the crew pairing limitations manually. It also does legality checks to ensure adequate compliance with regulations and Nesma Airlines policies. Besides, it allows storing multiple different scenarios and working on these scenarios.

4.4.3 Rostering Management

The main interface that is used to assign crew on flights. It has the following functions:

- Scenario building
- Crew absence log
- Crew availability check
- Rule validations
- License validity checker

The rostering management module has an interface that takes the training data, license validity and qualifications (Area qualifications, RVSM, CAT II, etc.) and restrict crew assignment in accordance with these limitations.

4.4.4 Tracking

Crew tracking allows the user to handle day-to-day problems and flight schedule disruptions. During tracking process, the system accounts for all necessary checks and schedule changes as well as crew notification and external organizations (such as hotels).
The tracking module also records actual movements and duty time (including office duty).

4.4.5 Crew Connect

The crewmembers' portal that is currently accessed through a web-based and mobile application. Crew Connect allows crewmembers to receive up-to-date notifications with the recent duty assignment or change.
This modules also provide the crewmember with personal statistics on their duty time, rest period and vacations. It keeps complete record of every crewmember that may be used during an emergency.

4.4.6 Statistics and Reports

This module collects all data from all modules and compiles them in readily accessible reports. It provides the following reports:

- Daily flight reports
- Pairing reports
- Training reports
- Absence and vacation
- License validity

4.5 System Security and Backup

Nesma Airlines crew management system is a cloud-based application that is managed through the internet by means of encrypted connections that prevent the alteration or manipulation of information throughout the connection. Agreement on security protocols is stated in the mutual agreement between Nesma Airlines and Hitit.

Hitit is committed to complying with Nesma Airlines' policy regarding security and backups of electronic records as detailed in the Corporate Manual Ch.2 and Nesma Airlines quality program detailed in the Corporate Manual Ch.3 subsection 2 Outsourcing Quality Control.

4.6 Contingency Plan

As part of the agreement, Hitit shall provide daily backups in compliance with the IATA standards published in the IOSA Standards Manual (ISM). All published records, set rules, reports, etc. are readily accessible on two distant and secured servers. Nesma Airlines shall be granted access to the backup replica of the original server in case the connection with the primary server faces disruptions.

The responsibility of Nesma Airlines is to ensure the readiness of the backup service and the quick replacement of the original server through its quality control standards and quality program.

4.7 Crew Scheduling Process

4.7.1 Flight crew

The minimum flight crew is given in the approved Flight Manual.
Flight crew is composed of two pilots (including at least one captain acting as Pilot in Command) when the cockpit is arranged and certified for a two-member crew operation (All Nesma Airlines aircraft).
An instructor, an Examiner or a Check Airman may complete flight crew. They will use cockpit accommodation provided for observers.
This minimum flight crew may be augmented depending of the operation and/or the flight duration. (Refer to 7.1.3.1 Limitations on Single Flying Duty Periods Flight Crew & 7.1.3.2 Extension of Flying Duty Period by In-Flight Relief)
Each flight crewmember must have valid license, rating, qualifications and medical check needed for the type of aircraft and the type of flight. They must be validated by the airworthiness authority (ECAA for Nesma Airlines) of the country in which the aircraft is registered.
Note: Except for pilot line checks, the person being trained or checked may not be used as a required crewmember.

4.7.1.1 Relief of Flight Crewmember

A flight crewmember may be relieved in flight of his duties at the controls by another suitably qualified flight crewmember.

Relief of the Pilot in Command

The Pilot in Command may delegate conduct of the flight to:

- Another qualified Pilot In Command; or
- For operations only above FL200, a pilot qualified as detailed below.
- In exceptional circumstances (e.g. unfit), designate another Captain for remainder of the flight. Any such change in command shall be reported as soon as possible. The name of new captain shall be recorded in the Technical Log book and he must sign.

Minimum requirements for a pilot relieving the Pilot in Command (Refer to 5.2.2. Qualifications Requirements)

- Hold qualifications, which will meet the requirements of the operational duty for which he is required as a relief.

Relief of the co-pilot

The co-pilot may be relieved by:

- Another suitably qualified pilot in case of augmented crew

4.7.1.2 Pilot Operating Limitations and Pairing Requirements

A flight crewmember is considered inexperienced, following completion of type rating or command upgrade course, and the associated line flying under supervision, until he has achieved 100 flying hours on the type.
If the second in command has fewer than 100 hours of flight time as second in command in operations in the type of aircraft being flown, and the pilot in command is not an appropriately qualified check pilot, the Pilot in Command must make all takeoffs and landings in the following situations:
(Ref: ECAR 121.438 Pilot operating limitations and pairing requirements)

1. At special airports designated by the ECAA or at special airports designated by Nesma Airlines; and
2. In any of the following conditions:
   - **(a)** The prevailing visibility value in the latest weather report for the airport is at or below (3/4) mile / 1200 meters;
   - **(b)** The runway visual range for the runway to be used is at or below 4,000-feet/1200 m;
   - **(c)** The runway to be used has water, snow, slush or similar conditions that may adversely affect aircraft performance;
   - **(d)** The braking action on the runway to be used is reported to be less than “good”;
   - **(e)** The crosswind component for the runway to be used is in excess of 15 knots;
   - **(f)** Wind shear is reported in the vicinity of the airport; and
   - **(g)** Any other condition in which the Pilot in Command determines it to be prudent to exercise the pilot in command’s prerogative.

Crewing together of inexperienced flight crew is not authorized
A person who has reached his or her 60th birthday, but has not reached his or her 65th birthday, shall not act as Pilot in Command as a required flight crewmember of an aircraft unless the other pilot engaged in the same flight has not reached his or her 60th birthday.
Regarding the age requirements established by Country regulations over which Nesma Airlines aircraft shall fly or land, must be fulfilled and monitored.

4.7.2 Cabin Crew

AIRCRAFT MINIMUM NUMBER OF CABIN CREW

Nesma Airlines shall specify number of Cabin Crew of any passenger-carrying commercial aircraft as follows:

- **a.** The number of Cabin Crew, when required, shall not be less than one for the first 50 seats, increased by one flight attendant for every additional 50 seats or part thereof, (unit is 50 seats).
- **b.** Nesma Airlines shall include at least the number of specialized Cabin Crew necessary for the safety of aircraft.

Aircraft	Minimum Number Of Cabin Crew
A320	4

If it is necessary to carry less than the above number of cabin crew for exceptional reasons e.g. sickness, then the number of passenger's seats available for occupancy must be reduced by 50 for every cabin crewmember less than the minimum stipulated above. After such an occurrence a report must be sent to the Director of Operations.

In addition to the minimum legal requirements, Nesma Airlines may increase the number of Cabin Crew to provide a specified level of service.

A Senior Cabin Crewmember (purser) is nominated by the Cabin Crew Scheduling for each flight whenever more than one cabin crewmember are assigned. Refer to 5.3.1.3. Senior Cabin Crewmember (Purser)

Once on duty, should the Senior Cabin Crewmember become medically unfit to perform his duties the next most senior crewmember on duty may take over these duties after informing the Pilot in Command of the flight.

For a temporary reduction of minimum cabin crew complement during a case of incapacitation or unforeseen circumstances at a stopover (layover) point where a replacement cannot be obtained, the minimum cabin crew reduce by one cabin crew after operations director request approval from Egyptian Civil Aviation.

A written report must be submitted by the Commander and the crew member as soon as practicable after return to the main base.

All Nesma Airlines' flights whether revenue or non-revenue (i.e. ferry flights) shall be carried out with operating cabin crew. No flights are allowed without cabin crew.

Nesma Airlines does not utilize supernumeraries (refer to 8.1.8.1.2 Passengers and Baggage for definition of supernumerary) for the safety of operations on board an aircraft during commercial or non- commercial operations. Supernumeraries are transported on passenger seats or if they are assigned to cockpit inspection they will use an observer seat.

4.8 Designation of the Pilot in Command

For the duration of each flight, the Deck Crew scheduling shall ensure one pilot is designated to act as a Pilot in Command (PIC). He normally occupies the left hand seat with the exception that a training Captain, who as the designated Pilot in Command can command from the right hand seat.

No pilot may accept a designation as Pilot in Command unless, in addition to his qualifications and training, he has the recent experience and knowledge required (refer to 5.2.2. Qualifications Requirements) and considers himself to be in all respects competent and fit for the task.

The Pilot in Command:

- Must be a captain and one of the pilots of the flight.
- May delegate the handling of the aircraft to the co-pilot (pilot flying).
- May in exceptional circumstances (e.g. unfit) designate another Captain as Captain for the remainder of the flight. Any such change in command shall be reported as soon as practical. The name of new Captain shall be recorded in the Technical Log book and he should sign.

4.9 Flight Crew Incapacitation

Succession of command in case of incapacitation of the Pilot in Command:

- **Flight crew composed of two pilots:**
  The second pilot takes the authority over all persons on board the aircraft until the normal chain of command can be re-established.
- **Flight crew composed of more than two pilots:**
  The second pilot takes the authority over all persons on board the aircraft until more company qualified pilot on type of the aircraft takes the authority after having been informed by the second pilot and having acknowledged the overall situation and this until the normal chain of command can be re-established.
  If the original Pilot in Command cannot continue his command of the flight, the flight will not depart from the aerodrome where it has landed or, if occurring in flight, from the next aerodrome at which it lands, unless another captain on that particular type of aircraft is included in the crew.
  Refer also to 8.3.14. Incapacitation of Crewmembers
  Succession of command in case of incapacitation of the Chief Cabin / Purser:
  Whenever due to unforeseen circumstances the Company designated CDC is incapacitated the Pilot in Command will nominate the cabin crewmember holding the highest seniority to the duties and responsibilities of Senior Cabin Attendant. In such a case, full review of all relevant safety emergency provisions shall be held during the crew briefing. The chain of command shall be in the following order:
  - Captain (Pilot-in-command).
  - Captain (Second-in-command).
  - First Officer (Second-in-command).
  - Purser.
  - Other Cabin crew in order of seniority

4.10 Operation on More Than One Type

Aircraft that are considered as one type for the purpose of crew scheduling are mentioned in Chapter 5 - Qualification requirements:

- Refer to 5.2.10. Operation of More Than One Type or Varian for flight crew
- Refer to 5.3.5. Operation on More Than One Type or Variant for cabin crew

Qualification Requirement

Chapter 5

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Chapter 5 Qualification Requirement

5.1 Employment Policy

Nesma Airlines ensures that all management and non-management positions within the organization that require the performance of functions relevant to the safety or security of aircraft operations are filled by personnel on the basis of knowledge, skills, training and experience appropriate for the position

5.1.1 Employment Procedures:

1. All departments shall coordinate with Administration department for their needs and requirements for new employees. Department's managers should have acceptance from the vice president and provide in their requirements all standards and qualifications of candidates.
2. Each department director/manager will interview relevant applicants after Receiving and reviewing their personal C.V ,all necessary documents , certificates and written test results (if applicable), these documents will be reviewed by the admin-dept. (in coordination with the concerned dept.) also, the admin-dept. will review .Medical check if required for all candidates including Drug and Alcohol test (if applicable.)
3. After the concerned department assign successful applicant for the required position he/she will fill the employment application which be signed by applicant and the department director/manager, and then to be presented to the Vice president (CEO) for approval.
4. According to the vice president approval the administration department will prepare the contract to be signed by the new employee and the vice president (CEO)

5.1.2 Qualification Requirements (Administrative Requirements)

All candidates prior to the date of employment must meet the following qualifications and requirements:

A. Educational certificates.
B. Original birth certificate.
C. Approved medical check.
D. No criminal record and a certificate of good conduct.
E. Release from national service or exemption.
F. Release from previous employer.
G. 6 personal photos
H. Copy of national I.D.

5.1.3 Operations Department Employment (General Requirements)

The Operations Department shall coordinate with Administration Department its needs and requirements for flight crew and ensure in its recruitment of flight crew that they hold a good standard of education and have a high level of technical background.
The Flight Operations Department will interview relevant applicants after the Administration Department (in coordination with Flight Operations) has completely reviewed all necessary documents, certificates and psychometric test results including Interpersonal skills such as communication skills. Accordingly, Flight Operations Department will assign successful applicants for the required fleet.
All candidates prior to the date of employment must meet the following qualifications and requirements for flight crew:

1. Egyptian national has the priority.
2. Age:-
   - Minimum age is 18 years old,
   - Maximum age; has not started his 65th birthday $^{(+)}$ (ECAR 61.3)
3. Original/ endorsed birth certificate,
4. Minimum height 165cm. for male (160cm for females) and proportional with weight,
5. Educational Certificates: A minimum of High school diploma or university degree.
6. The appropriate: commercial pilot license with instrument rating,
7. Approved Medical Check, (including Drug and Alcohol Test) Pilots under 60 years old, the medical check is due each 12 months, while pilots over 60 years old, their medical checkup is due every 6 months.
8. No criminal record and a certificate of good conduct (Security background),
9. Release from national service or exemption (if applicable),
10. Release from previous employer,
11. Approved English Language proficiency level.
12. ECAA may allow a person has reached his (her) 60th birthday, but has not reached his (her) 65th birthday, to act a flight crewmember on any aircraft engaged in international commercial and transport operations.

Nesma Airlines shall not:

- Hire any person to serve as a pilot over 60th year's age, unless authorization is issued by the ECAA to Nesma Airlines for each person once after reaching his or her 60th birthday and once each year when reaching his or her 63rd birthday.
- Assign any pilot that has reached his or her 60th birthday with any kind of duties except actual flying duties on Nesma Airlines aircraft, Max flying hours for pilots over 60 years is 75% of normal pilot as mentioned at chapter 7 (flight limitations).
- Pilot that has reached his or her 60th birthday may serve as flight instructor, check airman or designated pilot examiner on simulator or Nesma Airlines aircraft.

Such person shall meet all requirements to act in the capacity of flight crewmember, including meeting the requirements of class I medical assessment not less than once every six calendar months.

In-depth Interview

"In-depth Interview" conducted by a three-member committee, with the membership of Director of Operations, Chief Pilot and Training Manager.
For cabin crew the "In-depth Interview" conducted by Director of Operations, IFS Manager and the final interview is with the vice president.
The interview will evaluate the candidate on the following areas:

1. General knowledge;
2. English language;
3. Technical knowledge.
4. Personnel skills
5. Credentials and licenses;
6. Interpersonal skills;
7. Security background
8. Medical fitness

Successfully passed applicants shall be scheduled for Basic Indoctrination prior to attend any technical courses (ECAR 121.415) (OM-D).

5.1.4 Licenses/qualification/Competency

Details of the required licenses, rating(s), qualification/competency, experience, training, checking and recency for crewmembers to conduct their duties are provided in part D Training Manual.
All crewmembers have to carry with them, the required licenses/certificates to exercise their duties (as issued/agreed by the authorities).
All crewmembers are responsible for the renewal of their licenses/certificates.

5.1.5 Recurrent Training and Checking

Ref: ECAR 121.441
Nesma Airlines ensures that each crewmember undergoes recurrent training and checking as required by the authorities (refer to Operations Manual part D).

5.1.6 Difference Course

Ref: ECAR 121.418
A crewmember is required to complete Nesma Airlines Difference Training before commencing unsupervised flying on commercial flights when:

- joining Nesma Airlines,
- Assigned to another airplane type.

The Difference training is conducted in accordance with the training programs approved by the authorities. These programs are available in part D Training Manual.
The amount of the training required for the conversion course can vary, taking into account the crewmember's previous training and experience.

5.2 Flight Crew

5.2.1 General

5.2.1.1 Licenses

All flight crewmembers shall hold an applicable and valid license acceptable to the Authority and are suitably qualified and competent to conduct the duties assigned to them.
The holder of license or rating shall not exercise privileges other than those granted by that license or rating.
A license holder shall not exercise the privileges granted by any license or rating unless the holder maintains competency by meeting the relevant requirements.
The validity of the license is determined by the validity of the ratings there in and the medical certificate.
Pilots are required to have, on board the aircraft, the applicable licenses as detailed below:

- **Captains (Pilots In Command)**
  Shall hold an Airline Transport Pilot License (ATPL).
- **First officers (co-pilots)**
  Shall hold an ATPL or a valid Commercial Pilot License (CPL) and Instrument Rating privileges

5.2.1.1.1 Minimum Qualification Requirements

A pilot shall fulfill the following minimum qualification requirements to join Nesma Airlines.

- Pilot-in-command:
  - Minimum 4000 hours total time;
  - Minimum of 500 hours PIC on Multi-Pilot Turbojet;
  - Minimum 1000 hours on Type;
  - Valid ICAO ATPL license, Instrument Rating on A320 aircraft and Medical certificate that shall be verified for authenticity by the ECAA.

The above requirements ensure that the prerequisite minimum level of line experience as accepted by the ECAA is complied with and may be relaxed in exceptional circumstances subject to the approval of the Head of Operations and acceptable to the ECAA.

- First Officer :
  - Minimum 500 hours total time on A320 aircraft;
  - Minimum of 150 hours PIC on Multi-Pilot Turbojet;
  - Minimum 0 hours on Type; and
  - Valid ICAO CPL or frozen ICAO ATPL, Instrument rating and Medical certificate acceptable to the ECAA.

The above requirements may be relaxed in exceptional circumstances subject to the approval of the Head of Operations and acceptable to the ECAA.

5.2.1.2 Type rating

The holder of a pilot license shall not act in any capacity as a pilot, except as a pilot undergoing skill testing or dual training; unless the holder has, a valid and appropriate type rating.
A flight crewmember completes a Type Rating / Transition course which satisfies the applicable requirements when changing from one type of airplane to another type for which a different type rating is required.
Note: In order to change to a different variant of the airplane type, further differences training or familiarization are required.
A flight crewmember shall complete:

- **Differences training,** which requires additional knowledge and training on an appropriate training device:
  - When operating another variant of an airplane of the same type; or
  - When a change of equipment and /or procedures on types or variants currently operated,
- **Familiarization training** , which requires the acquisition of additional knowledge:
  - When operating another airplane of the same type or variant; or
  - When a change of equipment and/or procedures on types or variants currently operated

Nesma Airlines will specify in OM-D Training Manual Ch. 4 (Ground Training) & Ch. 5 (Flight Training) when such differences training or familiarization training is required. Competent Authority issues type rating (qualification) after the candidate has successfully passed the check.
Type ratings are valid for one year from the date of issue, or the date of expiry if revalidated within the validity period.

5.2.1.3 Nesma Airlines Proficiency Checks

Ref: ECAR 121.441
Each flight crewmember undergoes 2 proficiency checks every 12 months to demonstrate his competence in carrying out normal, abnormal and emergency procedures and handling.
The proficiency check shall be completed within the preceding 12 calendar months and, in addition, within the preceding 6 calendar months, proficiency training under ECAR 121.409(b). The proficiency check and the proficiency training required by this section may be completed in the calendar month before or the calendar month after in which that training or check is required. In order to satisfy this requirement they must occur in the same year and be separated by a period greater than four consecutive calendar months and less than eight consecutive calendar months.

a) A proficiency check must meet the following requirements:
   1. It must include at least the procedures and maneuvers set forth in appendix F (ECAR 121); and
   2. An approved pilot examiner or an approved check airman must administer it.
b) An approved aircraft simulator or other appropriate training device may be used in the conduct of a proficiency check.

5.2.1.4 Line Checks

Ref: ECAR 121.440
Each flight crewmember undergoes a line check (at least ONE FLIGHT) shall demonstrate the knowledge of the operation approved as part of the Air Operator Certificate (AOC) (Ops. Specs. Ground Training Ref. OM-D– Ref. FCOM-PRO), to include:

1. Approaches authorized by Authority;
2. Ceiling and visibility requirements for takeoff, approach and landing;
3. Allowance for inoperative ground components;
4. Wind limitation (crosswind, headwind and tailwind)

The check is conducted by Pilot examine nominated by Nesma Airlines and acceptable to the Authority. The period of validity of a line check is 12 calendar months.
Line checks, completed in an airplane, are a test of a flight crewmember's ability to perform a complete line operation satisfactorily, including pre-flight and post-flight procedures and use of the equipment provided, and an opportunity for an overall assessment of his ability to perform the duties required. The route chosen is such as to give adequate representation of the scope of a pilot's normal operation

5.2.2 Qualifications Requirements

Ref: ECAR 121 Subpart O Crewmember Qualifications

Any flight crewmember must satisfy recency of experience requirements by completing training and/or re-qualification – when applicable – on type/variant in accordance with Nesma Airlines training and evaluation programs.

5.2.2.1 Captain

- Must hold a valid Egyptian (ATPL) or an ICAO (ATPL) license with Egyptian CAA approval, and an appropriate type rating
- Must hold a valid medical certificate
- Must have successfully completed the command course (description given in Part D Training Manual).

Recent experience:

(a) A pilot must not operate an aircraft as Pilot In Command unless he has carried out at least 3 take-off and 3 landings in the preceding 90 days, as pilot flying in an aircraft (or an approved simulator level D) of the type to be used.

(b) In addition to meeting all applicable training and checking requirements of this Part, a required pilot cockpit crewmember who has not met the requirements of paragraph (a) of this section must reestablish recency of experience as follows:

1. Under the supervision of a check airman, make at least three takeoffs and landings in the type aircraft in which that person is to serve or in an advanced simulator level D or visual simulator. When a visual simulator is used, the requirements of paragraph **(a)** of this section must be met;

2. The takeoffs and landings required in paragraph (b)(1) of this section must include;

I. At least one takeoff with a simulated failure of the most critical power plant;

II. At least one landing from an ILS approach to the lowest ILS minimum authorized for Nesma Airlines; and

III. At least one landing to a full stop.

(c) A required pilot cockpit crewmember who performs the maneuvers prescribed in paragraph (b) of this section in a visual simulator must have previously logged 100 hours of flight time in the same type aircraft in which he is to serve; and Be observed on the first two landings made in operations under this section by an approved check airman who acts as pilot in command and occupies a pilot seat. The landings must be made in weather minimums that are not less than those contained in Nesma Airlines operations specifications for category I operations, and must be made within 45 days following completion of simulator training.

(d) When using a simulator to accomplish any of the requirements of paragraph (a) or (b) of this section, each required cockpit crewmember position must be occupied by an appropriately qualified person and the simulator must be operated as if in a normal in-flight environment without use of the repositioning features of the simulator.

(e) A check airman who observes the takeoffs and landings prescribed in paragraphs (b)(1) and (c) of this section shall certify that the person being observed is proficient and qualified to perform flight duty in operations under this Part and may require any additional maneuvers that are determined necessary to make this certifying statement.

On completion of the Command Line Check, new Pilots in Command will have the Authority to operate incorporating the following restrictions:

- Until completion of 100 hours in command on Type after completion of Line Training, new Pilots in Command will apply the following increments to LVP minima: Take-off and landing RVR + 100 meters.
- Until completion of 100 hours in command on type after completion of Line Training, new Pilots in Command will not permit Co-Pilots to make landings.
- New Pilots in Command will not normally be cleared into category "C" airfields until they have completed 300 hours in command on the new type.

Nesma Airlines Pilots in Command previously qualified on another type are not subject to these requirements.

5.2.2.2 First Officer (Co-pilot)

- Must hold a valid Egyptian (CPL or higher) license or an ICAO (CPL or higher) license with Egyptian CAA approval, the IFR and an appropriate type rating.
- Hold a valid medical certificate.

Recent experience:

(a) A pilot must not operate an aircraft as First Officer unless he has carried out at least 3 take-off and 3 landings in the preceding 90 days, as pilot flying in an aircraft (or an approved simulator) of the type to be used.

(b) In addition to meeting all applicable training and checking requirements of this Part, a required pilot cockpit crewmember who has not met the requirements of paragraph (a) of this section must reestablish recency of experience as follows:

1. Under the supervision of a check airman, make at least three takeoffs and landings in the type aircraft in which that person is to serve or in an advanced simulator or visual simulator. When a visual simulator is used, the requirements of paragraph (c) of this section must be met;

2. The takeoffs and landings required in paragraph (b)(1) of this section must include;

I. At least one takeoff with a simulated failure of the most critical power plant;

II. At least one landing from an ILS approach to the lowest ILS minimum authorized for Nesma Airlines; and

III. At least one landing to a full stop.

(c) A required pilot cockpit crewmember who performs the maneuvers prescribed in paragraph (b) of this section in a visual simulator must:

1. have previously logged 100 hours of flight time in the same type aircraft in which he is to serve; and

2. Be observed on the first two landings made in operations under this section by an approved check airman who acts as pilot in command and occupies a pilot seat. The landings must be made in weather minimums that are not less than those contained in Nesma Airlines operations specifications for category I operations, and must be made within 45 days following completion of simulator training.

(d) When using a simulator to accomplish any of the requirements of paragraph (a) or (b) of this section, each required cockpit crewmember position must be occupied by an appropriately qualified person and the simulator must be operated as if in a normal in-flight environment without use of the repositioning features of the simulator.

(e) A check airman who observes the takeoffs and landings prescribed in paragraphs (b)(1) and (c) of this section shall certify that the person being observed is proficient and

(f) Qualified to perform flight duty in operations under this Part and may require any additional maneuvers that are determined necessary to make this certifying statemen5.2.2.3.

Qualification: Captain. Recent experience:

Same as for Pilot in Command

5.2.2.3 Pilot qualification to operate in either seat

Pilots, whose duties also require them to operate in the other seat, will complete additional training and checking as specified in the part D Training Manual (5.1.8.2.)
This training will include at least the following:

- an engine failure during take-off;
- a one engine inoperative approach and go-around;
- A one engine inoperative landing.

When engine out maneuvers are carried out in an aircraft, the engine failure shall be simulated.
Other seat checking may be concurrent with the proficiency check.

Note: Normal Line Captains having the training for either seats are not allowed to perform take-offs and landings from the right seat in normal situations. This is not valid when emergency situations require to do so.

5.2.2.4 Cruise Pilot or Flight Engineer

Nesma Airlines does not use cruise pilot or flight engineer

5.2.2.5 Flight Navigator or Radio Operator

Nesma Airlines does not utilize flight navigator or radio operator.

5.2.2.6 Minimum Qualifications for Flight Crewmembers

Nesma Airlines prohibits flight crewmembers from operation on aircraft if not qualified for duty in accordance with requirements specified as the following:

i. Licenses/certification;
ii. Specific qualifications (LVP, RVSM);
iii. Equipment qualifications (TCAS/ACAS, GPWS/EGPWS, HGS);
iv. Recency of experience;
v. Medical status, including Medical Certificate;
vi. Initial training and checking/line check/proficiency check/recurrent training and checking results;
vii. Right seat qualification;
viii. Type qualification;
ix. Airport and route competence (including special airports);
x. Instructor/evaluator/line check airman qualification;
xi. CRM/Human Factors training;
xii. Dangerous goods training;
xiii. Security training;
xiv. Accrued flight time, duty time, duty periods and completed rest periods for the purpose of fatigue management and compliance with ECAR 121.502 & 121.503 for duty time limitations.

5.2.3 Other Qualifications Requirements

5.2.3.1 All Weather Operations (AWO)

Nesma Airlines is authorized for CAT I & CAT II and not authorized for CAT III operations. Qualification for LVO is specific to the Company's operations and the aircraft type.
A pilot with no Category II/III experience must complete the full training Programme as specified in the Operations Manual, Part D: Training. A pilot who had Category II/III experience with another JAA operator, or a pilot who was qualified for Category II/III operations on another aircraft type in the Company, may be assigned an abbreviated training course.
The simulator part of the course must be completed on a flight simulator approved for Category II/III training and checking.
Before commencing Category II/III operations, the following additional requirements are applicable to a new Pilot in Command, or a Pilot in Command who is new to the aircraft type:

- **300 hours** experience on the type, which may include the hours spent on line training; and
- 100m must be added to the applicable Category II/III RVR minima, until accumulating at least 100 hours experience on the type. The required experience may include the hours spent on line training. This requirement is not applicable for a Pilot in Command previously qualified for Category II/III operations on another aircraft type in the Company or a Pilot in Command who was qualified for Category II/III operations with another JAA operator.

The period of validity for LVO qualification is 6 months from the end of the month of the LVO check. If a recurrent LVO check is conducted within the final 3 months of validity, the period of validity shall extend for a further 6 months from the expiry date of the previous check.

5.2.3.2 ETOPS

Nesma Airlines is not approved for ETOPS operations.

5.2.3.3 TCAS

The TCAS course is an academic knowledge and is fully integrated in the type-rating course. Details are included in part D Training Manual

5.2.3.4 FANS

Reserved

5.2.4 Route and Aerodrome Competence

Nesma Airlines will ensures –through Crew Management System- that, prior to being assigned as Pilot In Command on a route or as pilot to whom the flight may be delegated by the Pilot In Command, the pilot has obtained adequate knowledge of the route to be flown and of the aerodromes (including alternates), facilities and procedures to be used.
Nesma Airlines shall ensure each pilot, prior to being used as PIC in operations, is currently qualified for operations into airports of intended landing in areas, on routes or route segments to be used in operations for Nesma Airlines. If an instrument approach is required into an airport for which the PIC has not made an actual approach, the PIC shall be accompanied by a pilot flight crewmember or pilot observer on the flight deck who is qualified for the airport unless either

- **a.** The approach to the airport is not over difficult terrain and the instrument approach procedures and aids available are similar to those with which the pilot is familiar, and the normal operating minima are adjusted by a process that adds a margin of safety that is approved or accepted by ECAA, or there is reasonable certainty that the approach and landing can be made in visual meteorological conditions, or
- **b.** Descent from the initial approach altitude to landing at the airport can be made by day in VMC, or
- **c.** Nesma Airlines qualifies the PIC to land at the airport by means a pictorial representation approved or accepted by the authority (Jeppesen Instrument Approach Charts)
- **d.** The airport is adjacent to another airport at which the PIC is currently qualified to land.

The period of validity of the route and aerodrome qualification is 12 calendar months in addition to the remainder of the month of qualification, or the month of the latest operation.
Operating on the route or to the aerodrome within the previous period of validity revalidates route and aerodrome competence qualification.
If revalidated within the final 3 calendar months of validity of a previous qualification, the period of validity is from the original expiration date plus 12 months.

5.2.4.1 Route Competence Training

Route competence training includes knowledge of:

- terrain and minimum safe altitudes
- seasonal meteorological conditions
- meteorological, communications and air traffic facilities, services and procedures
- search and rescue procedures
- navigational facilities associated with the route along which the flight is to take place

Depending upon the complexity of the route the following methods of familiarization will be used:

- for less complex routes: self-briefing with documentation, or programmed instruction
- For more complex routes: in addition to the self-instruction, in-flight familiarization under supervision or familiarization in an approved simulator using a database appropriate to the route concerned.

5.2.4.2 Aerodrome Competence Training

Aerodrome competence training includes knowledge of:

- obstacles, general topography, lighting approach aids, minimum safety altitudes
- Arrival, departure, holding and instrument approach procedures, as well as any procedure applicable to flight path over heavily populated areas.

Depending upon the complexity, aerodromes are classified in categories from A to C. Category A is given to the least demanding aerodrome; Category B and C are applied to more demanding aerodromes.

Refer to 8.1.2.5 Use of Aerodrome Category B and C.

5.2.5 Crew Resource Management (CRM)

CRM is the effective utilization of all available resources (e.g. crewmembers, airplane systems, and supporting facilities) to achieve safe and efficient operation.
The objective of CRM is to enhance the communication and management skills of pilots, crewmembers and operational personnel. The emphasis is placed on the non-technical aspects of flight crew performance.
CRM training includes the following elements and is specified OM-D Training Manual

- Statistics and examples of Human Factor related accidents;
- Human perception, learning process;
- Situational awareness;
- Management of workload, tiredness or fatigue, and vigilance-management of stress
- Nesma Airlines "Standard Operating Procedures";
- Personality type, delegation, leadership, effective communication skills;
- The CRM loop;
- Effective communication and co-ordination within the flight crew, and between crewmembers and other operational personnel;
- Error chain and taking actions to break the error chain;
- Implications of automation on CRM.

5.2.6 Emergency and Safety Equipment

Ref: ECAR 121.417

Nesma Airlines ensures that each crewmember undergoes training and checking on the location and use of all emergency and safety equipment carried. Emergency and safety equipment training is part of Difference and recurrent training (Refer to Operations Manual-part D).

For Flight Crew, the period of validity of an Emergency and Safety Equipment check is 36 calendar months from the expiry date of the previous emergency and equipment check.

For Cabin Crew, the period of validity of an Emergency and Safety Equipment check is:

- Every 12 months, the use of life jacket, safety equipment and location, security procedures will be reviewed. (Refer to Operations Manual-part D)
- Every 24 months, the operations of all types of exits, slides and firefighting equipment, use of life rafts where fitted, will be practiced. (Refer to Operations Manual-part D)

Emergency and Safety training will take place in conjunction with cabin crew undergoing similar training on the location and use of all emergency and safety equipment carried, with emphasis on co-ordinate procedures and two-way communication between the flight deck and the cabin.

5.2.6.1 First Aid Training

Ref: ECAR 121.417

First Aid Training (Operations Manual-part D) First Aid training includes the following subjects:

- Medical and First Aid training includes:
  - Instruction on first aid and the use of first-aid kits;
  - First aid associated with survival training and appropriate hygiene; and
  - The physiological effects of flying, with particular emphasis on hypoxia.
- Physiology of flight including oxygen requirements, and hypoxia;
- Medical emergencies in aviation.
- Basic First Aid and survival training.

The use of appropriate airplane equipment including first-aid kits and first-aid oxygen.

5.2.7 Dangerous Goods

Ref: ECAR 121.434

Nesma Airlines ensures that each crewmember has received training that covers at least the following (Refer to Operations Manual-part D):

- general philosophy;
- limitations on dangerous goods in the air transport;
- classification and list of dangerous goods;
- package marking and labeling;
- loading, restrictions on loading and segregation;
- provision of information to the Pilot In Command;
- dangerous goods in passengers' baggage;
- Emergency procedures.

The validity of the training is 2 years.

5.2.8 Security Training

Ref: ECAR 108

Nesma Airlines ensures that each flight crewmember undergoes the security training as specified in the part D training manual Refer to Operations Manual-part D).

The validity of the training is 1 years.

5.2.9 Recurrent Training - Recurrent Checking

Each flight crewmember undergoes recurrent training and checking; all such training and checking is relevant to the type or variant of airplane on which the crewmember is operating.

5.2.9.1 Recurrent Training

The recurrent training program consists of:

- Ground and Refresher training;
- Airplane/Flight simulator training;
- Emergency and Safety Equipment training (Refer to Operations Manual-part D);
- CRM (Crew Resource Management) (Refer to Operations Manual-part D).

5.2.9.1.1 Ground and Refresher Training Includes:

- aircraft systems review;
- operational procedures and requirements;
- Accident/incident and occurrence review.

Nesma Airlines ensures that each flight crewmember undergoes ground and refresher training at least every 12 calendar months, and a questionnaire or other method verifies knowledge of the ground and refresher training.

5.2.9.1.2 Aircraft/Flight Simulator Training

The aircraft/flight simulator training program is established to cover all major failures of aircraft systems and associated procedures over a period of 3 years.
Details are provided in part D Training manual (Operations Manual-part D).
Nesma Airlines ensures that each flight crewmember undergoes airplane/flight simulator training at least every 12 calendar months. Airplane/flight simulator training may be combined with Nesma Airlines proficiency check.

5.2.9.2 Recurrent Checking

The recurrent checking program consists of:

- Nesma Airlines proficiency checks (Refer to Operations Manual-part D)
- Emergency and Safety Equipment checks (Refer to Operations Manual-part D)
- Line checks (Refer to Operations Manual-part D)

Each flight crewmember undergoes Nesma Airlines proficiency check to demonstrate his competence in carrying out normal, abnormal and emergency procedures. The period of validity of Nesma Airlines proficiency check is 6 months.

Each flight crewmember undergoes training and checking on the location and use of all emergency and safety equipment carried. The period of validity of an Emergency and Safety Equipment check is 36 calendar months.

Note 1: Line checks, route and aerodrome competency and recent experience are intended to ensure the crewmember's ability to operate efficiently under normal conditions, whereas other checks and emergency and safety equipment training are primarily intended to prepare the crewmember for abnormal/emergency procedures.

Note 2: When a flight crewmember undergoes Nesma Airlines proficiency check or line check, CRM skills are included in the overall assessment.

5.2.10 Operation of More Than One Type or Variant

5.2.10.1 General

- Nesma Airlines will ensure that a flight crewmember does not operate more than one type

5.2.11 Re-Qualification Curriculums For Flight Crewmembers Overdue Training Ref: ECAR 121.428

Time past month due	Required ground re-qualification segment	Required flight re-qualification segment	Additional qualification segments
Up to 12 calendar months	The portion of ground Recurrent training not accomplished when due.	The elements not accomplished when due: Proficiency check.	The modules not accomplished in the eligibility Period: Line check or special airports.
12 to 35 months	16 hours including HAZMAT, safety and emergency training hands on.	8 Hours Including proficiency check.	All qualification modules of the transition curriculum, Line check, or special airports. Airports.
36 to 59 months	24 hours Including HAZMAT, safety and emergency training hands on.	16 hours Including proficiency check.	All qualification modules of the transition curriculum, line check, Or special airports.
More than 59 months	--Same as initial equipment training --		

Details of the programs are included in Part D Training Manual (Operations Manual-part D)

5.3 Cabin Crew

5.3.1 Qualification Requirements

5.3.1.1 Minimum Requirements

Refer to 5.1. Employment Policy

5.3.1.2 Training and Checking Requirements

Nesma Airlines ensures that each cabin crewmember has completed appropriate training as specified below, before undertaking assigned duties.

- initial training
- conversion or difference training
- familiarization flights

Following training, each cabin crewmember shall have passes the prescribed checks in order to verify proficiency in carrying out normal and emergency safety duties.
Details of the programs are included in part D training manual.

5.3.1.3 Senior Cabin Crewmember (Purser)

The Nesma Airlines nominates a Senior Cabin crewmember whenever more than one cabin crewmembers are assigned.
The senior cabin crewmember has responsibility to the Pilot in Command for the conduct and co-ordination of cabin safety and emergency procedures specified in the operation Manual
The designated senior cabin crewmember shall have at least 3 years' experience as an operating crewmember, and shall complete an appropriate training course.
The operation could require establishing alternative minimum experience requirements.

5.3.2 Dangerous Goods

Nesma Airlines ensures that each cabin crewmember has received training that covers at least the following:

- general philosophy
- limitations on dangerous goods in the air transport
- classification and list of dangerous goods
- package marking and labeling
- loading, restrictions on loading and segregation
- provision of information to the Pilot In Command
- dangerous goods in passengers' baggage
- emergency procedures

The validity of the training is 2 years.

5.3.3 Security Training

Nesma Airlines will ensure that each cabin crewmember undergoes the security training as specified in the part D training manual.

5.3.4 Recurrent Training and Checking

Cabin crewmember will undergo recurrent training every 12 months to ensure continued proficiency with all equipment and application of procedures relevant to the aircraft types/variants operated.
The recurrent training and checking program includes theoretical and practical instruction. Emphasis on special subject will change every year.
The annual recurrent training covers:

- emergency procedures including pilot incapacitation
- evacuation procedures including crew control techniques
- touch-drills for opening normal and emergency exits
- location and handling of emergency equipment, including oxygen systems and
- the donning by each cabin crewmember of lifejackets, portable oxygen and
- protective breathing equipment (PBE)
- first aid and the content of the first aids kits
- stowage of articles in the cabin
- dangerous goods procedures
- security procedures
- incident and accident review
- crew resource management

Every 2 years the recurrent training will also include:

- the operation and actual opening of all normal and emergency exits for passenger evacuation in an aircraft or representative training device
- demonstration of the operation of all other exits (including flight deck windows)
- Realistic and practical training in the use of all fire-fighting equipment, including protective clothing representative of that carried in the aircraft.

This training will include:

- each cabin crewmember extinguishing a fire characteristic of an aircraft interior fire, except that instead of Halon an alternative extinguishing agent will be used
- the donning and use of protective breathing equipment by each cabin crewmember in an enclosed simulated smoke-filled environment
  - ➢ use of pyrotechnics (actual or representative devices)
  - ➢ demonstration of the use of the life-raft or slide-raft where fitted

5.3.5 Operation on More Than One Type or Variant

Nesma Airlines shall ensure that each cabin crewmember does not operate on more than 2 airplane types. The cabin crewmember may operate on 2 aircraft types provided that for at least 2 of the types:

- non-type specific normal and emergency procedures are identical and
- safety equipment and type specific normal and emergency procedures are similar

In this context, variants of aircraft type are considered different types if they are not similar in all the following aspects:

- emergency exit operation
- location and type of portable safety equipment, and
- type specific emergency procedures

Within the A320, A330 and A340 aircraft families, the following applies:

- A319, A320 and A321 are considered as one type, the A321 being treated as a variant. Briefing for the A321 is recommended to identify the differences in type C door emergency opening and escape slide deployment sequence.

The above corresponds to the “generic” aircraft capabilities, but Nesma Airlines should ensure:

- similarity of procedures,
- Similarity of location and type of portable safety equipment.

Note: Portable equipment includes:

- firefighting equipment,
- protective breathing equipment (PBE),
- oxygen equipment,
- crew life jackets,
- torches,
- megaphones,
- first aid equipment,
- Survival and signaling equipment...

5.3.6 Refresher Policy in Case of Flight Interruption

Ref: ECAR 121-428

Re-qualification curriculums for cabin crewmembers overdue training

<table>
<tr><th>Non Valid License</th><th>Valid License</th><th>TIME Interval Without Flying Duties</th></tr>
<tr><td>Recurrent training depending on his/her last Recurrent.
<u>4 sectors</u> the assigned duties of a cabin crew member under the supervision of a cabin crew instructor / examiner who personally observes the performance of duties including 2 sectors under supervision of an ECAA inspector (or cabin crew examiner upon ECAA approval).</td><td><u>4 sectors</u> the assigned duties of a cabin crew member under the supervision of a cabin crew instructor / examiner who personally observes the performance of duties including 2 sectors under supervision of an ECAA inspector (or cabin crew examiner upon ECAA approval).</td><td>91 days – 12 months</td></tr>
<tr><td colspan="2">Recurrent training depending on his/her last Recurrent.
<u>04 sectors</u> perform the assigned duties of a cabin crew member under the supervision of a cabin crew instructor / examiner who personally observes the performance of duties including 2 sectors under supervision of an ECAA inspector (or cabin crew examiner upon ECAA approval).</td><td>12 months - up to 36 months.</td></tr>
<tr><td colspan="2">A. A tailored basic indoctrination program.
B. Initial general emergency training on A/C type.
C. <u>06 sectors</u> perform the assigned duties of a cabin crew member under the supervision of a cabin crew instructor / examiner who personally observes the performance of duties including at least 2 sectors under supervision of an ECAA inspector (or cabin crew examiner upon ECAA approval).</td><td>More than 36 months.</td></tr>
</table>

5.4 Training, Checking and Supervisory Personnel

Details of personnel having a training, checking function as well as qualification requirements are provided in part D Training manual for:

5.4.1 Flight Crew

Ground training instructors Simulator flight instructors: SFI Simulator flight Examiners: SFE Type Rating Instructors: TRI Type Rating Examiners: TRE

5.4.2 Cabin Crew

Safety training manager (In-Flight Service Manager)
Safety training supervisor
Safety training instructors
Safety training designated Examiner

5.5 Other Operations Personnel

Details of training for other operations personnel are provided in relevant Sectional Manuals.

5.5.1 Flight Operations Officers (Dispatchers)

Flight Operations Officers (Dispatchers) should have demonstrated a comprehensive knowledge in the use of Operations Manual, aviation legislation and laws, aviation regulations, ATC procedures, meteorology, aircraft general, performance and planning, computerized flight plan, navigation, radio communication, English language.

5.6 Command Upgrade

5.6.1 General

It is the individual's responsibility to acquire the required pre-requisites i.e. ATPL, Flight Operations will assist in making the necessary arrangements for the various tests when requested by the individual in writing.

Promotion of first officer to captain is not automatic, as it is not the policy of the airline to upgrade first officers to captains as soon as they attain the minimum required hours. Upgrading shall depend on the airline requirement. To enable the Operations Department to select suitable candidates whenever upgrade to command is considered; all eligible first officers shall undergo an assessment program by order of seniority

5.6.2 Minimum Requirements

The following minimum requirements must be met prior to the initiation of candidate's assessment:

1. Minimum 4000 hours.
2. At least 2500 hours commercial jet.
3. Minimum of six months of service as a cleared F/O with Nesma Airlines.
4. Type Experience: at least 500 hours on type on which flight crewmember shall be upgraded.
5. Age Limit:
   - **(a)** maximum age for command upgrade is fifty five (55) years at the start of the assessment process
   - **(b)** Minimum age for command upgrade is twenty five (25) years at the start of the assessment process.
6. Must hold an Egyptian ATPL license.
7. Approval of the selection committee (ref. to Operations Manual-part D).
8. Priority will be given for seniority in case of same qualification.

5.6.3 Declination of Upgrade

F/O who either had one attempt for command upgrade & is eligible for second chance or is eligible for his first attempt may choose not to be upgraded and shall remain as Permanent F/O with no future command upgrade. He shall maintain his seniority with all its other privileges.

5.6.4 Command Upgrade Assessment Program

First Officers satisfying the criteria in **(**Operations Manual-part D**)** will undergo the command upgrade assessment program in the order listed hereafter:

5.6.4.1 Administrative Assessment

Flight Operations management will review the history of the candidate for the last 3 years as depicted in his administrative file and any other documented events that relate to:

- **Discipline**
- **Cooperation & Reliability**
- **Casual Sick leaves record**
  For the purpose of assessing the individual's sick leaves record, the following shall be the basis for such assessment: Maximum of 21 casual sick leave days in any of the last five years or a total of 100 days in the last five years, for repetitive casual sick leave days crewmember had taken for period of one, two or three days (but shall not include period of hospitalization) whether or not supported by Nesma Airlines approved medical doctor.
- **Productivity**
  It is mandatory that all concerned Deck Crew Scheduling Section and Administration Department shall document and file any event related to the above criteria in order to gather the applicable data. After reviewing the relevant documents, the Selection Committee (OM- D,) shall approve, delay the upgrade for six months or deny permanently the individual's eligibility for command upgrade, according to the above events. If delaying the upgrade is decided by the Selection Committee, the candidate shall be informed that he should improve any of the criteria in order to be eligible for an upgrade.
  If denying the upgrade is decided by the Selection Committee, the following action and procedure must be taken:
  1. The consensus of the majority of Selection Committee shall be obtained.
  2. The candidate shall be classified as permanent F/O with no future fleet transfer or upgrade. He shall remain on his current fleet until the fleet is phased out.

(Incase Director Flight Operations overrules the panel, he must present a written justification to the President).

5.6.4.2 Command Upgrade Course

The candidate shall be scheduled to attend the following courses one time only during command upgrade assessment program or re-assessment program when applicable (OM-D)

5.6.4.3 Instructors Evaluations

The instructor's evaluation shall consist of 3 evaluations submitted through forms based on their previous experience with the candidates. All instructors' evaluations forms will be stapled and delivered by hand to the Director Flight Operations.

Once completed Director Flight Operations shall call Chief Pilot to open and read the evaluation forms. If the candidate passes all assessments, he shall proceed to the next phase of assessment. If the candidate passes 1instructors evaluation and fails only one, he shall proceed to the next phase of assessment with emphasized extended assessment training on weak aspects.

If the candidate has failed two instructors' evaluations after opening the evaluation forms, Director Flight Operations will ask all Check airmen/ Instructors to meet with him, to discuss all evaluations. All concerned check airmen shall debate openly their differences and either a “Pass” or “Fail” assessment must be concluded with the consensus of all check airmen.

If the candidate fails his instructors’ evaluations he shall be given another chance after a minimum period of six months, after the date of his last evaluation form was delivered to the Director of Operations. If the candidate fails the second instructors' evaluations he shall be given a second chance after a minimum period of six months. If the candidate fails his instructors' evaluations, Selection Committee shall decide on whether to classify the candidate as permanent F/O (he will drop to the bottom of the seniority list) or give him another flight assessment after a minimum period of six months.

5.6.4.4 Command Suitability Assessment

Flight Operations with the approval of the Accountable Executive will perform this assessment. This step is an assessment of the style of behavior and attitude of the candidate than an aptitude test. It bases the assessment on suitability of the candidate’s personality, attitude and biographical data. If the candidate’s style is acceptable, he shall proceed to the next phase of assessment.

If the candidate’s style needs further maturation, then a delay period as recommend by the Selection Committee shall be mandated. If the candidate’s style is not suitable, he shall be classified as permanent FO with no future upgrade.

5.6.4.5 Command Suitability Assessment Direct Hire

Flight Operations with the approval of the Accountable Executive will perform this assessment, and shall include the following: -

- Training records review;
- Management recommendations.
- Training department recommendations.
- Verification of minimum experience refer to 5.2.2.1. Captain.

5.6.4.6 Oral Test

Chief Pilot and Instructor(s) will conduct the oral test. Chief Pilot or his deputy shall head and direct the test procedure. Duration will be approximately 2:30 hours. All manuals and relevant documents will be available for reference to check information when needed.
A sound knowledge of the following subjects is expected:

1. General Aviation Knowledge
2. Weather,
3. Dangerous goods information (Emergency Response)
4. Jeppesen Airway manual,
5. Operations manual part A-Volume 1,
6. SOP (relevant type),
7. MEL (relevant type),
8. Aircraft systems and performance (relevant type).

If flight crewmember passes the test he shall be classified as potential Captain and must sign the Service Guarantee before being scheduled for Command upgrade training program. If flight crewmember fails the oral test, he shall be given a reset after a minimum of 6 months. Inability of the Flight crewmember to pass the second reset, will classify him as permanent F/O with no future upgrade. He shall drop to the bottom of seniority list. If flight crewmember passes the second attempt he will be classified as potential Captain and shall wait for the next command upgrade training program schedule.

5.6.4.7 Command Upgrade Simulator Training

If the candidate fails his first command upgrade simulator training he shall be given another chance after a minimum period of six months. When due for the second attempt, he shall bypass all other assessment steps and will be directly scheduled for his command upgrade simulator training.
If he fails his second attempt he shall be classified as permanent F/O, drops to the bottom of seniority list with no future upgrade and shall remain on his current fleet until the fleet is phased out.

5.6.5 Service Guarantee

Upgraded F/O's are required to submit a service guarantee as determined by the management at that time before initiating their command upgrade training program.

Crew Health Precautions

Chapter 6

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Chapter 6 Crew Health Precautions

6.1 General Crew Health Requirements

6.1.1 General

6.1.1.1 Statutory Requirements

No person may serve as a crewmember knowing that he has a physical deficiency or mental condition that would render him unable to meet the requirements of his current medical certificate, to discharge his responsibilities to a safe standard or could endanger the safety of the aircraft or its occupants.

Crewmembers should not undertake flying duties whilst under the influence of alcohol, narcotics, drugs or any medicine that was not approved by the medical department for use for crewmembers like sleeping tablet.

The following factors shall be considered while undertaking flying duties by crewmembers:

- alcohol and psychoactive substance use;
- pregnancy;
- illness or use of medication(s);
- blood donations;
- surgery;
- deep under water diving;
- Fatigue occurrence on one flight or accumulated over period of time.
- Each crewmember is responsible to notify crew scheduling office and/or Operations Control Center about his/her state of unfitness for undertaking flying duties due to any of the above factors. The notification shall take place using Nesma Airlines' communications tools. Crew scheduling office shall release the reporting crewmember from assigned duty. Released crewmember shall not be reassigned for flying duties unless he is fit for duty.

6.1.1.2 Illness or Incapacitation While On Duty

Any crewmember who becomes ill or incapacitated while on flight duty or during a stopover period at an outstation must report the matter to the Pilot in Command at the earliest opportunity.

Pilots in Command should be aware that a sudden deterioration in health might be an indication of the onset of a dangerous or infectious complaint. Carriage of a flight crew or cabin crewmember who is ill is not authorized without permission from the medical department. Carriage of ill crewmember could prejudice the Company's

Position in several ways:

- International health regulations;
- Liability to the staff member concerned, should a serious illness ensue;
- Invalidation of the insurance of the aircraft;

The Pilot in Command must ensure that a doctor is called at the earliest opportunity to examine the crewmember concerned. A certificate must be obtained stating whether the individual is fit for duty, or alternatively for travel. The Pilot in Command is authorized to arrange any tests necessary to ascertain the condition of the individual concerned.

A written report must be submitted by the Pilot in Command and the crewmember as soon as practicable after return to the main base. The Pilot in Command should arrange for the arrival time of the crewmember at the main base to be notified to the Medical department.

The Pilot in Command has an overall responsibility for ensuring that all of the crew is fit for duty, even if a report of sickness is not received. Where any doubt exists, the Pilot in Command must ensure that the individual concerned is seen by a doctor and that the report from that doctor is forwarded to the main base, if possible on the flight concerned and, failing this, at the earliest opportunity.
In the case of the Pilot in Command being incapacitated the normal devolution of command to the first officer applies (refer to 4.9 Flight Crew Incapacitation).

6.1.1.3 International Regulations

The Pilot in Command must report all cases of illness on board aircraft (excluding cases of airsickness and accidents) on landing at an airport. The details are to be given in the appropriate part of the Aircraft General Declaration. Cases of ill passengers disembarked during the flight must also be reported on arrival.

6.1.2 Psychoactive Drugs

Psychoactive Substances Policy
Definition of Psychoactive Substances:
Substances that can produce mood changes or distorted perceptions in humans, to include, but not limited to, alcohol, opioids, cannabinoids, sedatives and hypnotics, cocaine, other psych stimulants, hallucinogens and volatile solvents; coffee and tobacco are excluded.
Equivalent Term: Psychoactive Drugs Nesma airlines have a policy that:

1) prohibits personnel who perform operationally critical functions and work affecting the safety, security and quality of the operation to be under the influence of one or more psychoactive substances in a way that:
    - Constitutes a direct or hazard to the user endangers the lives, health or welfare of others, and/or
    - Causes worsens an occupational, social, mental or physical problem or disorder.
2) Each person who performs a safety-sensitive function directly or by contract for Nesma Airlines must be tested pursuant to an ECAA approved anti-drug program as follows:
    - **i.** Cockpit crewmember duties;
    - **ii.** Cabin crew duties;
    - **iii.** Flight instruction duties;
    - **iv.** Aircraft dispatcher duties;
    - **v.** Aircraft maintenance or preventive maintenance duties;
    - **vi.** Ground security coordinator duties;
3) The applicable procedures must prevent personnel who are identified as engaging in any kind of problematic use of psychoactive substances are removed from safety-critical functions;
4) Administration manager, Safety& Quality director and all involved departments directors/ mangers are responsible for applying the psychoactive policy in the company.

The following are some of the types of medication in common use which may impair reactions. There are many others and when in doubt a crewmember should consult the medical department.

Hypnotic (Sleeping Tablets)

Use of hypnotic must be discouraged. They may dull the senses, cause confusion and slow reactions.

Antihistamines

All antihistamines can produce side effects such as sedation, fatigue and dryness of the mouth. Quite commonly they are included in medication for treatment of the common cold, hay fever and allergic rashes or reactions. Some nasal sprays and drops may also contain antihistamines.

Tranquillizer, Antidepressants and Psychotic Drugs

All these types of drugs preclude crewmember from flight duties because of the underlying condition for which they are being used as well as the possible side effects resulting from them. Flight duties should not be resumed until treatment with these types of drugs has been discontinued and until the effects of the drugs have entirely worn off. This can take several days in some instances.

Antibiotics

The underlying condition for which antibiotics are being taken may prevent a pilot from flying. However, most antibiotics are compatible with flying. Obviously, where any hypersensitivity is feared, the suspect antibiotic must not be used. A pilot should have previous experience of the antibiotic prescribed, or, alternatively, have a trial of it for at least twenty four hours on the ground before using it during flight duties.

Analgesics (Pain killers)

With a lot of analgesics and anti-inflammatory agents, there is risk of gastric irritation or hemorrhage. Ideally doctor's advice should be sought before using them.

Steroids (Cortisone, etc.)

Use of steroids, with few exceptions, precludes flight duties.

Anti-malarial

Most anti-malarial preparations used for prevention and taken in recommended dosage are considered safe for flight duties.

Anti-diarrheas

As a lot of medications used in treating symptoms of gastritis and enteritis (diarrhea) may cause sedation, blurring of vision, etc., great care must be exercised in their usage by crewmembers. In most cases grounding for a time may be necessary.

Appetite Suppressants

These preparations can affect the central nervous system and should not be taken during flight duties.

Anti-hypertensive (Drugs for treating blood pressure)

Certain therapeutic agents are compatible with flying activity. They should be prescribed only by a doctor experienced in aviation medicine, and sufficient time must be allowed to assess suitability and freedom from side effects before resumption flight duties.

Alcohol

Alcohol, combined with most of the types of medication is a most undesirable and dangerous combination.

6.1.3 Immunization

Medical advice is to be sought concerning the period to be observed before returning to flying duties following immunization
All crewmembers are responsible for the validity of their vaccination certificates. All data concerning the period of validity of a vaccination are given in the respective document. All crewmembers shall present their vaccination certificates to the appropriate authorities when required to do so.

6.1.4 Deep Diving

Flying in pressurized aircraft after deep diving can result in the bends (decompression sickness). A crewmember should not practice deep diving to a depth exceeding 10 meters within 48 hours before a flight assignment.

6.1.5 Blood Donation

Following a blood donation the volume of blood lost is made up in a matter of some hours but the cellular content can take some weeks to return to the previous level.
Crewmembers should not volunteer as blood donors whilst actively flying.
A crewmember should not donate blood within 24 hours before a flight assignment.

6.1.6 Meal Precautions Prior To and During Flight

Cases of acute food poisoning in the air continue to occur sporadically and surveys of incapacitation of flight crew in flight show that of these cases, gastro-intestinal disorders pose by far the commonest threat to flight safety.
No other illness can put a whole crew out of action so suddenly and so severely, thereby immediately and severely endangering a flight, as food poisoning.
Any food, which has been kept in relatively high ambient temperatures for several hours after preparation, should be regarded with extreme suspicion. This applies particularly to the cream or pastry, which is commonly part of a set aircraft meal. The re-heating process usually used in aircraft for the main course of a meal rarely destroys food poisoning organisms and the toxins they produce. These toxins are tasteless and cause no unpleasant odors.
Since the most acute forms of food poisoning frequently come on suddenly 1-6 hours after contaminated food is eaten, common sense rules should be observed as far as practicable in respect of meals taken within 6 hours of a flight.
For any crewmember, before and during flight it is essential to avoid eating easily perishable foods as well as foods and drinks served cold. This is most important with milk and cream products, mayonnaise, sauces, salads, meat pies and other meat products.
In order to eliminate, as far as possible, the risk of food poisoning, the captain and first officer should not partake of the same dishes before or during a flight.

Symptoms and treatment of poisoning

The character and severity of the symptoms depend on the nature and dose of the toxin and the resistance of the patient. Onset may be sudden. Malaise, anorexia, nausea, vomiting, abdominal cramps, intestinal gurgling, diarrhea and varying degree of prostration may be experienced. Bed rest with convenient access to bathroom, commode, or bedpan is desirable. Severe cases should be hospitalized. Treatment is mostly symptomatic and all cases should be seen by a medical doctor.

6.1.7 Sleep and Rest

Although the controls on flight and duty periods are intended to ensure that adequate opportunities are provided for crewmembers to obtain rest and sleep, individuals should ensure that proper advantage is taken of such opportunities.

6.1.8 Surgical Operations

Aero-medical advice should be sought prior to returning to flying duties following any surgical operation.

6.1.9 Vision Correction

All flight crewmembers who are required by the licensing authorities to wear corrective lenses in order to satisfy visual requirements laid down for granting of licenses, are required to use the corrective lenses and to carry a spare pair of spectacles with them on all occasions whilst operating their license.
Spectacles, either corrective or anti-glare, when worn by flight crew during flight should be of a type of frame that allows maximum peripheral vision. The examination for the prescription of a spectacle correction should ideally be carried out by an examiner with some understanding of the problems of vision in aviation.

Near vision correction

Where the only correction necessary is for reading, pilots should never use full lens spectacles while flying - because the pilot's task requires frequent changes from near to distant vision and the latter is blurred by reading glasses. Half-moon spectacles or lower segment lenses with a neutral upper segment should be used in these circumstances.

Near and distant vision correction

Where correction for both near and distant vision is required, bifocal lenses are essential and pilots should discuss with their medical examiner the shape and size most suitable for each segment. Where triple correction is necessary for reading, the instrument panel range and distant vision, then specialist advice is required.

6.1.10 Humidity

The relative humidity of cabin air is much lower in flight than that to which we are accustomed. Coffee and especially black coffee, being a diuretic (kidney stimulant) can exacerbate the effects of reduced humidity. Symptoms resulting from low humidity are dryness of the nose, mouth and throat and general tiredness.

6.1.11 Diurnal Rhythm

It is a well-established fact that our bodies have a diurnal cycle or rhythm. This means that our chemical, psychological and physiological activity are high during our normal waking hours, and are low during our normal sleeping hours. They reach the lowest point at about 4 a.m. When we fly across time zones that is either east-west or west-east, we may interrupt our diurnal cycle. However, there is no proof that this is harmful to our health.
To minimize the tiring effects of interruption to our day-night biological cycle we should:

- when away from home adhere as much as possible to home time for sleeping, eating and bowel function
- take adequate rest before flight
- Eat light snacks at three or four hourly intervals to increase alertness.

6.1.12 Fatigue

Any crewmember shall not commence a flight duty or continue a flight duty after an intermediate landing if he is aware that he is too fatigued or will be too fatigued before next landing.

The basic responsibility in fatigue management rests with the individual crewmember who should report for duty in a reasonably rested state and in an emotionally fit state to perform his expected duty. This includes attention to such factors as sleep, personal fitness and health, life style and activities prior to flight. Due allowance for any adverse effects of these factors should be taken into account to ensure that fatigue which would significantly affect operating performance is not encountered during flight duties.

6.1.13 Pregnancy

Any crewmember who becomes pregnant must immediately, upon becoming aware of such pregnancy, notify her management.

Certification of "unfitness to fly" shall be in writing from the attending physician and shall indicate the expected date of delivery.

Upon receipt of such a notice, the crewmember will be removed from flying duties.

6.2 Cosmic Radiation

Nesma Airlines shall take account of the in-flight exposure to cosmic radiation of all crewmembers while on duty (including positioning) and shall take the following measures for those crew liable to be subject to exposure of more than 1 millisievert (MSV) per year.

1) Assess their exposure.
2) Take into account the assessed exposure when organizing working schedules with a view to reduce the doses of highly exposed crewmembers.
3) Inform the crewmembers concerned of the health risks their work involves.
4) Ensure that the working schedules for female crewmembers, once they have notified to Nesma Airlines that they are pregnant, keep the equivalent dose to the fetus as low as can reasonably be achieved and in any case ensure that the dose does not exceed 1 MSV for the remainder of the pregnancy;
5) Ensure that individual records are kept for those crewmembers whose are liable to high exposure. These exposures are to be notified to the individual on an annual basis, and also upon leaving Nesma Airlines.

6.2.1 Assessment of Cosmic Radiation

Assessment of exposure level can be made by using the table below or other method acceptable to the Authority.

Table 1 - Hours exposure for effective dose of 1 millisievert (MSV)

Altitude (feet)	Altitude (Km)	Hours at latitude 60oN	Hours at equator
27 000	8.23	630	1330
30 000	9.14	440	980
33 000	10.06	320	750
36 000	10.97	250	600
39 000	11.89	200	490
42 000	12.80	160	420
45 000	13.72	140	380
48 000	14.63	120	350

6.2.2 Working Schedules and Record Keeping

Where in-flight exposure of crewmembers to cosmic radiation is likely to exceed 1 MSV per year Nesma Airlines should arrange working schedules, where practicable, to keep exposure below 6 MSV per year. For the purpose of this regulation crewmembers whose are likely to be exposed to more than 6 MSV per year are considered highly exposed and individual records of exposure to cosmic radiation should be kept for each crewmember concerned.

6.2.3 Explanatory Information

6.2.3.1 Introduction

The radiation we receive comes either from outer space (constant intensity) or from the sun (intensity increasing with solar flare activity). In the first case it is produced when primary photons and particles from outside the solar system interact with components of the earth's atmosphere. In the second we have the release of charged particles. The most harmful are neutrons, protons and gamma radiation, while ultra violet (UV) radiation is insignificant in this context. During the period of high sun activity, the likelihood of solar flares is higher. These flares create an increased flux of charged particles radiation. This flux is nevertheless compensated by the reduction of galactic radiation during this sun activity period, so that the total intensity of cosmic radiation remains reasonably constant. Cosmic radiation follows an 11-year cycle, with the intensity being inversely related to solar activity. The last solar maximum was in 1991 Maximum variation is some 20%.

Natural protection from cosmic radiation is provided by the geomagnetic field and the attenuating effects of the earth's atmosphere. The level of cosmic radiation depends to some extent on the geographical position, but essentially on the altitude above the ground level; the maximum radiation level occurs at about 20,000 m.

Polar Regions have a greater radiation intensity and exposure is more important at higher altitudes.

It is worth noting that natural radiation occurs also at ground level. For example, in parts of Cornwall (UK) the natural radiation level is at about 6 MSV per year and in most of Finland is around 8 MSV per year. Similar levels are reached in Denver and other parts of Colorado (USA).

6.2.3.2 Impact of Radiations on Health

The French DGAC and the IPSN (Institute de la Protectionist de la Sûreté Nucléaire) state that no study as of today showed any measurable effect of radiation levels on crew health sustained in flight. Levels where radiation effects would start to be measurable are estimated to be around 120-150 MSV per year. With regard to flight crew mortality independent analysis of the British Airways pension scheme data and of British Airways own data for the period between 1950 and 1992 shows an increased life expectancy for pilots of between 3 and 5 years when compared to the general population. Death rates from heart disease and all cancers combined were considerably less than for the population of England and Wales. Although rare, death from melanoma (which is directly associated with sun exposure) was the only cause of cancer in excess. Cancers such a leukemia, which may be linked to radiation exposure, was lower within the British Airways pilot population.

As far as the risk of developing cancer induced by radiation exposure is concerned, it has been calculated that an accumulated dose of 5 MSV per year for 20 years increases the risk of developing cancer from 23 % (in the general population) to 23.4 % i.e. a 0.4 % increase in risk over 20 years. Compared with all the other risks encountered during working life, this is very low.

6.2.3.3 Requirements and Legal Issues

International Commission on Radiological Protection (ICRP)

In 1991 the ICRP recommended an occupational exposure limit of 20 MSV per year for exposure of crew to cosmic radiation in jet aircraft.

EURATOM Council Directive 96/29

Article 9 §1 defines the dose limits of ionizing radiation for exposed workers as follows:
"The limit on effective dose for exposed workers shall be 100 MSV in a consecutive five-year period, subject to a maximum effective dose of 50 MSV in any single year. Member States may decide an annual amount."
Particular attention must be paid to Article 42, which specifically refers to the protection of air crew. Article 42 stipulates:
Protection of air crew:
Each Member State shall make arrangements for undertakings operating aircraft to take account of exposure to cosmic radiation of air crew who are liable to be subject to exposure to more than 1 MSV per year. The undertakings shall take appropriate measures, in particular:

– to assess the exposure of the crew concerned,
– to take into account the assessed exposure when organizing working schedules with a view to reducing the doses of highly exposed aircrew,
– to inform the workers concerned of the health risks their work involves,
– to apply Article 10 (Art. 10 refers to special protection during pregnancy and breastfeeding) to female air crew"

ICAO

ICAO rules require that aircraft intended to be operated above 49,000 ft. **(not applicable to Airbus aircraft)** have to be equipped with an instrument to measure and indicate (visible for the flight crew) continuously the dose equivalent radiation.

Conclusions/Recommendation

Estimates and in-service measurements, which are the result of extensive scientific studies and airline experience, show that during flight in commercial jet aircraft the level of exposure to cosmic radiation for flight crews is well below the values specified in existing legislation or guidelines. There are no specific airworthiness requirements related to cosmic radiation that would apply to Airbus aircraft.

6.3 Tropical Medicine

6.3.1 Tropical Climate

Two types of climate can be expected in the tropical zone:

- The dry desert climate with very high day temperatures and very cold nights.
- The humid hot climate with both day and night high temperatures and humidity around 90 %.

These very hot and humid conditions can be very tiring and tend to reduce working intensity. When the surrounding temperatures are higher than those of the body, the defense mechanism of the body gives off heat in the form of perspiration. If we perspire a lot we should increase our liquid and salt intake.

It is important to protect oneself from:

- Ultraviolet radiation of the sun: This is the radiation that causes sunburn or snow blindness. Protection against ultraviolet radiation is best achieved by limiting our sunbathing to short periods, by the use of barrier creams and lotions and by the use of reliable sunglasses.
- Infrared radiation: This is the radiation that causes "sun-stroke" and can be guarded against by the use of light colored headwear.

Be careful of alcoholic intake. Siesta during the hot hours of midday is recommended.

6.3.2 Hygiene

Particular care should be taken regarding hygiene in hot countries.

Drinking Water

Supply of pure drinking water is the exception in tropical and sub-tropical areas. Water from the tap must be regarded as infected, even when it is merely used for brushing the teeth. A guiding principle should be not to drink any water that is not purified by boiling, or by chemical disinfecting (chlorinating). The common infections dealing with water are typhoid fever, paratyphoid fever, and dysentery.

Milk

Un-boiled milk can be a source of infection.

Recommended drinks

Boiled drinks and beverages in bottles. Make sure the bottles are opened in your presence.

Ice

Ice is very often contaminated. Do not use ice in your drink.

Fruit

Avoid raw fruit without peel. Use fruit that can be peeled. Safe fruits: oranges, bananas, mangoes, pineapples, etc., wash fruit before peeling. Wash grapes before eating.

Salads and Raw Vegetables

Eating salads or raw vegetables runs the risk of worm infestation or of contracting amoebic dysentery.

Meats

Eat only fresh meat that has been freshly cooked. Avoid raw or cold meats.

Fish

Eat only fresh fish freshly cooked. Avoid shellfish especially oysters.

Bathing

Use only purified pools or open sea. Fungus diseases are common in hot humid climates. When bathing, it is advisable to plug your ears with cotton wool to prevent fungus infection of ear canal. Also wear shoes at poolside to avoid fungus infection of feet.

6.3.3 Tropical Diseases

Tropical diseases are not confined entirely to the tropics but can occur almost anywhere. However their incidence and frequency are influenced by local factors.
Tropical diseases are mainly transmitted in the following ways:

- Through insect stings or bites
- Through healthy skin by other parasites
- Through food and drink
- From the ground
- Person to person

Following insects transmit disease:

- Mosquitoes transmit Malaria, Yellow Fever, Dengue Fever and Sand fly Fever
- Tsetse Fly (Central Africa) transmit sleeping sickness
- Lice transmit Typhus, relapsing fever, spotted fever
- Rat Fleas transmit Plague. Protective measures against insects:

Sleeping quarters should be free of insects. Use mosquito nets over beds. Nets should be taught and should not come in contact with body, or use insecticide. Protect the skin by using an insect repellent.

Following diseases are contracted through the skin:

- Bilharzia: Aquatic snails act as intermediaries. The larvae of worms pass from such snails into the water and on contact with the skin into the human body.
- Weil's disease: The germs of this disease are excreted in rat's urine. They can penetrate the skin of bathers.
- Fungus Diseases: The fungus is present in tropical and sub-tropical inland waters, in shallow rivers and lakes, hardly ever in seawater.

Protective measures to avoid contagion through the skin:
Avoid inland water. Bathe only in pools with purified water or in the sea. Use cotton wool earplugs. Wear shoes when walking around the pool.

6.3.4 Main Tropical Diseases

6.3.4.1 Amoebiasis (Amoebic Dysentery)

Causative Parasite:

Amoebiasis is due to the ingestion of a unicellular parasite, the Endameba Histolytic. This is followed by an infection of the intestinal tract.

Distribution:

Although most prevalent as an endemic disease of tropical and sub-tropical countries, insanitary disposal of excreta and primitive methods of water purification may result in its introduction into temperate zones.

Source of Infection:

Water polluted by infected faces is the commonest source of infection, hence the prophylactic importance of safe drinking water. Other sources of infection are, foods grown on soils matured by infected excreta, flies and food handlers.

Clinical features:

Clinically the disease is characterized by an insidious onset, frequent febrile relapses and a tendency to chronicity. Diarrhea is the outstanding symptom, but it may be absent. There is abdominal pain with blood and mucus in the stools.

Complications:

- Inflammation of the liver
- Liver abscesses
- Inflammation of the gall bladder and bile ducts.

Treatment:

Consists in rest, diet and a course of therapy, which varies with the type of case.

Prophylaxis:

No vaccination or inoculation is available, nor is there any chemical prophylaxis Such as is used to prevent Malaria. General hygiene measures.

6.3.4.2 Malaria

Transmission:

Infection takes place through the bite of an infected anopheles mosquito and transmission of the parasite into the human blood stream.

Geographical distribution:

Variable, consult medical department.

Incubation period:

The incubation period usually ranges from 10 to 35 days.

Morbidity:

Malaria causes several million deaths each year.

Symptoms:

An acute, sometimes chronic, often recurrent, febrile disease characterized by periodic paroxysms of chills followed by high fever and sweating due to the presence of parasites in blood. The early stage of the illness can very easily be confused with many other infectious diseases, the more so if this occurs after return to a temperate region where your doctor may not think immediately of the possibility of Malaria.

Prophylaxis:

Preventive measures include use of insect repellent sprays to protect skin, screens on doors and windows, mosquito netting in bedrooms, sufficient clothing to cover as much as the skin surface as possible against mosquito bites (this is important after sundown).
It is not possible to produce permanent immunity either chemically or by the use of vaccines. Therefore chemical prophylactic drugs are only effective as long as they are taken regularly.

Treatment:

Under medical supervision. Malaria can be fatal if treatment is delayed. Therefore after having been in a malarial area, if you feel unwell or have an unusual temperature within four weeks of leaving the area, tell your doctor; don't wait to be asked.

6.3.4.3 Typhoid and Paratyphoid Fevers

They are ingestion diseases characterized by high fever and intestinal symptoms.

Transmission:

Typhoid fever is conveyed by water contaminated by sewage; by articles of food grown in or gathered from water, e.g. shellfish and watercress; or by diary or cooking utensils washed in such water.
Paratyphoid fever is rarely water borne; recorded epidemics are few. The disease is usually disseminated by foodstuffs contaminated by carriers.

Incubation Time:

From seven to twenty-one days.

Geographical Incidence:

The disease is likely to occur wherever the water supply is impure. Generally speaking the less satisfactory the sanitation and more prevalent is enteric fever.
However, with the use of adequate drugs, cases of death are now rare.

Symptoms:

Vague symptoms of illness tending to increase in severity throughout the first week. Lassitude, frontal headache, general aches and pains, disturbed sleep, anorexia and thirst, abdominal discomfort, temperature rising to 40°C, diarrhea with or without bleeding.

Precautions:

Strict hygiene of food and drink.

Prophylaxis:

Is by inoculation. The inoculation is not an international requirement for entry into any country.
Inoculation is strongly recommended when travelling to regions of poor general hygiene.

Note: Aircrew should not fly within 48 hours after inoculation. Inoculation may be followed by a slight general feverish reaction.

6.3.4.4 Cholera

Geographical Distribution:

Outbreaks of the disease usually are explosive and limited. Cholera is endemic in many areas of Asia.

Transmission:

Cholera is spread by the ingestion of water and foods contaminated by the excrement of patients.

Incubation period:

Is short, usually 1 to 6 days.

Symptoms:

Sudden onset. Initial symptoms are nausea, vomiting and diarrhea, with variable degrees of fever and abdominal pain.
If diarrhea is severe the resultant dehydration may lead to intense thirst, muscle cramps and weakness.

Prognosis:

In many cases the outlook depends largely on early and adequate therapy.

Prophylaxis:

Strict hygiene of food and drink, in many countries cholera has been controlled by the purification of water supplies, proper disposal of human excrement.

6.3.4.5 Dysentery

Definition:

An acute infection of the bowel, characterized by frequent passage of stools accompanied by abdominal cramps, malaise and fever.

Incidence:

Incidence is world-wide, but it is particularly common in hot climates.

Source of Infection:

The source of infection is the excreta of infected individuals. Organisms are spread from individual to individual by the direct faucal-oral route. Indirect spread by contaminated food and inanimate objects is common, but water borne disease is rare. Flies serve as carriers.
Epidemics occur most frequently in overcrowded populations with inadequate sanitation. It is particularly common in younger children living in endemic areas, whereas adults of these regions are relatively resistant to infection and usually have less severe disease.

Incubation period:

Very short, some hours to a few days.

Symptoms:

Depend on severity. May have painful colicydiarrhoea. Maybe raised temperature and vomiting. The disease usually shows great individual variation.

Prophylaxis:

There is no effective inoculation. Strict hygiene of food and drink.

Treatment:

There are many effective medicines available for disinfection of the gastrointestinal tract. It is advised to consult a doctor.

6.3.4.6 Yellow Fever

Definition:

An acute infectious virus disease occurring in tropical and sub-tropical zones.
Geographical Distribution:
Particularly in tropical Africa and South and Central America. Unknown in Asia.

Incubation period:

3 to 6 days.

Causative Organism:

The virus that causes the disease is transmitted by the bite of a female mosquito, which previously has become infected through feeding on the blood of a patient during the early stages of an attack.

Symptoms:

Characterized by sudden onset, fever with relatively slow pulse, the face is flushed, eyes infected, gums congested, tongue red and pointed. Vomiting and constipation are common. Jaundice appears after the third day.

Prophylaxis:

By inoculation. Period of validity of vaccination is ten years.

6.4 Procedure - Absence Due to Sickness "Sick Leaves"

A crewmember reporting sick for a period over twenty four hours must submit a sick report issued or approved by Nesma Airlines subcontracted Medical Department. If the sick leave extends for seven days or more, a fitness report is required.

Sick leave for twenty four hours is permitted without a sick report. This privilege is limited to three times per year, after which every sick leave will require a sick report; further sick leave is subject to a Full Medical Exam from Egyptian Civil Aviation Medical Department.

At the end of every 3 months, a complete record of sick/emergency leaves will be prepared by the Crew Scheduling Section. Any abuse of such leaves will be investigated which may entail:

1. Drawing of attention,
2. Referral to the disciplinary committee at Nesma Airlines Head Office, which could entail a salary deduction.

Note: The above procedure is granted once a year, if it is repeated the leave will be considered without pay

6.5 In Flight Medical Emergencies and Illness

6.5.1 Diversion for Medical Reasons

When a passenger or crewmember becomes acutely ill and apprehension exists about the passenger's ability to survive the flight, diversion to the nearest appropriate facility must be considered. The Captain should bear in mind that his cabin crew has all been suitably trained in first aid, and accept their advice accordingly, or the presence of a doctor on board. In an attempt to limit the number of diversions to those that are essential, an effort should be made to obtain some medical opinion on the necessity to divert.

1. Nesma Airlines should be informed, if possible, by direct radio contact. Ascertain the following:
   - Age;
   - Symptoms i.e. of what does the passenger complain;
   - Is there any complaint of pain? If so where and how severe;
   - Any past history or similar illness;
   - Is he/she taking any drugs – if so, what?
   - What is the pulse rate?
   - What is the color of the lips?
   - What is the conscious state? alert, drowsy, unconscious;
   - Since cabin staff became aware of the passenger's condition, has it deteriorated; remained static; improved
   - What measures have cabin staffs taken to treat the passenger?
2. If there are any medical practitioners, and/or nursing sisters on the aircraft, and they are willing to help, obtain their opinion on the passenger's conditions and necessity for urgent medical treatment.
3. Remember, in a diversion to an alternate airport that there may not be any medical facilities at the airport, and up to an hour may elapse before the patient gets medical attention at that airport – it may often be more prudent to continue to the destination and radio ahead for medical facilities on arrival. If possible, Dispatch section should be contacted (by any means) at the earliest opportunity stating the nature of the problem and the intentions of the Captain. If applicable, dispatch should be asked to alert the Medical Unit at the destination airport, giving relevant medical details and whether or not an ambulance is required.
   - If a flight diverts due to a medical emergency, the afflicted person usually leaves the aircraft for diagnosis or treatment. If the afflicted person insists on continuing the flight, he should be examined by a physician. If the physician advises that further travel threatens the person's life, the person must not be carried further on. If the physician advises that further travel is undesirable, but does not threaten the person's life, the person may be carried if he signs the following statement: "I acknowledge that the examining physician has recommended against my onward travel on TAS --- ----- from -------- to, but I elect to continue despite this advice". If the person refuses to sign this statement, he may still be carried if there are at least two witnesses to the refusal. Any person may be a witness. The CDC will obtain names and addresses of the witnesses and describe incident in his report. If the physician advises that there is no medical reason to prevent the passenger's travel, the person may be carried without further questions. In any event, the name and address of the examining physician should be recorded in the CDC's report.

6.5.2 Medical Conditions That May Require an Unscheduled Landing

The items listed below are only for reference, they are not the only condition that may require for an Unscheduled Landing:

- Stoppage of breathing and pulse.
- Unconsciousness.
- Severe shock.
- Uncontrollable bleeding.
- Internal bleeding.
- Heart attack.
- Recurrent Epileptic fits.
- Retained Placenta

6.5.3 Infectious Disease

From time to time the situation arises whereby the crews' attention is drawn to the fact that one of the passengers has an infectious disease. On many occasions this passenger is a small child covered in spots that may well be any of the common childhood illnesses such as measles, chicken pox or rubella.

When making the decision as to whether or not one should carry this passenger the following points should be taken into consideration:

1. With many of the infectious illnesses, by the time the rash has appeared the actual infective period is virtually over. This means of course that the people who are suffering from an infectious illness such as chicken pox are in fact at their most infectious stage when they have no visible signs of the illness and are mixing with the general population.
2. Many simple viral infections, which are not particularly infectious, cause spots and rashes that in many ways are similar to the commonly known infectious illnesses. It is often medically impossible to determine whether the rash is in fact that from a common infectious illness or that from a simple viral infection.
3. Infectious diseases are spread by droplet infection and the infected individual has to actually cough or sneeze into the face of a non-immune individual for there to be any possibility of infection. If a child or individual is thought to be infectious, adequate precautions can be taken by sitting the child between parents, preferably at a bulkhead seat, and telling the parents not to let the child move around the aircraft unnecessarily. If the infectious individual is boarded first, and remains in their seat, it makes it virtually impossible for cross transmission of infection to occur.
4. Common infectious diseases such as mentioned above are endemic in the population and consequently most of the population have immunity to this illness and will not be able to transfer the illness through themselves to a third party. These illnesses also exist in all other countries and are endemic to the same extent as they exist in Egypt, hence there is no problem transporting a new illness into another country.
5. The infectious illnesses which Port Health are most likely to be interested in are those which relate to gastro enteritis type illnesses (i.e. generally associated with vomiting and diarrhea and hepatitis), and these are rarely associated with a skin rash. These people should be treated as infectious in the same manner as those above, and preferably sat beside friends or relatives and requested not to move around the aircraft unless absolutely necessary.

If cabin crew aboard aircraft inbound to Egypt or an overseas country suspect that a passenger is running a temperature or may have an infectious illness or be suffering from food poisoning, they must inform the Captain and ask him to contact Dispatch / Agents giving details of the case and asking them to alert the Airport Health Control Unit.
This should be done as soon as possible on Company R/T frequency or by relay, in order to give Health Control the maximum warning period so that arrangements can be made for qualified personnel to meet the aircraft as it arrives on Stand.
International aviation facilitates the transmission and spread of infectious disease and the increasing incidence of confirmed cases arriving from overseas, makes this action particularly important.

6.5.4 Suspect Food Poisoning

If a meal, whether presented to a crewmember for consumption, or to a passenger, is suspected of being the cause of food poisoning in flight, the meal, or the remains of it, should be retained separately by the Cabin Crew and Dispatch must be contacted as in (a) above, with a request to arrange collection of the meal and subsequent analysis and also to alert the Airport Health Control Unit.
Arrangements can be made with the public health authorities to have suspect meals analyzed on request. This service is only to be used for genuine suspected cases of food poisoning, not for food which is unappetizing or badly presented.
Cases of acute food poisoning in the air continue to occur sporadically and surveys of incapacitation of flight crew in flight, show that, of these cases, gastrointestinal disorders pose by far the commonest threat to flight safety.
Any food, which has been kept in relatively high ambient temperatures for several hours after preparation, should be regarded with extreme suspicion since even severe contamination is rarely obvious. This applies particularly to the cream, pastry or trifle type of dessert, which is commonly part of a set aircraft meal. Also, very thorough cooking is necessary to destroy food poisoning organisms and the toxins they produce and this is rarely achieved in the reheating process frequently used in aircraft for the main course of a meal. Since the most acute forms of food poisoning come on suddenly 1– 6 hours after contaminated food is eaten, common sense rules should be observed as far as is practicable in respect of meals taken within 6 hours of a flight. In particular, shellfish, especially mussels and oysters that have an ability to concentrate poisoning organisms in the edible part of their flesh, should be avoided.
Crewmembers must not accept any food (including sweets), wrapped or unwrapped, for consumption within eight hours prior to or during a Flying Duty Period, from passengers or from persons unknown to them. This is because cases have been reported where irresponsible passengers have offered crewmembers in flight, dry contaminated “goodies”.
To reduce the danger of simultaneous incapacitation, the Captain, whenever possible must be served different main and subsidiary dishes from those served to the First Officer and preferable at staggered times (30 minutes minimum of separation time). This applies equally to preflight and inflight meals and includes sandwiches.

6.5.4.1 Cutlery on the Flight Deck

Great care should be taken of cutlery on the flight deck. A lost item could cause a serious situation if it should find its way into the mechanism of the aircraft controls.

6.5.4.2 Spilled Liquids Etc. on the Flight Deck

Spilled liquids can cause the malfunction of safety-critical electronic or electrical equipment and extreme care must be exercised when handling drinks on the flight deck.
A defect symptom entry must be made in the Technical Log when a drink has been spilt on any electrical panel.

6.5.4.3 Communicable Diseases Procedures

1) The pilot-in-command of an aircraft shall ensure that a suspected communicable disease is reported promptly to air traffic control, in order to facilitate provision for the presence of any special medical personnel and equipment necessary for the management of public health risks on arrival.
2) The flight crew of an en-route aircraft shall, upon identifying a suspected case(s) of communicable disease, or other public health risk, on board the aircraft, promptly notify the ATS unit with which the pilot is communicating, the information listed below:
   a) Aircraft identification;
   b) Departure aerodrome;
   c) Destination aerodrome;
   d) estimated time of arrival;
   e) Number of persons on board;
   f) Number of suspected case(s) on board; and
   g) Nature of the public health risk, if known.

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Flight Time Limitations

Chapter 7

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Chapter 7 Flight Time Limitations

7.1 Introduction

Legislation is designed to ensure that no flight crew to whom the laws of EGYPT apply is subject to excessive fatigue.
Accordingly, this section gives advice and guidance on the nature of the Issues involved in the prevention of fatigue, for the attention of all flight crew and other Flight Operations staff.
In framing its regulations on the control of flight time limitations and rest periods, Nesma Airlines is accepting its responsibility with regard to EGYPTIAN CAA regulations. It also has a responsibility to advise its flight crew of their responsibilities, which are as follows:

- **a.** Duty rosters and changes to such rosters should be published sufficiently In advance to provide the opportunity for flight crew to plan adequate rest.
  It is the responsibility of all flight crew to make optimum use of the opportunities and facilities for rest provided by the Company, and to plan their rest periods properly so as to minimize the risk of fatigue.
- **b.** EGYPTIAN regulation require that a crewmember shall not fly, and the Company shall not require him to fly, if either he has a reason to believe that he is suffering, or Is likely to suffer while flying, from such fatigue as may endanger the aircraft or its occupants.
- **c.** The license is to be suspended if the holder therefore has:
  - **1.** an injury preventing him to undertake his duties,
  - **2.** Any illness preventing him to undertake his duties.
    In such cases the holder of the license is required to inform the ECAA in written form so as action is to be taken for the medical test required for the renewal of the license.
- **d.** All flight crew are reminded, however, that the provisions of the EGYPTIAN regulations are not intended to cover instances where normal tiredness resulting from the physical and mental effort of a flight is likely.
- **e.** Individual flight crew should make the best use of their rest periods in order to prevent cumulative rest deficits.
- **f.** All flight and duty time limitations published in this Flight Operations Manual shall be strictly adhered to. It is the joint responsibility of the crewmember and the Crew Scheduling to make sure that these limitations are not exceeded; this will include any flying activities outside Nesma Airlines or in case of second mint. If a crewmember is scheduled wrongly to exceed any of these limits, he should immediately advise Crew Scheduling section.
- **g.** Nesma Airlines Crewmembers shall not fly any commercial flight with other companies than Nesma Airlines.

7.1.1 Application, Monitoring and Control (ECAR 121.502 (C))

The application, monitoring and control of the Company's approved scheme of Flight Time Limitations and Rest Periods is carried out by the Flight Operations Department. Checks of planned roster duties, actual events and proposed variations is carried out by the Scheduling Section and Flight Crew Administration. It is their responsibility, controlled by the Director Flight Operations, to issue instructions and make decisions on questions of flight duty and rest periods for members of the Flight Operations Department, to ensure the scheme is correctly applied, monitored and controlled.
ECAA shall conduct periodic and spot checks of company's records including Flight Reports and pilot reports to assess planning of flight schedules are compatible with the limitations mentioned in ECARs. ECAA may volunteer its views and advice on particular problems concerning the avoidance of excessive fatigue.

7.1.2 Definitions

Augmented Flight Crew

A flight crew that comprises more than the minimum number required for the operation of the aircraft, and in which each flight crewmember can leave his post and be replaced by another appropriately-qualified flight crewmember.

Blocks Off

The moment an aircraft first moves under its own power for the purpose of taking off.

Blocks On

The moment an aircraft comes to rest at the end of a flight.

Break

A period free of all duties, which counts as duty, being less than a rest period.

Day

A continuous period of 24 hours beginning at midnight UTC.

Day off

Periods available for leisure and relaxation, not part of which forms part of a duty period. A single day off shall include two local nights. Consecutive days off shall include a further local night for each additional consecutive day off. A rest period may be included as part of a day off. Ref: ECAR 121.514.

Duty

Any continuous period during which a crewmember is required to carry out any task associated with the business of the aircraft operator.

Duty period

Any continuous period during which a crewmember flies in any aircraft, whether as a crewmember or as a passenger, at the behest of his employer, or otherwise carries out a required duty in the course of his employment. It includes any duty period, positioning at the behest of the operator, including all ground training, ground duties and standby duty

Flight Time

The time from blocks off for the purpose of flight until blocks on at the destination.

Flying Duty Period (FDP)

Any duty period during which a crewmember flies in an aircraft as a member of its crew it starts at the time the crewmember is required by the operator to report for duty (other than standby) and includes such preflight duties as required by the operator. FDP starts from one hour and 30 minutes before the time set for the departure of the flight or series of flights until 30 minutes after shocks on and engine shut down...

Local Night:

A time of Eight hours (08) between 2200 and 0800 hours local time.

Night Flying Time

Any flying time between sunset and sunrise

Positioning

The practice of transferring flight crew from place to place as passengers on air transport at the behest of the company (also referred to as "dead heading"). The same applies to positioning by surface transport.

Rest Period:

A period before starting a flying duty period, which is intended to ensure that a crewmember is adequately rested before a flight.

Split Duty:

A flying duty period which consists of two or more duties (sectors) which are separated by less than a minimum rest period.

Standby Duty:

A period of time when an operator places restraints on a crewmember who would otherwise be off duty. However, it shall not include any time during which an operator requires a crewmember to be available for the purpose of notifying him of a duty which is due to start 10 hours or more ahead.

7.1.3 Accumulative Duty and Flying Hours

The following shall be applied for each operating flight crewmember:

1. **Maximum cumulative duty hours**: Maximum cumulative duty hours: The weekly total of duty hours shall not exceed 50 hours. All types of duty, flying duty, ground duty, split duty, standby, office duty and positioning shall be counted in full for this purpose.
2. **Maximum monthly flying hours**: The maximum number of flying hours which a flight crewmember may be permitted to undertake during any 30 consecutive days shall be 100**(+)**
3. **Maximum annual flying hours**: A person shall not act as a flight crewmember if the aggregate of his flight times in the period of 12 months expiring at the end of the previous month exceeds 900 hours.

   Note: Flying hours include all flying time as cockpit crew except private flying in aircraft not exceeding 1600 kg maximum weight. Authorization from Ops Director is required to fly outside Nesma Airlines, in addition the Pilot is committed to report to the scheduling section about his Flight Duties outside Nesma Airlines

(ب) For a pilot that has reached his or her 60th birthday, but has not reached his or her 65th birthday, shall not be allowed to exceed a maximum 75% (75 hours) of required accumulative flying hours during any 30 consecutive days.

7.1.3.1 Limitations on Single Flying Duty Periods Flight Crew

Ref: ECAR 121.503
The maximum rostered FDP (in hours) shall be in accordance with table A or B (two pilot crews, airplane).
Rostering limits in the tables may be extended by in-flight relief or split duty under the terms of paragraph 7.1.3.2 Extension of Flying Duty Period by In-Flight Relief and 7.1.3.3 Extension of Flying Duty Period by Split Duty, the aircraft Pilot in Command may at his discretion further extend the FDP actually worked in accordance with paragraphs.
Table A shall be applied for the calculation of FDP where the crewmember is acclimatized to local time, and table B shall be applied at other times.
To be considered acclimatized for the purposes of this document, a crewmember must be allowed 3 consecutive local nights free of duty within a local time zone band which is two hours wide. He will thereafter be considered to remain acclimatized to that same time zone band until he ends a duty period at a place where local time is outside it.
FDP should not exceed 18 hours of night flying during 72 consecutive hours.
Note: In establishing flight operations schedules, Nesma Airlines shall allow enough time for the proper servicing of aircraft at intermediate stops which shall not be less than 30 minutes.

(TABLE A) ACCLIMATIZED LOCAL TIME (*)

Local time Of start	Sectors							
	1	2	3	4	5	6	7	8 or more
0600-0759	13	12 ¼	11 ½	10 ¾	10	9 ¼	9	9
0800-1459	14	13 ¼	12 ½	11 ¾	11	10 ¼	9 ½	9
1500-2159	13	12 ¼	11 ½	10 ¾	10	9 ¼	9	9
2200-0559	11	10 ¼	9 ½	9	9	9	9	9

(Table B) NOT ACCLIMATIZED LOCAL TIME (*)

Length of preceding rest (hours)	**Sectors**						
	1	2	3	4	5	6	7 OR MORE
Over 30	13	12¼	11 ½	10¾	10	9¼	9
Between 28 and 30	12	11¼	10½	9	9	9	9

*For the purpose of calculating flight crew duty time limitations, Nesma Airlines considers the entire time associated with deadheading (positioning), training periods including simulator sessions, management pilot's office time, as flight duty in any duty period.

7.1.3.2 Extension of Flying Duty Period by In-Flight Relief

Ref: ECAR 121.504 (A)

When any additional crewmember is carried to provide in-flight relief for the purpose of extending a FDP, he shall hold qualifications which will meet the requirements of the operational duty for which he is required as a relief.

When in-flight relief is provided, there must be available for the crewmember who is resting, a comfortable reclining seat or bunk separated and screened from the flight deck and passengers.

A total of in-flight rest of less than three hours will not count towards extension of an FDP, but where the total of in-flight rest (which need not be consecutive) is three hours or more the roistered FDP may be extended beyond that permitted in tables A and B by:

If rest is taken In a bunk	If rest Is taken in a seat
A period equal to one half of the total of rest taken, provided that the maximum FDP permissible shall be 18 hours (or 19 hours in case of Cabin Crew).	A period equal to one third off the total of rest taken, provided that the maximum FDP permissible shall be 15 hours (or 16 hours in case of Cabin Crew)

Where a crewmember undertakes a period of in-flight relief and after its completion in whole free of duty for the remainder of the flight, that part of the flight following completion of duty may be classed as positioning and be subject to the controls on positioning detailed in paragraph 6.

7.1.3.3 Extension of Flying Duty Period by Split Duty

When an FDP consists of two or more duties separated by less than a minimum rest period, the FDP may be extended beyond that permitted in the Maximum Flying Duty Period table by the amounts indicated below:

Consecutive Hours Rest	Maximum Extension of the FDP
1. Less than 3	NIL
2. From 3 to 10 hours	A period equal to half of the consecutive hours rest taken

The rest taken shall not include the time required for immediate post-flight and pre-flight duties. When the rest period is not more than 6 hours, it will be sufficient if a quiet and comfortable place is available, not open to the public; but if the rest period is more than 6 consecutive hours, then a bed must be provided.

7.1.4 Rest Periods

Nesma Airlines shall:

- Notify of any Flight Duty Period so that the flight crew can obtain adequate pre-flight rest. Away from base provide the opportunity and the facilities for the crew to obtain adequate pre-flight rest.
- Ensure that rest accommodation is satisfactory, particularly In respect of noise, temperature, light and ventilation.
- Ensure a single day off which include two local nights. Consecutive days off shall include a further local night each consecutive day off. Crewmember shall:
  - **a.** not work more than seven consecutive days between days off, and
  - **b.** have 2 consecutive days off in any consecutive 14 days, and
  - **c.** Have a minimum of 6 days off in any consecutive 4 weeks.

7.1.5 Rest Period At Out Station

The minimum rest period which must be provided before undertaking a flying duty period at outstation, shall be:

- Minimum of 11 hours.
- If the preceding duty period exceeded 18 hours, the rest period must include a local night.

This rest period shall be taken without Interruption at a place as designated in paragraph (7.1.4) above.

In exceptional circumstances and at the Pilot in Command's discretion, the minimum rest period at outstation may be reduced. Such exceptional circumstances can be defined as (but are not limited) to situations "where the safety and/or health of the passengers and/or crew may be compromised".

Note: Normal operational reasons do not constitute an exceptional circumstance.

7.1.6 Rest Period At Base

The minimum rest period which must be provided before undertaking a flying duty period at operation base, shall be:

- at least as long as the preceding duty period, or a minimum of 12 hours whichever is greater
- If the preceding duty period exceeded 18 hours, the rest period must include a local night.

7.1.7 Cabin Crew

The limitations detailed in this paragraph shall be applicable to all Cabin Crew carried as crewmembers.
The limitations which shall be applied to cabin Crew are those contained in paragraphs (7.1.3.1, 7.1.3.2, 7.1.3.3 and 7.1.11) applicable to flight crewmembers, but with the following differences.

- **a.** Roistered flying duty periods shall not be more than ONE hour longer than those permitted to deck crewmembers and contained in paragraph 7.1.3.1. In order to remove anomalies which might arise when cabin staff and flight crew report at different times for the same flight, the maximum FDP for cabin staff shall be based on the time at which the flight crew start their flying duty period.
- **b.** Roistered minimum rest periods shall not be more than ONE hour shorter than those required by Flight Crewmembers and contained in paragraph 7.1.5 and 7.1.6.
- **c.** The combined sum of standby time and following FDP shall not exceed 21 hours (paragraph 7.1.16)
- **d.** The average weekly total of duty hours shall not exceed 55 hours (paragraph 7.1.3 – item .1)
- **e.** The annual and 28 day limits of flying hours need not be applied (paragraph 7.1.3–item 3.)
- **f.** When any additional crew is carried to provide in flight relief for the purpose of extending FDP, Number of Cabin Crew shall be increased by 50% of the minimum number provided that adequate seats are available on board the aircraft for the additional Cabin Crew.

7.1.8 Flight Crew - Pre-Flight Reporting Times

Normal reporting time is 90 min before departure time.

7.1.9 Hours Records Related To Duty and Flying Times

In terms of the Air Operator's Certificate, Nesma Airlines shall maintain records related to duty and flying hours. It is the responsibility of Individual flight crew to report their actual duty time to the Scheduling Section, especially after positioning and flight duties, so that the records held by the department can be kept accurate and updated.
Crewmembers are also responsible to ensure that their monthly/yearly flight time aggregates are not exceeded.

7.1.10 Extension Flight Duty Period / Reduction of a Rest Period

(ECAR 121.508)

a. An aircraft Pilot in Command may, at his discretion, extend an FDP beyond the maximum normally permitted, provided he is satisfied that the flight can safely be made. In these circumstances, the maximum normally permitted shall be 3hours with the exception of emergencies.

b. Whenever a Pilot in Command so exercises his discretion, he shall report it to his employer. If the maximum normally permitted is exceeded by more than 2 hours both the Pilot In Command and the operator shall submit a written report (refer to "Forms" Section) to the Authority within 30 days.

c. An aircraft Pilot in Command may, at his discretion, reduce a rest period to below the minimum required by paragraph 7.1.5 and 7.1.6. The exercise of such discretion must be considered exceptional, and should not be used to reduce successive rest periods. A rest period must be long enough to allow flight crewmembers at least 10 hours, and cabin attendants at least 9 hours, at the accommodation where the rest is taken. If a rest period is reduced, the aircraft Pilot In Command shall submit a report to his employer and if the reduction exceeds two hours then both the operator and the aircraft Pilot In Command shall submit a written report (refer to "Forms" Section) to the Authority within 30 days.

Notes:

1. Discretion Reports either concerning extension of a flying duty or reduction of a rest period shall be submitted in the form of the example given in the Appendix to this document. Those reports will be issued by the Authority when assessing the realism of particular schedules.
2. An emergency in respect of an extension of a flying duty is a situation which in the judgment of the Pilot in Command presents a serious risk to health or safety.
3. In exceptional circumstances, Nesma Airlines may request ECAA to have deviations/variations from the standard provisions mentioned in this chapter. However, such deviations/ variations should be kept to a minimum; in addition, Nesma Airlines shall demonstrate that the proposed provision will ensure an equivalent level of protection against fatigue. (ECAR 502 (f))

7.1.11 Positioning

All time spent on positioning shall be classed as duty, but positioning shall not count as a sector when assessing the maximum permissible FDP. Positioning, which immediately precedes a flying duty period, shall be included as part of the FDP for the purpose of paragraph 7.1.3.1.

7.1.12 Delayed Reporting Time

When crewmembers are informed of a delay before leaving their place of rest the FDP shall start at the new reporting time, or 4 hours after the original reporting time whichever is the earlier. The maximum FDP shall be based on the original reporting time. This paragraph shall not apply if crewmembers are given 10 hours or more notice of a new reporting time.

7.1.13 Travelling Time

Where traveling time between the airdrome and sleeping accommodation provided by Nesma Airlines exceeds thirty minutes each way, the rest period provided must be increased by the amount of the excess, or such lesser time as is consistent with a minimum of 10 hours at the sleeping accommodation.
When crewmembers are required to travel from their home of an aerodrome other than the one from which they normal operate, the assumed traveling time from the normal airdrome to the other aerodrome shall be lapsed as positioning and will be subject to the controls of positioning detailed in paragraphs.

7.1.14 Weekly Rosters

Nesma Airlines will publish a weekly roster to provide each flight crew with a continuous notification of duty, including periods when crewmembers are off duty. In doing so the Company must appreciate the relationship between the frequency and pattern of Flight Duty Periods and rest periods, and give due consideration to the cumulative effects of undertaking long hours of duty interspersed with minimum rest.

7.1.15 Alterations to Rosters

It is recognized that the nature of the company business is such that the operational crew roster may be subject to alteration, which could require the change of a crewmember's assigned duties. When possible an early notification of any material change will be given, except that such notification may be reduced to avoid disturbance to the crewmember's sleep.

7.1.16 Stand-By Duty Maximum Duration

The following limits shall apply:

Type of Duty	Maximum Duration
Standby duty (all cases)	12 hours
Standby plus FDP	20 hours

The length of the minimum rest period after standby duty combined with FDP is equal to the proceeding FDP and standby duty combined, but not less than minimum of 20 hours.

7.1.17 At Aerodrome

If the period of standby is undertaken at the aerodrome, it shall not exceed 8 hours. The time on standby shall count as full flight duty time and shall be added to any subsequent flight duty (for maximum FDP calculations)

7.1.18 Flying/Duty Period Recording Process

Nesma Airlines have a process to ensure flight time, flight duty periods and rest periods for crewmembers are recorded in accordance with applicable regulations as follows:

1. After each flight, the flight crew will handed the flight envelope to the station manager or keep it and handed directly to OCC
2. Stations managers will send the envelope to Cairo airport station manager or his deputy who will directly deliver it to OCC at the company headquarters.
3. The flight envelope will be received in the OCC by the Document/Record control officer.
4. The Document/Record control officer will review the contents of the flight envelope to ensure completion of all envelope records.
5. The Document/Record control officer will review the data recorded the flight envelope records to ensure its completion and if any data is missing he will the assigned PIC or review technical log book to ensure data completion.
6. The Document/Record control officer will forward a copy of the voyage report to the cabin crew scheduling coordinator for extracting the required data related to flight time and process it for cabin crew duty period and flight scheduling.
7. The Document/Record control officer will use software program (access system) to upload and process the data included in the flight envelope.

7.1.19 Office Duty

Nesma Airlines may have pilots in administrative and managerial positions in accordance with local regulations and minimum job requirements elaborated in 1.3 Authorities and Responsibilities of Operations Management and Non- Management Personnel

In case an operating pilot is holding a managerial or administrative position, he shall be assigned office duty hours commensurate with his obligations and workload. Office duty hours shall comply with 7.1.3 Accumulative Duty and Flying Hours.

Office duty hours are assigned on Nesma Airlines scheduling system during the planning of the crew schedule. Actual times shall be recorded in Nesma Airlines HR records and reflected on the crew management system.

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Operating Procedures

Chapter 8

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Chapter 8 Operating Procedures

8.1 Flight Preparation Instructions

It is the Pilot in command's responsibility to ensure that the flight is planned to meet the following criteria:

- Safety and Security;
- Economy;
  Passenger's comfort, and
- Punctuality

Apart from checking the technical status of the aircraft, its components and its equipment including all safety equipment (†), flight preparation includes:

- Checking the technical status of the airplane in the aircraft technical log (ATL), its components and equipment according to MEL and CDL;
- Preparation of an Operational Flight Plan (OFP) considering all aspects such as minimum flight altitudes, routing, weather forecasts for en-route, destination and alternate airports, fuel planning, etc.;(*)
- Preparation of an ATC flight plan; (*)
- NOTAMS applicable to the en route phase of flight and to departure, destination and alternate airports;
- Aircraft performance, weight, mass and balance.
- Checking of the capability of the aircraft to achieve the All-Engine Climb Gradient (AECG).
- Preparation of a load and trim sheet; (‡)
- Determination of the usability of aerodromes. This includes the evaluation of possible performance limits, and the calculation of takeoff and landing speeds; (*)
- Relevant AIS-briefing, whether by appropriate AIS documentation, personal AIS-briefing or by a dispatcher; (*)
- Relevant MET-briefing, whether by MET documentation or by a dispatcher; (*)
- A check, special loads such as dangerous/hazardous goods or heavy cargo are to be carried, and if so whether safety handling instructions are being followed; (‡)
- Ensuring that commercial and/or other Company requirements are met;
- A check, de-icing/anti-icing procedures, if necessary, have been carried out properly;
- Ensuring the availability of maps, instrument approach, arrival and departure charts as required for the intended flight(s). (*)
- FMS and EGPWS validity for route and airports.(Refer to FCOM-PRO-NOR-SOP and GMM 4.22)

Notes: All the above-mentioned items shall be checked/reviewed by Pilot in Command for the intended flight(s) prior to the commencement of each flight.
Items marked with (*) shall be prepared by Operations Control (Dispatch office).
Items marked with (‡) shall be prepared by Ground Handling.

(-) Technical Status is the responsibility of the Technical Department, who is responsible for informing Operations Control with the latest Aircraft Technical Status to assure aircraft have:

- **i.** instrumentation and/or avionics necessary to conduct operations and meet applicable flight parameters, maneuvers and limitations;
- **ii.** equipment necessary to satisfy applicable operational communication requirements;
- **iii.** avionics, equipment and/or components necessary to satisfy applicable navigation requirements;
- **iv.** avionics, instrumentation and/or radio equipment necessary to satisfy applicable approach and landing requirements
- **v.** Other components and/or equipment necessary to conduct operations under applicable flight conditions, including instrument meteorological conditions.

8.1.1 Minimum Flight Altitudes

8.1.1.1 Minimum VFR Altitude Requirements

Nesma Airlines normally does not allow VFR operations for revenue flight. If VFR is required for a specific flight or part(s) of a flight, an authorization of the Director of Operations must be obtained. For VFR altitudes, requirements refer to national regulations applicable to the area over flown.

Except when necessary for take-off or landing, or except by special permission from the appropriate authority, a VFR aircraft shall not be flown:

- **a.** Over cities or densely populated areas and open-air assemblies of persons, unless at such a height as will permit, in the event of emergency arising, a landing to be made without undue hazard to persons or property on the surface. This height shall be at least 300 m (1000ft) above the highest obstacle within a radius of 600m from the aircraft.
- **b.** Elsewhere at a height inferior to 150m (500ft) above ground or water.

The responsible authority may fix superior heights to fly over certain parts of the territory.

8.1.1.2 Minimum IFR Altitude Requirements

When an aircraft is operated for the purpose of commercial air transport, the minimum altitude / flight level at, which it is permitted to fly may be governed by national regulations, air traffic control requirements, or by the need to maintain a safe height margin above any significant terrain or obstacle En-route. Whichever of these requirements produces the highest altitude/flight level for a particular route will determine the minimum flight altitude for that route.

The procedures outlined in the following paragraphs are to be followed when calculating the minimum altitude for the safe avoidance of en-route terrain and obstacles.

8.1.1.2.1. Minimum altitudes definitions

MEA (Minimum En-route IFR Altitude)
The lowest published altitude (or Flight Level) between radio fixes that meets obstacle clearance requirements between those fixes and in many countries assures acceptable navigational and radio signal coverage.
MORA (Minimum Off-Route Altitude)
A route MORA provides reference point clearance within 10 NM (18.5 km) of the route centerline (regardless of the route width) and end fixes.
A grid MORA altitude provides a reference point clearance within the section outlined by latitude and longitude lines.
MORA values clear all reference points by 1000 ft. (300 m) in areas where the highest reference points are 5000 ft. (1500 m) MSL, or lower.
MORA values clear all reference points by 2000 ft. (600 m) in areas where the reference points are above 5000 ft. (1500 m) MSL.
When a MORA is shown along a route as "unknown" or within a grid as "un-surveyed" a MORA is not shown due to incomplete or insufficient information.
MVA (Minimum Vectoring Altitude)
The lowest MSL altitude at which IFR aircraft will be vectored by a radar controller, except as otherwise authorized for radar approaches, departures and missed approaches. The altitude meets IFR obstacle clearance criteria. It may be lower than the published utilized for radar vectoring only upon the controller’s determinations that an adequate radar return is being received from the aircraft controlled.
GRID MORA (Grid Minimum Off-Route Altitude)
An altitude derived by Jeppesen or State authorities. The GRID MORA altitude provides terrain and manmade structure clearance within the section outlined by latitude and longitude lines. MORA does not provide for NAVAID signal coverage or communication coverage.

- GRID MORA values derived by Jeppesen clear all terrain and manmade structure by 1000 ft. (300m) in areas where the highest reference points are 5000ft (1500m) MSL, or lower and by 2000ft (600m) in areas where the reference points are above 5000 ft. (1500m) MSL.
- GRID MORA (State) altitude supplied by the State authority provides 2000ft (600m) clearance in mountainous areas and 1000ft (300m) in non-mountainous areas.

MOCA (Minimum Obstruction Clearance altitude)
The lowest published altitude in effect between radios fixes on VOR airways, off airways routes, or route segments, which meets obstacle clearance requirements for the entire route segment.
MSA (Minimum Sector Altitude)
Altitude depicted on instrument approach, SID or STAR charts and identified as the minimum safe altitude which provides a 1000ft (300m) obstacle clearance within a 25 NM (46km) (or other value as stated) radius from the navigational facility upon which the MSA is predicated.
Minimum Descent Altitude/Height (MDA/H)
Ref. (Jeppesen Intr. P.14)

8.1.1.2.2 Terminal area

Except during IFR approach or departure when on track with a published minimum altitude on airport charts the minimum altitude must not be lower than the Minimum Sector Altitude (MSA).

Take-off obstacle clearance

- **(a)** The net take-off flight path shall clear all obstacles by a vertical distance of at least 35 ft. or by a horizontal distance of at least 90 m plus 0.125 x D, where D is the horizontal distance the aircraft has traveled from the end of the take-off distance available or the end of the take-off distance if a turn is scheduled before the end of the take-off distance available.
- **(b)** When showing compliance with sub-paragraph (a) above, an operator must take account of the following:
  - **(1)** The weight of the aircraft at the commencement of the take-off run;
  - **(2)** The pressure altitude at the aerodrome;
  - **(3)** The ambient temperature at the aerodrome; and
  - **(4)** Not more than 50% of the reported head-wind component or not less than 150% of the reported tailwind component.
- **(c)** When showing compliance with sub-paragraph (a) above:
  - **(1)** Track changes shall not be allowed up to the point at which the net take-off flight path has achieved a height equal to one half the wingspan but not less than 50 ft. above the elevation of the end of the take-off run available. Thereafter, up to a height of 400 ft. it is assumed that the aircraft is banked by no more than 15°. Above 400 ft. height bank angles greater than 15°, but not more than 25° may be scheduled;
  - **(2)** Any part of the net take-off flight path in which the aircraft is banked by more than 15° must clear all obstacles within the horizontal distances specified in sub-paragraphs (a), (d) and (e) of this paragraph by a vertical distance of at least 50 ft.; and
- **(d)** When showing compliance with sub-paragraph (a) above for those cases where the intended flight path does not require track changes of more than 15°, an operator need not consider those obstacles which have a lateral distance greater than:
  - **(1)** 300m, if the pilot can maintain the required navigational accuracy through the obstacle accountability area; or (2) 600m, for flights under all other conditions.
- **(e)** When showing compliance with sub-paragraph (a) above for those cases where the intended flight path does require track changes of more than 15°, an operator need not consider those obstacles which have a lateral distance greater than:
  - **(1)** 600m, if the pilot is able to maintain the required navigational accuracy through the obstacle accountability area; or
  - **(2)** 900m for flights under all other conditions.

8.1.1.2.3 En-Route Minimum Altitude

8.1.1.2.3.1 Normal Operation

En-route IFR flight levels or altitudes should be higher than the published Minimum En-route IFR Altitude (MEA) indicated on En-route charts.
The minimum safe En-route altitude should be the higher of the Minimum Off-Route Altitude (MORA) and the published Minimum Obstruction Clearance Altitude (MOCA). Both minimum altitudes are indicated on En-route charts when they exist.
In case of incomplete or lack of safety altitude information, obstacles and reference points must be located on Operational Navigation Charts (ONC) or topographic maps. The minimum safe En-route altitude must clear all obstacles within 5 NM (9.3km) of the route centerline by 1000ft (300m) if the reference point is not higher than 5000 ft (1500m) MSL or 2000 ft. (600m) if reference point is higher than 5000ft MSL.
If available and not limiting, the grid MORA may be used as minimum flight altitude. These minimum altitudes must be respected along the track with all engines operative unless a procedure has been approved to cope with depressurization.
During flight preparation, the En-route minimum altitudes must be established for all the route segments.

8.1.1.2.3.2 Abnormal operation

It may be necessary to establish diversion procedures for critical cases considering the topography along the route and the requirements mentioned below (engine(s) failure, depressurization).
It may be necessary to determine Point(s) of Non-Return (PNR) and establish appropriate procedures (drift down on course, turn back or diversion outside the track depending on the aircraft position).
When obstacle limited, the pilot should be reminded for correct drift down procedure as specified in the appropriate chapter of the FCOM (one engine inoperative).
Diversion procedure established for a particular route will be integrated in the Operations Manual Part C (Jeppesen Route Manual).

8.1.1.2.3.2.1 Engine failure

For engine failure, the net flight path as defined in the aircraft Flight Manual must be considered.
The net flight path is established considering a drift down procedure taking into account a given drift down speed associated with the expected aircraft weight, the remaining engine(s) being set at MCT (Maximum Continuous Thrust), and considering the effect of

- air conditioning,
- icing protection system if its use is expected,
- Wind and temperature (weather forecast.

En-route - One engine inoperative

(a) The operations committee will study all the routes and destinations to determine the applicability of escape routes and minimum En-route altitude

(b) The one engine inoperative En-route net flight path data shown in the Aircraft Flight Manual, appropriate to the meteorological conditions expected for the flight, shall comply with either sub-paragraph (b) or (c) at all points along the route. The net flight path must have a positive gradient at 1500ft above the aerodrome where the landing is assumed to be made after engine failure. In meteorological conditions requiring the operation of ice protection systems, the effect of their use on the net flight path must be considered.

(c) The gradient of the net flight path must be positive at least 1000ft above all terrain and obstructions along the route within 9.3km (5NM) on either side of the intended track.

(d) The net flight path must permit the aircraft to continue flight from the cruising altitude to an aerodrome where a landing can be made, the net flight path clearing vertically, by at least 2000ft, all terrain and obstructions along the route within 9.3km (5NM) on either side of the intended track in accordance with sub-paragraphs (1) to (4) below:

1. The engine is assumed to fail at the most critical point along the route;
2. Account is taken of the effects of winds on the flight path;
3. The aerodrome where the aircraft is assumed to land after engine failure must meet the following criteria:
   (i) The performance requirements at the expected landing weight are met; and
   (ii) Weather reports or forecasts, or any combination thereof, and field condition reports indicate that a safe landing can be accomplished at the estimated time of landing.

(e) The width margins of subparagraphs (b) and (c) above must be increased to 10 NM (18.5km) if the navigational accuracy does not meet the 95% containment level.

For Airbus aircraft this may be the case when at more than 2 hours after a radio update for non-GPS primary equipped aircraft.

8.1.1.2.3.2.2 Pressurization failure

For depressurization, it may be necessary to descend below the en-route minimum altitude determined for normal operation in order to cope with passenger oxygen requirements (refer to 8.8). At any time, the aircraft gross (actual) flight path must clear vertically all the obstacles by 2000ft.

8.1.1.2.3.2.3 Methods to Establish Escape Route Charts Depressurization/Drift Down)

Escape Route charts are produced to assist the crew in areas where high terrain may lead to a more complex navigation maneuver, i.e. the critical point and/or routing to safe height/enrooted alternate, may not be easily determined using the Jeppesen Enrooted Charts.

The published flight altitudes are calculated by considering all obstacles within a 15 NM buffer on each side of the charted track and 15NM radius at end fixes, except when diverting to an airport where the MSA covers 15 NM either side of the preferred arrival route. Obstacle data is usually extracted using the Grid MORA data published by Jeppesen. However, in areas. where the Grid MORA is limiting, more precise obstacle data are extracted from topographical charts.

The published altitudes provide a buffer of 2000ft above, rounded up to the next 100ft (For details refer to Operations Manual, Part 'C'

For each single route flying over mounting area, the operations committee consists of:
- Director of Operations or his deputy,
- Chief Pilot,
- Flight Safety Manager, and
- OCC/Dispatch Manager.

Will prepare and establish escape route and published the procedure in case of drift down/ depressurization for all flying crew, this procedure shall be attached with the flight documents and kept into the flight envelop.

8.1.1.3 Minimum Flight Altitude Corrections

In order to determine adequate obstacle clearance, all minimum flight altitudes and flight levels described in paragraph 8.1.1., shall be corrected for the effects of pressure and temperature variations from standard, and for the effects of high wind speed in areas of high terrain as follows:

8.1.1.3.1 Temperature Correction

The calculated minimum safe altitudes/heights must be corrected when the OAT is much lower than that predicted by the standard atmosphere.
The correction has to be applied on the height above the elevation of the altimeter setting source. The altimeter setting source is generally the atmosphere pressure at an airport, and the correction on the height above the airport has to be applied on the indicated altitude. The same correction value is applied when flying at either QFE or at QNH.
Low altitude temperature corrections

- Approximate correction
  Increase obstacle elevation by 4% per 10°C below ISA of the height above the elevation of the altimeter setting source or decrease aircraft indicated altitude by 4% per 10°C below ISA of the height above the elevation of the altimeter setting source.
  This method is generally used to adjust minimum safe altitudes and may be applied for all altimeters setting source altitudes for temperatures above - 15°C.
- Tabulated corrections
  For colder temperatures, a more accurate correction should be obtained from the following table calculated for a sea level aerodrome. It is conservative when applied at higher aerodrome.
  Radar vectoring altitudes assigned by ATC are temperature compensated and require no corrective action by the Pilot in command.
  When altitude corrections are applied to a published final approach fix crossing altitude, procedure turn, or missed approach altitude, Pilot in commands should advise ATC how much of correction is being applied.

Values to be added by the pilot to minimum promulgated heights/altitudes (ft.)

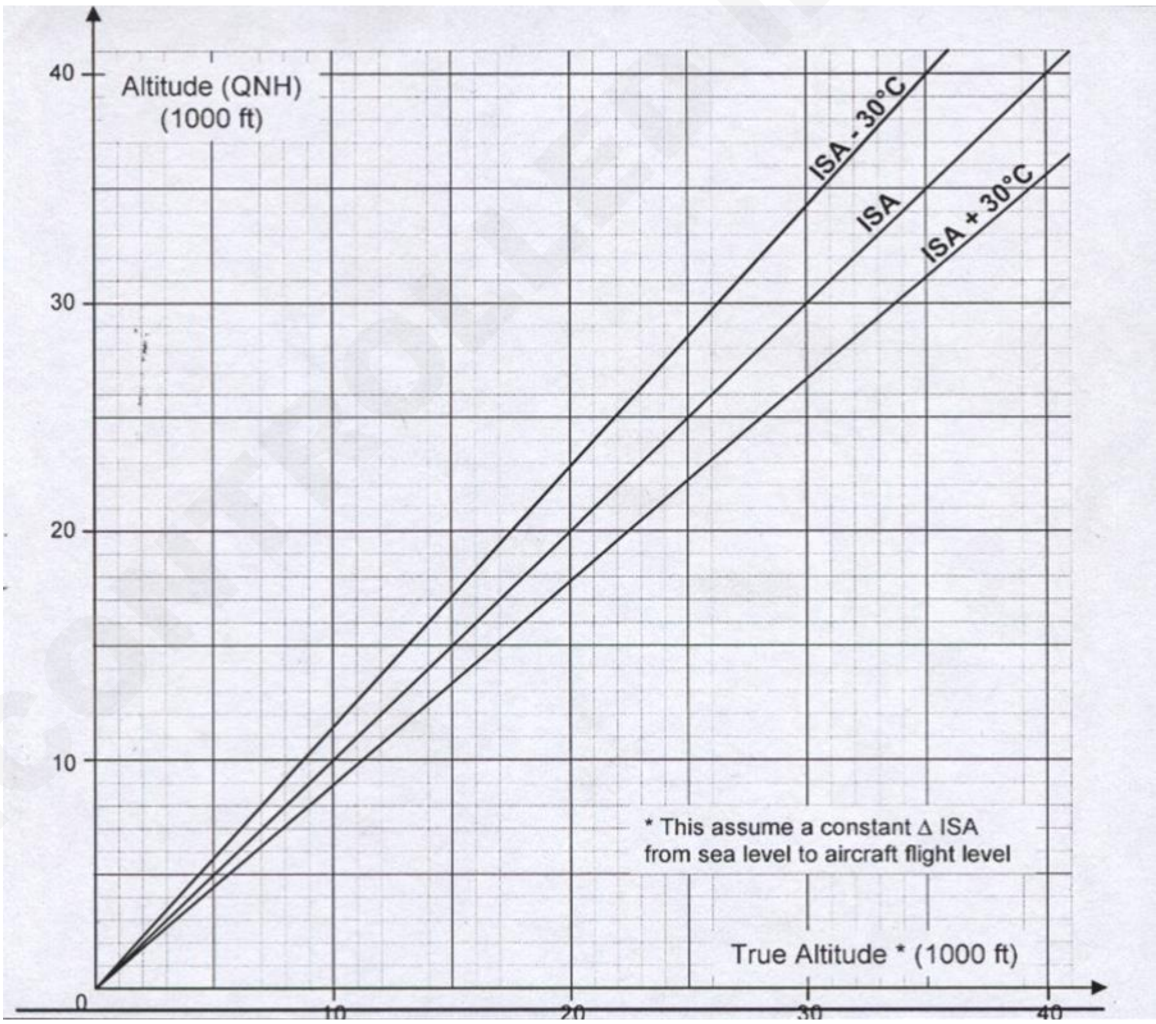
Aerodrome Temperature	Height above the elevation of the altimeter setting source (ft.)								
	200	300	400	500	1000	2000	3000	4000	5000
0°C	0	20	20	20	20	40	40	40	40
-10°C	20	20	40	40	40	60	80	80	80
-20°C	20	40	40	60	80	80	100	120	120
-30°C	40	40	60	80	100	120	140	140	160
-40°C	40	60	80	100	120	140	160	180	200
-50°C	40	80	100	120	140	180	200	220	240

Below is an example of how the correction will be applied:
Aerodrome Elevation 2262ft Aerodrome Temperature minus 50ºC

	PROCEDURE ALTITUDE	HAA	CORRECTION	INDICATED ALTITUDE
PROCEDURE TURN	4000 ft	1738 ft	Add + 420ft	4420 ft
FINAL APPROACH FIX	3300 ft	1038 ft	Add + 240 ft	3540 ft
MDA STRAIGHT IN APPROACH	2840ft	578 ft	Add + 140 ft	2980 ft
CIRCLING MDA	2840 ft	578 ft	Add +140 ft	2980 ft

High altitude temperature corrections
The graph given hereafter has to be used En-route for high altitude operation. It does not consider the elevation of the altimeter setting source.
In theory, this correction applies to the air column between the ground and the aircraft. When flying above high terrain, the use of this correction gives a conservative margin.

Altitude temperature correction for high altitude use



8.1.1.3.2 Pressure correction

When flying at levels with the altimeter set to 1013hPa, the minimum safe altitude must be corrected for deviations in pressure when the pressure is lower than the standard Atmosphere (1013hPa).

An appropriate correction is 28 ft per hPa below 1013hPa the following table gives more accurate data. The following correction is to be applied to the indicated altitude (reference 1013 hPa) to determine the geometrical aircraft altitude.

QNH correction

QNH of nearest station	Correction	QNH of nearest station	Correction
		1013	- 0000 ft
1050	+ 1000 ft	1010	- 0080 ft
1045	+ 0860 ft	1005	- 0220 ft
1040	+ 0720 ft	1000	- 0380 ft
1035	+ 0590 ft	995	- 0510 ft
1030	+ 0460 ft	990	- 0630 ft
1025	+ 0320 ft	985	- 0780 ft
1020	+ 0180 ft	980	- 0920 ft
1015	+ 0050 ft	975	- 1080 ft
1013	+ 0000 ft		

Example: Given: Indicated altitude = 20000 ft, ISA, local QNH = 995 hPa

Find: Geometrical (true) altitude = 20000 - 510 = 19490 ft.

When using the QNH or QFE altimeter setting (giving altitude or height above QFE datum respectively), a pressure correction is not required.

8.1.2 Criteria for Determining the Usability of Aerodromes

8.1.2.1 Usable Aerodrome

Alternate, departure and destination aerodromes considered to be used for operations must be adequate for the type of aircraft and operation concerned. To be selected for conducting an operation they should be usable, usable means it is adequate aerodrome as in 8.1.2.1.1 Adequate Aerodrome and complying with given weather minima at the time of the operation.

8.1.2.1.1 Adequate Aerodrome

Prior to operating on any route or to any airport, Nesma Airlines (**OCC as focal point**) shall complete a route and aerodrome analysis of destination and alternate airports (Flight Preparation), then the final analysis shall be disseminated to relevant departments/sections, that shall include:

1. Obstacle clearance for all phases of flight (minimum safe altitudes); (RTOLW, Route charts, SITA OFP and Aerodrome Charts "Jeppesen"), any Applicable performance requirements;
2. Runway characteristics (width, length, and pavement loading); Refer to 14.9 Takeoff and Landing Optimizations (TLO) (FCOM PRO – Limitations -, RTOLW and Jeppesen; Airport Directory)
3. Air Traffic Services and associated communications; (Jeppesen Enrooted, Area and Aerodrome charts)
4. Navigation aids and lighting (Jeppesen and NOTAMS)
5. Weather reporting and consideration including seasonal weather phenomena for Enroute, destinations and alternates.
6. Emergency services; (Jeppesen; Airport Directory, NOTAMs)
7. Fuel burn calculations; (Refer 8.1.7.1. Fuel Policy ., 8.1.2.3.3. Alternate Aerodrome and OFP)
8. Fuel freeze considerations; (FCOM PRO-NOR-SOP-02)
9. ETOPS (not applicable)
10. critical engine INOP operations; (FCOM-PRO-ABN-70 - Single Engine Operations)
11. depressurization over critical areas;
12. destination is not an isolated Airport
13. Prior permissions and Curfews
14. Airport Classification. Refer to 8.1.2.4 Aerodrome Categories.
15. Any other operational comments

In particular, an aerodrome is adequate if:

- The above analysis is satisfactory;
- The available runway length is sufficient to meet aircraft performance requirements (required take-off and landing distance). Refer to Chapter 14 Performance Engineering
- Rescue and firefighting aerodrome category is compatible with the aircraft (Refer to, Jeppesen Airport directory: Rescue and firefighting) or derogation is obtained from airport authority.

The following table gives the required Aerodrome Rescue and Fire Fighting (RFF) category for destination and alternates:

Aircraft type	Aerodrome category		
	Departure and Destination	Minimum (*)	
		Destination Alternate	Adequate
A320	6	5	4

(*) It is Nesma Airlines policy not to operate to, or nominate as alternates, aerodromes with a fire category less than the minimum category.
If during the flight, the Pilot in command becomes aware of a category downgrading, he may elect to continue or divert. If electing to continue, he may accept not lower than aerodrome category 4.
Notes: Most of the abovementioned information are furnished in (Jeppesen Manuals and/or Notes).
In case of emergency, Pilot in command shall take whatever action is deemed to be necessary taking into account the urgency of the situation. Aerodromes with reduced or inadequate facilities will accept an aircraft making an emergency landing or a landing where the Pilot in command judges that a diversion or holding delay may be a greater potential hazard.
Clearance to take off or land from an aerodrome implies that the aerodrome authorities have fulfilled their responsibilities.

- The pavement strength is compatible with aircraft weight (Refer to Jeppesen Airport Directory) or derogation is obtained from airport authority.

Furthermore, the following items should be considered when necessary:

- Landing and over-flying permission has been obtained.
- The flight crewmembers have the required qualification, experience and documentation including up-to-date approach and aerodrome charts for each pilot.
- At the expected time of use, the aerodrome is equipped with the necessary ramp handling facilities: refuel, tow bar, step, cargo loading, ground power unit, air starter, catering water services, toilet services.
- For international flight, police, custom and immigration services are available at the expected time of use.

8.1.2.1.2 Usable aerodrome

An aerodrome is usable if:

- The aerodrome is adequate for the operation; and
- The meteorological conditions satisfy the planning minima given here after for the expected landing time and meet the approach, runway and aircraft capabilities and crew qualifications (associated with meteorological conditions).

8.1.2.2 Planning Minima

Planning minima deals with forecast airport weather conditions (Refer to 8.1.3.1. Concept of Minima)

8.1.2.2.1 Planning Minima for Take-Off Alternate Aerodrome

An adequate aerodrome may be usable for take-off alternate if the weather reports or forecasts indicate that, during a period commencing 1 hour before and ending 1 hour after the estimated time of arrival at the aerodrome, the weather conditions will be at or above the applicable landing minima (Approach operating minima). The ceiling must be taken into account when the only approaches available are non-precision and/or circling approaches. Any limitation related to one-engine inoperative operation must be taken into account.
Note 2: The above criteria are only required at the planning stage. Once flight has commenced, an aircraft may use any airfield as a return alternate which is at or above applicable minima (the lowest minima available which the crew/aircraft can operate).

8.1.2.2.2 Planning Minima for Destination Aerodrome (Except Isolated Destination Aerodrome)

An adequate aerodrome may be suitable as destination (except if the aerodrome is isolated) if the weather reports or forecasts indicate that, during a period commencing 1 hour before and ending 1 hour after the estimated time of arrival at the aerodrome, the weather conditions (RVR / visibility and for non-precision or circling approaches, ceiling at or above MDH) will be at or above the approach operating minima.

8.1.2.2.3 Planning Minima for En-Route and Destination Alternate Aerodromes

An adequate aerodrome may be suitable as destination alternate, en-route alternate or for destination aerodrome, if the weather reports or forecasts indicate that, during a period commencing 1 hour before and ending 1 hour after the estimated time of arrival at the aerodrome, the weather conditions will be at or above the planning minima as follows:

1. For dispatch or flight release the Alternate Minima must be derived from the table below.

Approach Facility Configuration	Alternate Airport Weather Minima	
For airports with at least **One Operational Navigational Facility** providing a Straight-in Non-precision Approach Procedure, or Category I Precision Approach Procedure or When Applicable a circling maneuver from an instrument approach procedure.	A ceiling derived by **adding 400 ft** to the CAT I **HAT** or **HAA** as applicable.	A visibility derived by **adding 1600m**or**1sm**. To the Landing Minimum.
For airports with at least **Two Operational Navigational Facilities**, each providing a Straight-in Non-precision Approach Procedure, or a Category I Precision Approach Procedure to different suitable runways *	A ceiling derived by **adding200 ft** to the higher **HAT** or **HAA** of the Two approaches Used.	A visibility derived by **adding800m**or½ **sm**. to the Higher Authorized Landing Minima of the Two Approaches Used.
* Note: for ETOPS separate suitable runways must be used instead of different suitable runways. (NOT APPLICABLE)		

Note: For States that publish alternate minimums, the applicable minima are those specified under "Filing as alternate" on the airport chart or company alternate minima whichever is higher. (USA, Canada and Saudi Arabia are an example).

2. In case that the derived Alternate Minima using Two Operational Navigational Facilities (i.e. derived value from the second row of the table) is higher than the derived Alternate Minimum using One Operational Navigational Facility (i.e. derived from the first row of the table) the lower value should be used.

Type of approach	Planning minima
Cat II and Cat III	Cat I minima (RVR)
Cat I	Non-precision approach minima (ceiling / RVR)
Non-precision	Non-precision approach minima plus 200 ft/1000 m (MDH/MDA + 200 ft / RVR + 1000 m)
Circling	Circling minima

3. Nesma Airlines shall not use any airport as an alternate whenever it is stated by the state authority "NOT AUTHORIZED AS ALTERNATE AIRPORT".
"Non precision minima" mentioned in the table above, means the next highest minimum that is available in the prevailing wind and serviceability conditions; Localizer only approaches, if published, are considered to be "non precision" in this context.
Tables publishing planning minima should indicate values that are likely to be appropriate on most occasions (e.g. regardless of wind direction). Unserviceable must, however, be fully considered.

Examples

1) Airport XXX

Runway 07	DA (DH) / MDA (MDH) (ft)	Visibility (m)
ILS DME	222 (200)	RVR 550
LOC DME	410 (388)	2400
VOR DME	580 (558)	2800
Runway 25	DA (DH) / MDA (MDH) (ft)	Visibility (m)
CAT 2 ILS	216 (193)	RVR 500
ILS DME	292 (269)	RVR 650
LOC DME	410 (387)	2400
VOR DME	450 (431)	2400

- If Runway 07 is the expected runway to be used due to weather forecast:
  - Type of approach planned: CAT 1 ►planning minima Non precision (LOC DME)

  Apply: 410 (388) ft / 2400m
- If Runway 25 is the expected runway to be used due to weather forecast:
  - Type of approach planned: CAT 2 ►planning minima CAT 1 apply:

  292 (269) ft / RVR 650m

2) Airport YYY

Runway 07	DA (DH) / MDA (MDH) (ft)	Visibility (m)
LOC DME	410 (388)	2400
VOR DME	580 (558)	2800
Runway 25	DA (DH) / MDA (MDH) (ft)	Visibility (m)
ILS DME	292 (269)	RVR 650
LOC DME	410 (387)	2400
VOR DME	450 (431)	2400

- If **Runway 07** is the expected runway to be used due to weather forecast:
  - Type of approach planned: Non-Precision (LOC DME) ► planning minima Non precision (VOR DME) + 200 ft / + 1000 m apply: 780 (788) ft / 3800 m
- If Runway 25 is the expected runway to be used due to weather forecast:
  - Type of approach planned: CAT 1 ► planning minima Non precision (LOC DME) apply: **410 (387) ft / 2400m**

8.1.2.3 Selection of Aerodromes

8.1.2.3.1 Destination Aerodrome

An aerodrome may be selected as destination for an operation, if it is adequate for this operation.

8.1.2.3.2 Takeoff alternate aerodrome

When performance, operational or meteorological conditions preclude return to departure aerodrome or weather conditions at the airport of departure are at or below the applicable airport operating landing minima a take-off alternate aerodrome must be selected (in accordance with 8.1.2.1.2), specified in the OFP and located within:

- For two-engine aircraft:
- Not more than one hour flying time from the airport of departure calculated at the single-engine cruise speed, (max continuous power speed) determined from the aircraft operating manual in ISA and still air conditions using the actual takeoff mass.
- Take-off alternate distance

The following table gives conservative figures for aircraft type:

Aircraft type	Distance
	60 minutes
A320	380 NM

8.1.2.3.3 Destination alternate aerodrome

Reference: ECAR 121.621

At least one suitable destination alternate aerodrome must be selected, specified on the OFP and the ATS flight plan for each flight. (See planning minima)

Two suitable destination alternates must be selected when:

- The appropriate weather reports or forecasts for the destination indicate that from 1 hr. before to 1 hr. after the ETA the weather conditions will be below the applicable planning minima; or
- No meteorological information is available.

Note: If planning minima at destination are not fulfilled, two destination alternate airports must be selected. (When two destination alternates are required, alternate fuel shall be sufficient to proceed to the alternate which requires the greater amount of alternate fuel).

In exceptions to the requirements above, no destination alternate is required in the following cases:
When either:

- The planned duration of the flight from take-off to landing does not exceed 6 hours; and
- Two separate runways are available at the destination and the meteorological conditions prevailing are such that, for the period from 1 Hr. before until 1 Hr. after the expected time of arrival at destination, the ceiling will be:
  - **I.** At least 1,500 feet above the lowest circling MDA, if a circling approach is required and authorized for that airport; or
  - **II.** At least 1,500 feet above the lowest published instrument approach minimum or 2,000 feet above the airport elevation, whichever is greater; and
  - **III.** The visibility at that airport will be at least 4800 meters, or 3200 meters more than the lowest applicable visibility minimums, whichever is greater, for the instrument approach procedures to be used at the destination airport;

OR

- The destination is isolated, and no usable destination alternate aerodrome exists (island hold). In this case the alternate fuel is replaced by the fuel necessary to fly for two hours at cruise speed (refer to 8.1.7.1.2. Isolated Airport Procedure).

Note: Runways on the same aerodrome are considered to be separate runways when:

- They are separate landing surfaces, which may overlay or cross such that if one of the runways is blocked, it will not prevent the planned type of operations on the other runway; and
- Each of the landing surfaces has a separate approach procedure based on a separate aid.

8.1.2.3.4 En-route Alternate Selection Criteria

1. Over Remote Areas
Remote areas are defined as North Atlantic, Asia east of the Ural and north of the Himalayas and the Sahara Desert.
Two engines aircraft, which are not operating in accordance with ETOPS criteria, should be flown not more than 60 minutes flying time at the one engine inoperative cruising speed from an adequate aerodrome at which the weather conditions are forecast to be actor above the applicable landing minima at the expected time of arrival.

a. & (b) together constitute an adequate aerodrome.

(a) be available, and equipped with necessary ancillary services, such as ATC, sufficient lighting, communications, weather reporting, navigation aids and safety cover, and

(b) Have at least one letdown aid (ground radar would also qualify) available for an instrument approach.

Operations Control (Dispatch) – for planning purposes – shall make that the en-route alternate(s) are existed within a 380 NM radius, i.e. 60 minutes along any point of a route; i.e. from origin to destination/destination alternate.

2. Not over Remote Areas
Two engines aircraft, which are not operating in accordance with ETOPS criteria, should be flown not more than 60 minutes flying time at the one engine inoperative cruising speed from an approved airfield. When not operating over remote areas this requirement will be automatically satisfied

8.1.2.4 Aerodrome Categories

All Nesma Airlines destination and alternates are categorized in ascending order of difficulty from category A to category C.

Category (A) aerodromes satisfy all of the following requirements:

- An approved instrument approach procedure;
- At least one runway with no performance limited procedure for take-off and/or landing;
- Published circling minima not higher than 1000 ft AAL; and
- Night operations capability.

Category (B) aerodromes do not satisfy the Category a requirements or require extra considerations such as:

- Non-standard approach aids and/or approach patterns; or
- Unusual local weather conditions; or
- Unusual characteristics or performance limitations; or
- Any other relevant considerations including obstructions, physical layout, lighting etc., which in the opinion of the Operations director or Chief Pilot require particular briefing.

Category (C) aerodromes require additional considerations to Category B aerodromes

8.1.2.5 Use of Aerodrome Category B and C

8.1.2.5.1 Use of Aerodrome Category B

Prior to operating to a Category B aerodrome, the pilot in command should be briefed, or self-briefed by means of programmed instruction, on the Category B aerodrome(s).

8.1.2.5.2 Use of Aerodrome Category C

Prior to operating to a Category C aerodrome, the pilot in command should be briefed and visit the aerodrome as an observer and/or undertake instruction in a flight simulator approved by Nesma Airlines for that purpose. This instruction should be certified by Director of Operations. Take-off and landing at these airports must be done by the Pilot in command only.

It is a requirement that the qualification to act as pilot in command on a particular aerodrome shall not continue for a period in excess of 12 calendar months.

However, if revalidated within the final 3 calendar months of validity of previous Aerodrome Competence Qualification, the period of validity shall extend from the expiry date of the previous qualification until 12 calendar months.

Crew records will be kept of the aerodrome competence (class B &C) of pilots in command. Nevertheless, it is the responsibility of each Pilot in command to ensure that he is always operating as directed by this manual.

8.1.2.5.3 Required crew competencies.

There are special skills required within areas, on routes over difficult terrain and/or into special airports described above, PIC within the preceding 12 months has either:

i. Made at least one trip as a pilot flight crewmember, line check airman or observer on the Flight Crew on a route in close proximity and over similar terrain within the specified areas, on specified routes and/or into special airports, as applicable;

ii. Fulfilled special line qualification requirements

8.1.2.6 Emergency Airports

Off-line airports not typically used by Nesma Airlines for normal operations, which may be available for use in the event of an emergency.

Emergency airports are typically categorized by the level of support, facilities and risk to be expected, and are only used when a flight cannot continue either to its destination or to a suitable alternate due to a specific emergency.

8.1.2.7 Special Airports

Special airports will include but not limited to the following:

- Mountainous area airports,
- H-elevation airports,
- Limited Navigation Equipment airports,
- Short Runways,
- Narrow Runways.

A committee from operations department consists of:

- Director of Operations or his deputy,
- Chief Pilot,
- Flight Safety Manager, and
- OCC/Dispatch Manager.
- Performance Engineer
- Stations manager

Will study such airports and give recommendations how to use these airports using RTOW, CFIT check list (Chapter 13).

The PIC shall receive a deep briefing from operations committee for that airport or if it is available in-flight simulator to demonstrate the airport operations.

Note: -

Nesma Airlines does not operate to special airports

8.1.2.8 New Routes/Destinations

The Operations committee as mentioned above in 8.2.1.8 will study any new routes/destinations presented by the commercial department that needs special preparation and will have the decision to approve or disapprove the operations at these routes/destinations according to operationally technique criteria.

Prior to operating new routes/destinations, such study shall be completed for a route, destination and alternate airports in accordance with OM-A 8.1 and 8.1.2.1.1.

8.1.2.9 Uncontrolled Airspace/Airports

Nesma Airlines may conduct operations into/out uncontrolled airspace and/or airports.

8.1.3 Methods for the Determination of Aerodrome Operating Minima

8.1.3.1 Concept of Minima

The term minima refer to the aerodrome weather conditions and defines the minimum visibility (horizontal and vertical) prescribed for taking off from, or landing a civil aircraft to this particular aerodrome.

Different concepts of minima:

- **Aircraft capability** given in the Aircraft Flight Manual defines the lowest minima for which the aircraft has been certified.
- **Aerodrome operating minima** noted on the aerodrome chart, established in accordance with the national authorities of the aerodrome. They are depicted on Jeppesen approach charts and never below any State minima.

- **Nesma Airlines' minima** approved by the Egyptian Civil Aviation Authorities. They are the lowest minima that the Nesma Airlines is allowed to use on a specified aerodrome. They cannot be lower than the aircraft capability and the minima published on the aerodrome chart except when specifically approved by the national authority of the aerodrome.
- These operator's minima are also called "**aerodrome operating minima**" by the operator (but with a different meaning than in the previous case).
- **Crew minima** are the minima that the crew is authorized to operate. They are based upon the qualification of the flight crewmembers.

8.1.3.2 Aerodrome Operating Minima

As a rule, the aerodrome operating minima are the minima indicated on the instrument departure and approach charts (Jeppesen charts) established by the state in which the aerodrome is located.
However, at the Pilot in Command's discretion, if other factors indicate that the operation cannot be conducted with the required standard of safety the selected minima can be higher than the allowed operating minima. NOTAM may affect minima.
For operational further information refer to 8.4 All Weather Operations.

8.1.3.3 Take-Off Operating Minima (All Airports)

The Takeoff minima is mainly determined by the airport installation (runway lighting system, RVR measurement system,)
When weather conditions are more severe than the landing minima, a takeoff alternate is normally required:

- within one hour for twins
- Within the maximum approved diversion time for aircraft qualified for ETOPS, but not more than 2 hours.

Above time is determined at the one engine inoperative speed. Takeoff with RVR less than 400m is considered as LVTO.
The maximum RVR at Takeoff is quite independent of the aircraft type and aircraft equipment except for very low RVR.
Take-off minima are generally expressed as VIS or RVR. Where there is a specific need to see and avoid obstacles, a ceiling or climb gradient will be specified.

- Take-off shall not be commenced unless weather conditions at the airport of departure are equal to or better than applicable minima for landing at that airport, unless a suitable take-off alternate aerodrome is available.
- When the reported visibility is below that required for take-off and RVR is not reported, a take-off may only be commenced if the Captain can determine that the RVR/VIS along the take-off runway is equal to or better than the required minimum.
- When no report of VIS or RVR is available, a take-off may only be commenced if the Captain can determine that the RVR/VIS along the take-off runway is equal to or better than the required minima.
- The lowest RVR authorized for take-off is 400m, unless Low Visibility Procedures are in force.
- For all take-offs where the RVR is less than 400m (LVTO), the flight crew must be qualified and low visibility procedures must be in force.
- Applicable take-off minima: Operating minima for take-off from a specific airport are specified:

1. Jeppesen airport charts.
2. For States that have adopted the JAA Minimums concept with a JAR-OPS label in the minimums box heading.
3. On separate JAA Minimums listing page (10-9X, 20-9X etc.)
4. When none of the charts as in (1), (2) and (3) above are available for a specific airport, then the applicable take-off minima are those specified under Air Carrier (not to be confused with AIR CARRIER FAR 121) provided the chart is dated on or after 12 NOV 99.

- The limits below define the lowest Take-Off Minima authorized and are to be used by flight crew for establishing applicable take-off minima. Applicable take-off minima for specific airports are specified on the relevant Jeppesen chart.

A. Standard Take-Off Minima:

The standard takeoff minima is authorized for use at all airports unless a higher than standard minima is specified in the applicable instrument approach procedure

Two Engine Aircraft	1600 meters (1 mile)

B. Lower Than Standard Take-Off Minima:

On runways where standard takeoff minima are authorized, the following minima are also authorized:

1. 400 meters (1/4 mile) visibility or RVR 400 meters when any of the following visual aids are available:

a) HIRL, or
b) Runway Centerline Lights, or
c) Runway Centerline Markings, or
d) In unusual circumstances where neither (a), (b), nor (c) above are available, the runway is marked in such a manner that the pilot at all times has visual reference to the line of forward motion during the takeoff-roll.

Note: If takeoff is based on RVR, a touchdown Transmissometers is required and is controlling.

2. RVR 350 meters with RVR 300 meters on rollout and provided the runway has:

a) Operative centerline lights; and
b) Two operative Transmissometers, neither of which is capable of reading lower than RVR 300m. Both are controlling.

3. RVR 175 meters with MID RVR (175) meters (if operative) and RVR 175 meters on rollout, provided the runway has:

a) Operative Centerline Lights CL;
b) Runway Centerline Markings RCLM; and
c) Either two or three operative Transmissometers capable of reading as low as RVR 175m.

Note: Where only two Transomometers are installed, the touchdown and rollout RVRs are required and are controlling. If three Trans miss meters are installed; all are controlling, and the failure of any one Trans miss meters will not affect operations provided the remaining two RVR values are at or above appropriate minima.

Table 1: RVR conversion

RVR (Meters)	Operational Equivalent (Feet)	RVR (Meters)	Operational Equivalent (Feet)	RVR (Meters)	Operational Equivalent (Feet)
30	100	330	1100	690	2300
50	150	350	1200	720	2400
60	200	390	1300	750	2500
75	250	420	1400	780	2600
90	300	450	1500	900	3000
120	400	480	1600	980	3200
150	500	510	1700	1200	4000
180	600	540	1800	1380	4500
200	700	570	1900	1500	5000
240	800	600	2000	1800	6000
270	900	630	2100		
300	1000	670	2200		

Note: The distance equivalents in the table above are applicable to both TAKEOFF and LANDING minima

8.1.3.4 Aeroplan Categories

8.1.3.4.1 Classification of Airplanes

For approach, aircraft are classified in categories: A, B, C, D, and E.
The criteria taken into consideration for the classification of airplanes by categories is the indicated airspeed at threshold (V_{AT}) in landing configuration at the maximum certified landing weight.
V_{AT} = 1.3 VS or V_{AT} = 1.23 VS1G (fly-by-wire aircraft).
The Aeroplan categories corresponding to V_{AT} values are in the table 2 below:
Table 2: Aircraft category (multi-engine) Airplane

Category	VAT	Models
A	**VAT** < 91 kt	
B	91 kt ≤ **VAT** <121 kt	
C	121 kt ≤ **VAT** <141 kt	All Nesma Airlines aircraft
D	141 kt ≤ **VAT** <166 kt	
E	166 kt ≤ **VAT** < 211 kt	

8.1.3.4.2 Permanent Change of Category (Maximum Landing Mass)

- An operator may impose a permanent lower landing mass and use this mass for determining the V_{AT} if approved by the Authority.
- The category defined for a given airplane shall be a permanent value and thus independent of the changing conditions of day-to-day operations.

8.1.3.5 Approach Operating Minima

- Authorized Approaches & Landings

The approach procedures published in the letdown charts for ILS, LOC (GS inoperative), VOR, VOR/DME, NDB, NDB/DME and SRA are authorized, and the associated minima are applicable, provided the following requirements are met:

1. The required ground equipment's for the intended procedure are operative;
2. The aircraft systems required for the type of approach are operative;
3. The required aircraft performance criteria are met; and
4. The crew is qualified accordingly.

- Operating Minima

Operating minima for landing at a particular airport are specified:

1. Jeppesen approach charts.
2. For States that have adopted the JAA Minimums with a JAR-OPS label in the minimums box heading.
3. Collectively on a separate JAA Minimums listing page (10-9X, 20-9X etc) placed in front of the airport chart or alternatively in front of the first approach chart.

8.1.3.5.1 Commencement and Continuation of an Approach

Refer To 8.3.1.7

8.1.3.5.2 Non-Precision Approaches

8.1.3.5.2.1 System Minima

The system minima (weather conditions function of the approach aid) for "Non Precision Approach" shall not be lower than the Minimum Descent Height (MDH) value given in table 3 below:

Table 3 - System minima for non-precision approach aids

Facility (approach aid)	lowest MDH (ft)
ILS with no glide path (LLZ)	250
SRA (terminating at 1/2 NM.)	250
SRA (terminating at 1 NM.)	300
SRA (terminating at 2 NM.)	350
VOR	300
VOR/DME	250
NDB	300

8.1.3.5.2.2 Minimum Descent Height (MDH)

Non-precision approach procedures are based on the use of ILS without glide slope (LLZ only), VOR, VOR/DME, NDB, NDB/DME, SRA, VDF, RNAV or GPS. The MDH on a non-precision approach shall not be less than the highest of:

- the Obstacle Clearance Height (OCH) for the category of aircraft;
- the system minimum, as contained in table 3, or
- Any State minima if applicable.

8.1.3.5.2.3 Visual Reference

A pilot may not continue an approach below Minimum Descent Height/Altitude (MDH/MDA) unless at least one of the following visual references for the intended runway is distinctly visible to, and identifiable by the pilot:

- elements of the approach light system;
- the threshold, or its markings, lights or identification lights;
- the visual glide slope indicator(s);

- the touchdown zone, zone markings or zone lights;
- the runway edge lights; or
- Other visual references accepted by the Authority.

8.1.3.5.2.4 Required Runway Visual Range

The minimum RVR for a non-precision approach depends on the MDH and on the approach lighting and runway lighting/marking available as shown in table 4, below.
For night operations at least runway edge, threshold and runway end lights must be illuminated.
Table 4- RVR for Non-Precision Approaches

MDH (ft)	Facilities		Intermediate Facilities		Basic Facilities		Nil Approach Light Facilities	
	RVR – Required (m) For Aircraft Category							
	C	D	C	D	C	D	C	D
250-299	800	1200	1200	1400	1400	1600	1600	1800
300-449	1000	1400	1400	1600	1600	1800	1800	2000
450-649	1200	1600	1600	1800	1800	2000	2000	2000
650 & ABV	1400	1800	1800	2000	2000	2000	2000	2000

Facilities – Required (Lights Must Be On)				
Approach Lights	HIALS / MIALS 720m or More	HIALS / MIALS 420m – 719m	HIALS / MIALS 419m or Less or ALS any Length	Nil Approach Light
Threshold Lights	X	X	X	X *
RWY Edge Lights	X	X	X	X *
RWY End Lights	X	X	X	X *
RWY Markings	X	X	X	X

(*) Day Operations Only
Notes:

1. Full facilities comprise runway markings, 720 meters or more of high or medium intensity (HI/MI) approach lights, runway edge lights, and threshold and end lights. Lights must be on.
2. Intermediate facilities comprise runway markings, 420-719 meters of HI/MI approach lights, runway edge, and threshold and end lights. Lights must be on.
3. Basic facilities comprise runway markings, less than 420 meters of HI/MI approach lights, runway edge, threshold and end lights. Lights must be on.
4. Nil approach light facilities comprise runway markings, runway edge, threshold and end lights or no lights at all.

The following conditions also apply:

- Descent slopes greater than 4° (7%) are considered abnormal descent slopes, and will usually require visual slope guidance (e.g. PAPI) to be available at the MDA.
- For night operation at least runway edge, threshold and runway end lights must be ON and operational.
- The above figures are either reported RVR or MET visibility converted in accordance with the conversion table.
- Runway end lights may be substituted by color coded runway edge or runway centerline lights.

Note: Observe effects on landing minima of temporarily failed or down-graded equipment & maximum crosswind limitations according OM- B (planning and in-flight).

Table 5 - Converting reported visibility to RVR

Lighting element in operation	RVR = Reported Meteorological visibility multiplied by	
	Day	Night
HI approach and runway lighting	1.5	2.0
Any type of lighting installation other than above	1.0	1.5
No lighting	1.0	Not applicable

Table 5 may not be used for calculating take-off minima or Cat II/III minima nor when a reported RVR is available.

Table 5 must not be applied for Take-off or any other required RVR minimum less than 800m or when reported RVR is available.

Note: If the RVR is reported as being above the maximum value assessed by the aerodrome operator, e.g. “RVR more than 1500 meters”, it is not considered to be a reported RVR in this context and the Conversion Table may be used.

8.1.3.5.3 Precision Approach CAT I

8.1.3.5.3.1. Category I

A Category I operation is a precision instrument approach and landing using ILS, MLS or PAR with:

- a runway visual range (RVR) not less than 550 meters, and
- A decision height (DH) not lower than 200 feet.
- The DH shall be not less than the highest of:

- the OCH for the category of aircraft;
- the minimum DH in the Aircraft Flight Manual (AFM), if stated;
- the minimum height to which the precision approach aid can be used without the required visual reference;
- 200 feet; or
- Any State minima if applicable.

8.1.3.5.3.2 Visual Reference

No pilot may continue a precision approach Cat I below the DH unless at least one of the following visual references for the intended runway is distinctly visible to, and identifiable by the pilot:

- elements of the approach lighting system;
- the threshold, or its markings, lights or identification lights;
- the visual glide slope indicator(s);
- the touchdown zone, zone markings or zone lights; or
- The runway edge lights.

8.1.3.5.3.3 Runway Visual Range

The minimum RVR is governed by the DH and the approach lighting and runway lighting/marking available as shown in Table 6 below.

For night operations at least runway edge, threshold and runway end lights must be illuminated.

Table 6 - RVR for Category I

DH (ft)	Full Facilities	Intermediate Facilities	Basic Facilities	Nil Approach Light Facilities
	RVR – Required (m)			
200	550	700	800	1000
201-250	600	700	800	1000
251-300	650	800	900	1200
301 and above	800	900	1000	1200
	Facilities – Required (Lights Must be ON)			
Approach lights	HIALS / MIALS 720m or More	HIALS / MIALS 420m – 719m	HIALS / MMIALS 419m or Less or ALS any Length	Nil Approach Lights
Threshold lights	X	X	X	X *
RWY Edge Lights	X	X	X	X *
RWY End Lights	X	X	X	X *
RWY Markings	X	X	X	X *

* Day Operations Only

The above table is only applicable to conventional approaches with a maximum glide slope angle of 4°. For "steeper" glide slopes refer to AOM and/or Jeppesen approach chart. The above figures are either reported RVR or MET visibility converted in accordance with the Conversion table of VIS to RVR of this manual.

Runway end lights may be substituted by color coded runway edge or runway centerline lights.

Pilots-in-command who have not met the requirement of ECARS 121.652 i.e. less than 100 hrs. as pilot in command on the airplane type shall add to CAT 1 visibility / RVR an increment of 1/2 sm/800 meters and an increment of 100 ft above the DA (DH) or MDA (MDH). This may be reduced by 50% if the pilot-in-command had already gained 100-hour experience in command of another aircraft type in operation under the ECARS.

Use the high minimum pilot RVR landing minimum equivalents as determined from the following table:

RVR Landing minima Ft/m	RVR Landing minima for PIC with less than 100 Hrs on type Ft/m
RVR 1800 / 550	RVR 4500 / 1400
RVR 2000 / 600	RVR 4500 / 1400
RVR 2400 / 720	RVR 5000 / 1500
RVR 4000 / 1200	RVR 6000 / 1800
RVR 5000 / 1500	RVR 6000 / 1800

Notes:

(1) Full facilities comprise runway markings, 720 meters or more of high or medium intensity (HI/MI) approach lights, runway edge lights, and threshold and end lights. Lights must be on.

(2) Intermediate facilities comprise runway markings, 420-719 meters of HI/MI approach lights, runway edge, and threshold and end lights. Lights must be on.

(3) Basic facilities comprise runway markings, less than 420 meters of HI/MI approach lights, runway edge, threshold and end lights. Lights must be on.

(4) Nil approach light facilities comprise runway markings, runway edge, threshold and end lights or no lights at all.

Note 1: Observe effects on landing minima of temporarily failed or downgraded equipment), and maximum crosswind limitations according OM-B (planning and in-flight).

Note 2: Light must be serviceable and ON if required for night operations only

8.1.3.5.4 Precision Approach Cat II

Reference: EAC 91-11

8.1.3.5.4.1 Category II

Nesma Airlines is authorized for CAT II Operations

A category II operation is a precision instrument approach and landing using ILS with:

- a RVR of not less than 300 m, and
- A Decision Height below 200 ft. but not lower than 100 ft.

The DH shall be not lower than:

- the minimum DH specified in the AFM,
- the minimum height to which the precision approach aid can be used without the required visual reference
- the OCH for the category of the aircraft
- the DH to which the flight crew is authorized to operate
- 100 ft. (attached below the special authorization for 6 months).

8.1.3.5.4.2 Visual reference

No pilot may continue a precision approach Cat II below the DH unless following visual references is attained and can be maintained.

The visual reference must contain:

- a segment of at least 3 consecutive lights being:
  - ➢ the center light of the approach lights, or

- touchdown zone lights, or
- runway center line lights, or
- runway edge lights, or
- a combination of these
- and a lateral element of the ground pattern:
- an approach lighting crossbar, or
- the landing threshold, or a barrette of the touchdown zone lighting.

8.1.3.5.4.3 Runway Visual Range

The minimum RVR is governed by the DH and the approach lighting and runway lighting/marking available as shown in table below.
RVR for Category II approach versus DH

Decision Height	Auto-coupled to below DH (1) RVR aircraft category C	
100 - 120 ft	300 m	
121 - 140 ft	350 m	
141 ft and above	400 m	

(1) "auto-coupled to below DH" means continued use of the automatic flight control system down to a height which is not greater than 80% of applicable DH (through minimum engagement height for automatic flight control system, DH to be applied may be affected).

Reserved

8.1.3.5.5 Precision approach CAT III

Nesma Airlines is not authorized for CAT III Operation.

8.1.3.5.6 Visual maneuvering (Circling)

Visual maneuvering (circling) is the term used to describe the visual phase of an instrument approach required to position an aircraft for landing on a runway which is not suitably located for a straight-in approach.
Great care is required, with high terrain awareness. This is required whenever crews are completing this maneuver.

The Circling Minimum Altitude is designed to provide a terrain clearance of at least 300ft above the highest spot elevation within 4nm of the runway system of the airfield. It is permissible to eliminate from consideration a particular sector where a prominent obstacle exists in the circling area outside the final approach and missed approach areas. When this option is exercised, the published procedure prohibits circling within the total sector in which the obstacle exists.
Descent below Circling Minima should not be made until.

(a) visual reference has been established and can be maintained;
(b) the pilot has the landing threshold in sight;
(c) the required obstacle clearance can be maintained; and
(d) the aircraft is able to carry out a safe landing

A circling approach is a visual flight maneuver. Each circling situation is different because of variables such as runway layout, final approach track, wind velocity and meteorological conditions. Therefore, there can be no single procedure designed that will cater for conducting a circling approach in every situation.

After initial visual contact, the basic assumptions are that the runway environment, ie, the runway threshold or approach lighting aids or other markings identifiable with the runway, is kept in sight while at Circling Minima and that there is sufficient visual reference to the terrain to ensure clearance.

Missed Approach Procedure while Circling:

If visual reference is lost while circling to land from an instrument approach, the missed approach specified for the particular procedure must be followed. It is expected that the pilot will make an initial climbing turn toward the landing runway and overhead the aerodrome where he will establish the aircraft climbing on the missed approach track.

In as much as the circling maneuver may be accomplished in more than one direction, different patterns will be required to establish the aircraft on the prescribed missed approach course depending on its position at the time visual reference is lost.

The minimum MDH and visibility which are required for visual maneuvering are as given in Table 7 below.

Table 7 - Visibility and MDH for visual maneuvering

Aircraft category			C	
MDH			600 ft	
Minimum meteorological visibility			2400 m	

8.1.3.5.7 Visual approach

A Visual approach takes place when either part or all of an instrument approach is not completed and the approach is executed by visual reference to the terrain. Visual approaches are not permitted unless ATC authorization is received, and the weather conditions at the aerodrome are as follows:

- If circling minima is published, then the cloud ceiling must be at least the MDA (H) specified under “Circle-to-Land” but not less than the minima specified and reported visibility of at least 5 km.
- If no circling minimum is specified, then the cloud ceiling must be at least the MSA and reported visibility not less than 5 km.

Note: A pilot may request a visual approach if:

- Visual contact with the airport or surrounding terrain can be maintained until landing and the Pilot in command can satisfy himself that the ceiling and flight visibility allow a successful visual approach and landing;
- The weather conditions in terms of ceiling and visibility specified above exist; and
- ATC authorization is received.

For a visual approach, ATC clearance shall be received and RVR of less than 800 m shall not be used.

8.1.3.5.8 Effect of failed or downgraded ground equipment

These instructions are intended for pre-flight and pre-approach. It is not expected however that the Pilot in Command would consult such instructions after passing the outer marker or equivalent position. If ground aids failure is announced on final approach, the approach could be continued at the Pilot in Command's discretion. If, however, failures are announced before final, their effect on the approach should be considered as described in table 8, and the approach may have to be stopped to allow review.

- Conditions applicable to table 8

- Multiple failures of runway lights other than indicated in table 10 are not acceptable
- Deficiencies of approach and runway lights are treated separately
- Category II or III operations - A combination of deficiencies in runway lights and RVR assessment equipment is not allowed.
- Failures other than ILS affect RVR only and not DH.

Table 8 - Failed or downgraded equipment - Effect on landing minima

Failed or downgraded equipment	Effect on landing minima				
	CAT IIB	CAT IIIA	CAT II	CAT I	Non precision
ILS standby transmitter	Not allowed		No effect		
Outer Marker	No effect if replaced by published equivalent position				Not applicable
Middle Marker	No effect				No effect unless used as MAPT
Touch down zone RVR assessment system	May be temporarily replaced with midpoint RVR if approved by the state of the airport. RVR may be reported by human observation			No effect	
Midpoint or Stop end RVR	No effect				
Anemometer for runway in use	No effect if other round source available				
Ceilometer	No effect				
Approach lights	Not allowed for operations with DH > 50 ft		Not allowed	Minima as for basic facilities	
Approach lights except the last 210 m	No effect		Not allowed	Minima as for basic facilities	
Approach lights except the last 420 m	No effect			Minima as for intermediate facilities	
Standby power for approach lights	No effect		RVR as for CAT I basic facilities		No effect
Whole runway light System	Not allowed			Minima as for basic facilities day only	
Centerline lights spacing increased to 30 m	RVR 150 m	No effect			
Touch down zone lights	Day: RVR 200 m Night: RVR300 m	Day: RVR 300 m Night: RVR 550 m		No effect	
Standby power for runway lights	Not allowed			No effect	
Taxiway light system	No effect – except delays due to reduced movement rate				

8.1.4 VFR En-Route Operating Minima

VFR flights are **not** allowed unless authorized by Director of Operations (refer to 8.3.1). VFR flights and VFR portions of an IFR-flight shall be conducted accordance with the visual flight rules and in accordance with the table below:

AIRSPACE	Height above GND	TAS Below 250 Kts		TAS Below 250 Kts	
		VIS	CLOUD DIST. Horizontal/Vertical	VIS	Cloud Dist. Horizontal/vertical
B, C, D, F	Above 2500 ft	8 km	1.5 km/1000 ft	10 km	3 km/2000 ft
	Below 2500 ft	5 km	1.5 km/1000 ft	5 km	2 km/1500 ft
E	------------	8 km	1.5 km/1000 ft	10 km	3 km/2000 ft
G	Above 2500 ft	5 km	1.5 km/1000 ft	10 km	3 km/2000 ft
	Below 2500 ft	2 km	Clear of clouds	5 km	1.5 km/1000 ft

Note 1: Except when authorized by ATC, VFR flights shall not take off or land at an airfield within a control zone, or enter the airfield traffic zone or traffic pattern;

- When the ceiling is less than 1500ft (450m); or
- When the ground visibility is less than 5km.

Note 2: Unless cleared for "VFR-on-top-flight", visual reference to ground shall always be maintained during IFR flight

Note 3: For State differences refer to Operations Manual Part 'C', Jeppesen Text "Air Traffic Control".

8.1.5 Presentation and Application of Aerodrome and En-Route Operating Minima

Aerodrome and en-route operating minima for each departure, destination or alternate aerodrome authorized for the type(s) of aircraft and operations of Nesma Airlines are published in the Jeppesen Route Manual.

These operating minima presented in the Jeppesen Route Manual must be used as long as they do not conflict with the basic minima as presented

Furthermore, the operating minima are applicable if:

- The ground equipment shown on the respective chart required for the intended procedure is operative
- The airplane systems required for the type of approach are operative
- The required airplane performance criteria are met
- The crew is qualified accordingly.

8.1.5.1 Standard Routing

Standard routings are prepared by Flight Dispatch in accordance with Nesma Airlines and governmental regulations. These are shown on:

- The Operational Flight Plan (OFP)
- Other approved maps, charts or listings distributed by Nesma Airlines e.g. Jeppesen Charts.

Nesma Airlines shall not operate an aircraft at a distance away from land, which is suitable for making an emergency landing, greater than that corresponding to 30 minutes at cruse speed or 100 NM, whichever is the lesser, for all other aircraft, unless the following equipment's are on board:

a) life savings rafts in sufficient numbers to carry all persons on board stowed so as to facilitate their ready use in emergency including means of sustaining life and

b) Equipment for making the pyrotechnical distress signals (ELT).

8.1.5.2 Deviation from Standard Routing or Flight Level

When, for any reason, it becomes necessary to deviate from standard routings or assigned Flight Level the following shall be taken into consideration:

- All flights shall, whenever possible, be conducted within controlled airspace or, if not practicable, within airspace where air traffic advisory service or any similar service is available
- Ground facilities (radio, navigation aids, communication facilities, emergency aerodromes)
- Terrain to be over flown and airplane performance as contained in the AOM
- Special regulations issued by States responsible for the airspace to be traversed
- Meteorological conditions and meteorological services
- Search and rescue facilities
- Reliability of maps and charts
- Fuel load with respect to increased consumption and/or fuel dumping.

8.1.6 Meteorological Information

All flight crews are required to develop and maintain a sound working knowledge of the system used for reporting aerodrome actual and forecast weather conditions and for the codes associated with it.

The information provided in the Operations Manual Part 'C', Jeppesen Text Book, section Meteorology highlights the various types of weather reports and their interpretation. The following additional rules shall be applied:

1. For planning purposes an aerodrome shall be considered to be below minimum if;
- The requirements of aerodrome planning selection minima are not met;
- The steady crosswind component exceeds the prescribed limitations.
- For destination alternate, whenever a forecast contains a meteorological condition indicating below planning minimum at ETA ± 1 hr. conditions which is prefixed by TEMPO, the aerodrome may be considered for designation as alternate if:
  - The meteorological conditions are above the applicable landing minima;
  - The meteorological conditions at destination is at or above destination alternate planning minima; and
  - Additional 30 minutes holding fuel is carried.

2. For In-flight purposes the aerodrome shall be considered below minima if a forecast contains meteorological conditions indicating "below minimum" at ETA which are prefixed by BECMG or TEMPO, the aerodrome shall be considered below minimum. Conditions prefixed by PROB - either used alone or in combination with the prefix TEMPO - may be considered whenever judged operationally significant.

8.1.6.1 En-route Meteorological Data

Meteorological charts are issued four times a day at fixed intervals 00:00, 06:00, 12:00 and 18:00 UTC and are normally available at least 9 hours before such times.

Flight crewmembers are required to monitor meteorological conditions during En-route phase of the flight, to include current weather and forecasts for:

I. Destination airport
II. Destination alternate airport(s)
III. En route alternate airport(s), if applicable.

This shall assist flight crewmembers to early set their course of action(s) regarding many points of view; such as safety, operations and commercial … etc.

8.1.6.1.1 Wind Charts

The following wind charts are available to determine the wind en-route and to the alternate(s):

Pressure Surface	Approx. Altitude	Flight Level
700 hPa	9,900 feet	100
500 hPa	18,300 feet	180
400 hPa	24,000 feet	240
300 hPa	30,100 feet	300
200 hPa	38,700 feet	390

8.1.6.1.2 Significant Weather Charts

The charts cover two layers, between FL 100 – FL 250 and FL 250 – FL 450
The charts show significant en-route weather phenomena such as;

- Thunderstorms;
- Tropical cyclones;
- Severe squalls;
- Moderate or severe turbulence;
- Moderate or severe icing;
- Type of clouds – particularly cumulonimbus type clouds;
- Surface position of convergence zones ;
- Surface position of frontal systems;
- Tropopause height;
- Jet streams;
- Information on the location and times of volcanic eruptions.

These charts will be used to determine hazardous weather conditions en-route and to check route planning.

8.1.6.2 Airport Meteorological Data

METARS and TAFS are produced by airport meteorological offices and used by Captains to decide whether actual/forecast conditions would allow a safe landing within the permitted aerodrome operating minima.
METARS, (Aviation routine weather reports), are compiled half-hourly or hourly and contain the following coded information:

- Type of report **(METAR)** or **SPECI** (special report);
- ICAO station identifier;
- Time of observation;
- Wind direction (normally degrees true, occasionally degrees magnetic) and speed (Kts or km/h);
- Gusts;
- Horizontal visibility;
- RVR, if visibility is less than 1.500m;
- Weather phenomena (if any);
- Clouds.

Clouds are reported in six character groups. The first three characters indicate the cloud amount.

FEW = 1 to 2 OKTAS
SCT (Scattered) = 3 to 4 OKTAS
BKN (Broken) = 5 to 7 OKTAS
OVC (Overcast) = 8 OKTAS
SKC = Sky clear
The next three characters indicate base of the cloud layer in hundreds of feet above aerodrome level.
Note: In some countries the cloud amount may still be given in OKTAS instead of FEW, SCT, BKN, and OVC.

- CB (cumulonimbus) or TCB, (towering cumulus) if any;-
- temperature and dew point (T, DT);
- QNH;
- supplemental information, if applicable, such as recent weather, wind shear etc.;
- trend
- BECMG (. becoming.) indicates an expected permanent change;
- TEMPO (. temporarily.) indicates a temporary fluctuation in weather conditions;
- PROB (. probably.) indicates a probable (given in percent) change;
- AT – at a specific time;
- FM – from
- TL – until
- CAVOK (Cloud And Visibility OK) – if visibility is to 10 km or more, if no clouds are reported/expected below 1500m, (5,000 ft), or below the highest minimum sector altitude, whichever is the greater, and no cumuli-nimbus is reported or expected;
- SKC – sky clear.
- NSC – no significant clouds;
- NSW – no significant weather.

TAFS (Terminal Aerodrome Forecast) are usually valid for a period of not less than 9 HR but no more than 24 hrs. Routine aerodrome forecasts valid for less than 12 hours should normally be issued every 3 hours, all others every 6 hours.
The structure is similar to the METAR but lists forecast weather conditions without dew point Temperature and QNH

8.1.6.3 Non-Routine Aeronautical Information

The following "non-routine" meteorological information is provided when applicable;

- as a SPECI, a special report amending a METAR
- amended TAFs
- SIGMET (significant meteorological reports) when significant weather phenomena occur.
- Aerodrome Warnings, such as microburst or wind shear.
- **Note:** Full details of weather reports and meteorological data presentation are available in the Operations Manual Part ‘C’ Jeppesen Text Book, section Meteorology.

Application Of Airport Forecast (TAF & TREND) To Preflight Planning (ICAO Annex 3 Refers

(1) Application of Initial Part of TAF (for airport planning minima see 8.1.2)

a. Applicable time period: From start of TAF validity up to time of applicability of first subsequent "FM..." OR "BECMG" or if none given up to end of validity of TAF.

b. Application of forecast: The prevailing weather conditions forecast in initial part of TAF should be fully applied with the exception of mean wind and gusts (and x wind) which should be applied in accordance with the policy in column "BECMG AT and FM" in table below. This may however be overruled temporarily be a "TEMPO" or "PROB" if applicable according to table below.

(2) Application Of Forecast Following Change Indicators In TAF And Trend

TAF or TREND for airport planned as	FM (alone) and BECMG AT	BECMG (alone), BECMG FM, BECMG TL, BECMG FM..TL..		TEMPO (alone), TEMPO FM, TEMPO TL, TEMPO FM… TL…, PROB 30/40 (alone)			PROB TEMPO
	Deterioration and Improvement	Deterioration	Improvement	Deterioration		Imp.	Deter. and Improv.
				Transient/Showery conditions **in connection with** short lived conditions. e.g. - thunderstorms, - showers	Persistent conditions in connection with e.g. - haze, - mist, - fog, - dust/ sandstorm, - continuous precipitation	Should be disregarded	Deterioration **may** be **disregarded**, Improvement **should** be **disregarded** including mean wind and gusts.
▪ Destination ▪ Take-off alt	Applicable From the **start** of change. Mean wind should be within Aircraft limit. Gusts may be disregarded		Applicable From **end** of change. Mean wind should be within Aircraft limit.	Not applicable Mean wind and gusts exceeding Aircraft limit **may** be disregarded	Applicable Mean wind should be within Aircraft limit. Gusts may be disregarded.		

ernate ▪ Destination alternate ▪ Enroute alternate at ▪ At ETA ± 1 HR		Gusts may be disregarded		(for destination alternate refer to 8.1.6)		
ETOPS Enroute Alternate at earliest / latest ETA ± 1HR	Applicable From the **start** of change. Mean wind should be within aircraft limit. Gusts exceeding x wind limits should be fully applied.	Applicable From the **end** of change. Mean wind should be within aircraft limit. Gusts exceeding x wind limits should be fully applied.	Applicable If below applicable landing minima. Mean wind should be within aircraft limit. Gusts exceeding x wind limits should be fully applied.			

8.1.6.4 Commonly Used Abbreviations in Meteorological Messages

ABV	Above	FM	From
AC	Altocumulus	FRONT	Front
ALT	Altitude	FT	Feet
AMD	Amend or amended	FU	Smoke
APCH	Approach	FZ	Freezing
ARFOR	Area forecast	FZDZ	Freezing drizzle
AS	Altostratus	FZFG	Freezing fog
AT	At	FZRA	Freezing rain
ATS	Air traffic services	GAMET	Area forecast for low-level
BC	Patches	GR	Hail
BCFG	Fog patches	GRIB	Processed meteorological data in form of grid point values expressed in binary form
BECMG	Becoming	GS	Small hail and/or snow pellets
BKN	Broken	HPA	Hectopascals
BL	Blowing	HR	Hours
BLW	Below	HURCN	Hurricane
BR	Mist	HVY	Heavy
BTB	Between	HZ Haze	
C	Centre	IC	Ice crystal
C	Degrees Celsius	ICE	Icing
CALM	Calm	INC	In Cloud
CAT	Clear Air Turbulence	INTSF	Intensify/Intensifying
CAVOK	Ceiling And Visibility OK	ISOL	Isolated
CB	Cumulonimbus	KM	Kilometers
CC	Cirrocumulus	KMH	Kilometers per hour
CI	Cirrus	KT	Knots
CLD	Cloud	LAT	Latitude
COR	Correct/correction/corrected	LOC	Local/locally/location/located
CS	Cirrostratus	LONG	Longitude
CTA	Control area	LYR	Layer/layered
CU	Cumulus	M	Meters
D	Downward	MAX	Maximum
DEG	Degrees	MBST	Microburst
DIF	Diffuse	MET	Meteorological/meteorology
DP	Dew point temperature	METAR	Aviation routine weather report
DR	Low drifting	MI…	Shallow
DS	Dust storm	MID	Mid-point
DZ	Drizzle	MIFG	Shallow fog
EMBD	Embedded in a layer	MNM	Minimum
END	Stop end	MOD	Moderate
FBL	Light	MOV	Move/moving/movement
FC	Funnel cloud	MS	Minus
FCST	Forecast	MSL	Mean sea level
FEW	Few	MT	Mountain
FG	Fog	MTW	Mountain waves

FIR	Flight Information Region	MWO	Meteorological watch office
FL	Flight Level	N	North or northern latitude
FLUC	Fluctuating/fluctuation/ fluctuated	N	No distinct tendency (RVR)
NC	No change	SN	Snow
NE	North-east	SQ	Squall
NIL	None or nothing to send	SQL	Squall line
NM	Nautical miles	SS	Sandstorm
NS	Nimbostratus	SST	Supersonic transport
NSC	Nil Significant Cloud	ST	Stratus
NSW	Nil Significant Weather	STNR	Stationary
NW	North-west	SW	South-west
OBS	Observe/observed/observation	T	Temperature
OBSC	Obscure/obscured/obscuring	TC	Tropical cyclone
OCNL	Occasional/occasionally	TCU	Towering cumulus
OPMET	Operational meteorological	TDO	Tornado
OTLK	Outlook (SIGMET)	TEMPO	Temporary/temporarily
OVC	Overcast	TEND	Trend forecast
PE	Ice pellets	TL…	Till
PO	Dust/sand whirls (dust devils)	TO	To
PR	Partial	TOPS	Cloud tops
PRFG	Airport partially covered by fog	TS	Thunderstorms
PROB		URB	Turbulence
PS	Plus	U	Upward
QFE	Atmospheric pressure at aerodrome elevation	UIR	Upper flight information region
QNH	Altimeter setting to obtain elevation when on the ground	UTC	Coordinated Universal Time
RA	Rain	VA	Volcanic ash
RAFC	Regional area forecast centre	VC	Vicinity of the aerodrome
RAG	Ragged	VER	Vertical
RE…	Recent	VIS	Visibility
ROFOR	Route forecast	VOLMET	Meteorological information for aircraft in flight
RTD	Delayed	VRB	Variable
RVR	Runway Visual Range	W	West or western longitude
RWY	Runway	WAFC	World area forecast center
S	South or southern latitude	WAFS	World area forecast system
SA	Sand	WI	Within
SC	Stratocumulus	WINTEM	Forecast upper wind and temperature for aviation
SCT	Scattered	WKN	Weaken/weakening
SEV	Severe	WRNG	Warning
SFC	Surface	WS	Wind shear
SG	Snow grains	WSPD	Wind speed
SH…	Showers	WX	Weather
SIGWX	Significant weather	Z	Coordinated Universal time
SKC	Sky clear		

8.1.6.5 Operational Practices for Interpretation of Meteorological Information

For planning purposes an aerodrome shall be considered to be below minimum if:

- The RVR or meteorological visibility is below the applicable minima (precision approach)
- The ceiling or vertical visibility is below the applicable decision height or minimum descent height (non-precision approach / or circling only) the steady crosswind component exceeds the prescribed limitation for the airplane type. The steady (mean) wind should be used and the gusts may be disregarded.
- The head wind or tail wind component exceeds the prescribed limitation for the airplane type.

Whenever a forecast contains meteorological conditions indicating "below minimum" at ETA which are prefixed by:

BECMG AT

- Deterioration or improvement:

Applicable from the time of start of the change. Mean wind must be within limits. Gusts may be disregarded.

BECMG FM, BECMG TL, BECMG FM...TL

- Deterioration:

Applicable from the time of start of the change. Mean wind must be within required limits. Gusts may be disregarded.

- Improvement:

Applicable from the time of end of the change. Mean wind must be within required limits. Gusts may be disregarded.

TEMPO (alone), TEMPO FM, TEMPO TL, TEMPO FM...TL, PROB 30/40 (alone)

- Deterioration:
- Transient / showery conditions: Not applicable. Mean wind and gusts exceeding required limits may be disregarded.
- Persistent conditions in connection with e.g. haze, mist, fog, dust/sandstorm, continuous precipitation: Applicable. Mean wind should be within required limits. Gusts may be disregarded.
- Improvement: In any case should be disregarded

PROB TEMPO

Deterioration: May be disregarded

- Improvement: Should be disregarded.

It is Nesma Airlines policy that flight crew shall record and report the following:-

- ➢ Routine meteorological observation during: en-route, and climb-out phases of the flight;
- ➢ Special and other non-routine observations during any phase of the flight; and
- ➢ Volcanic activity

That could be achieved by pilot report or by any other means of communication to ATC or the authority.

8.1.7 Determination of the Quantities of Fuel and Oil Carried

8.1.7.1 Fuel Policy

Adequate fuel quantity (block fuel) to cover the requirements of trip, contingency, alternate, reserve and taxi must be loaded prior to departure based on the following data and operating conditions for each planned flight.

- Routings
- The anticipated aircraft mass
- Notices to airmen (NOTAM)
- Current meteorological reports or a combination of current reports and forecasts;
- Air traffic services procedures, restrictions and anticipated delays
- The effects of deferred maintenance items and/or configuration deviations
- Any other conditions the might cause increased fuel consumption.
- Procedures contained in the Operations Manual
- Realistic, current aircraft fuel consumption data based on data provided by the aircraft manufacturer (A performance factor may be eventually determined for an aircraft to correct the fuel planning data given by the manufacturer).

At any time during a flight the fuel quantity remaining on board must be enough to deal with the planned operation and the possible deviations.
The final authority and responsibility for fuel to be carried and the fuel management in flight rests with the Pilot in Command. For in-flight fuel management refer to 8.3.7.1.3. In-Flight Fuel Management.

8.1.7.2 Standard Fuel Planning

Before departure, the minimum fuel load required for the flight must be calculated using the Operational Flight Plan (OFP). If no OFP is available a manual aircraft fuel planning shall be prepared.
OFP calculations are based on the expected take-off weight for a specific flight on a specific day. Up to date fuel costs and forecast weather are used to determine the amount of fuel required and the flight levels to be flown.
Nesma Airlines policy is to provide a fuel flight plan providing the required amount of fuel necessary to complete the intended flight in normal circumstances. To achieve this, the alternates are chosen from a list of preferential alternates and it is the responsibility of Pilot In Command to select the alternate for the actual diversion.
It is the responsibility of the Pilot in Command to determine if the weather forecast for the destination and alternate airports meet or are better than the planning minima.
When weather or other factors dictate the use of an alternate other than that used for OFP calculations, the Pilot in Command must request another OFP with the alternate used or take the necessary additional fuel to enable a suitable alternate to be reached with normal reserves.
The minimum fuel in tanks at departure should not be normally reduced below that required for the flight by the OFP or manual calculations.
Nevertheless the arbitrary addition of fuel without good reason is wasteful and should be avoided.
The pre-flight calculation of usable fuel required for a flight includes taxi fuel, trip fuel reserve fuel and extra fuel if required by the Pilot in Command. Reserve fuel consists of contingency fuel, alternate fuel, final reserve fuel and additional fuel if required by the type of operation.
Therefore, the fuel planning must be sufficient to cover the following requirements:

8.1.7.2.1 Taxi fuel

Fuel expected to be used prior to take-off, including engine start, taxi and APU consumption. The minimum amount of taxi fuel planned by the Company is 200 kg.
Fuel calculation is based on a consumption of 11.5 Kg/Min (Refer to PER-FPL-GEN-MFR).
Note: Maximum ramp weight may not be exceeded with taxi fuel on board.

8.1.7.2.2 Trip fuel

The amount of fuel required to enable the aircraft to fly from take-off or the point of in-flight re-planning (ref 8.1.7.1.3) until landing at the destination airport including climb to cruise altitude, departure procedure, cruise including step climbs if any, descent, an instrument approach and landing procedure at the destination the runway taking into account the operating conditions specified in 8.1.7.1.1. Standard Fuel Planning.

This amount shall include:

1) Take-off and Climb fuel:

Fuel for take-off and climb from aerodrome elevation to initial cruising level/altitude, taking into account the expected departure routing

2) Cruise Fuel:

Fuel from TOC to TOD, including any step climb/descent.

3) Descent Fuel :

Fuel from TOD to the point where the approach is initiated, taking into account the expected arrival procedure.

4) Approach and Landing Fuel :

Fuel for approach and landing at the destination aerodrome.
Fuel calculation is based on a consumption of 20 Kg/Min (Refer to PER-FPL-GEN-MFR).

8.1.7.2.3 Contingency fuel

Fuel to cover deviations from the planned operating conditions such as unfavorable variations in cruise altitude or track, deviations from the forecast wind values or any other unforeseen adverse circumstances.
Contingency fuel shall be the higher of a) or b):-

a) **5%** of the planned trip fuel.
b) Amount required flying at holding speed at 1500 ft (450 m) above the destination aerodrome in ISA conditions for 5 minutes.

Note: - in exceptional cases e.g. unforeseeable taxi delay, contingency fuel maybe used on ground based on the operational judgment of the Pilot in command.

8.1.7.2.4 Alternate fuel

Fuel to reach the alternate aerodrome, covering and taking into account the following:

- A missed approach at the destination airport.
- Climb to the expected cruising altitude and speed
- Fly the expected routing to the destination alternate airport
- Descend to (alternate airport) the point where the expected approach is initiated
- Conduct the approach and landing at the destination alternated airport
- When two destination alternates are required, alternate fuel should be sufficient to proceed to the alternate, which requires the greater amount of alternate fuel.

8.1.7.2.5 Final Reserve Fuel

Fuel to fly for **30 minutes** at holding speed at 1500 ft. (450 m) above destination alternate airport elevation in standard conditions, calculated with estimated weight on arrival at the alternate or the destination when no alternate is required

- With an Alternate:

30 minutes of holding fuel at the estimated landing weight at alternate, at 1500 feet above alternate aerodrome elevation and in ISA conditions

- With No Destination Alternate:

45 minutes of holding fuel at the estimated landing weight at destination, at 1500 feet above aerodrome elevation and in ISA conditions (i.e. 30 minutes Final Reserve Fuel + 15 minutes Additional Fuel).

8.1.7.2.6 Additional fuel

Fuel, which should permit:

- Holding for 15 minutes at 1500 ft. (450 m) above aerodrome elevation in ISA conditions, when the flight is operated **without a destination alternate** and
- Following the possible engine failure or loss of pressurization at the most critical point along the route the airplane to:

i) descent as necessary and proceed to an adequate aerodrome; and
ii) hold there for **15 minutes** at 1500 ft. (450 m) above aerodrome elevation in ISA conditions; and
iii) make an approach and landing

Additional fuel for engine failure or loss of pressurization is only required if the fuel calculated above (from trip fuel up to final reserve fuel) is not sufficient for such an event.

8.1.7.2.7 Extra fuel

At the discretion of the Pilot in Command.
The Pilot in Command may decide for example to add fuel to the minimum required fuel quantity defined above if he expects significant deviations from present flight planning.
However it should remember that carrying unnecessary extra fuel increases the fuel consumption for that sector and therefore reduces the economy of the operation (lower flex temperature, more tire and brake wear, more time in climb phase, lower optimum flight level etc.).
Note: - When asking for extra fuel more than 500 Kgs the Pilot in command must be able to support his fuel decision making with definable reasoning in the voyage report.

8.1.7.2.8 Fuel Transportation (Tankering)

When a difference in fuel price exists between different stations, fuel transportation could be considered.
The flight planning system has been set up with up to date fuel costs to give tinkering information to achieve savings.
It is function of flight dispatch to ensure that the effective savings achieved are correct and prepare fuel plan suitably.
Tinkering is not recommended when:

1. It will result in additional delays (i.e. an On-Time Departure takes priority over Tinkering), or
2. The runway for take-off is wet or contaminated and runway length is marginal, or
3. Landing runway is expected to be contaminated, or

4. The Pilot in Command believes that due to flight safety the landing weight needs to be restricted
   - (E.g. adverse weather such as tailwind, wet runways or aircraft technical status such as brake reverse inoperative, spoiler inoperative … etc.).

Tankering fuel must not be done at the expense of an on-time departure.
If Tankering, and to avoid an overweight landing, plan to land at 500 kgs below maximum landing weight in case of fuel savings En-route by subtracting 500 kgs from the maximum Tankering fuel determined. In normal operations, landing above maximum landing weight is not authorized, and any excess fuel must be consumed.
Note: The Pilot in Command can modify the tankered amount based on prevailing conditions, being aware of the impact on payload and possible LMC.

8.1.7.3 Oil

Adequate oil quantity to cover the requirements of trip, contingency, alternate, reserve and taxi must be loaded prior to departure.
The minimum oil quantity requested for any flight is equal to the minimum quantity specifies for a particular engine, plus the estimated oil consumption.
The estimated oil consumption should cover the flight time the aircraft can be operated with the minimum quantity of fuel requested by the fuel planning plus 15 minutes.
The minimum and maximum oil quantities and the maximum average estimated oil consumption (if no data from maintenance available) are indicated in FCOM "Standard Operating Procedure - Preliminary Cockpit preparation" for the related aircraft/engine concerned.

8.1.7.4 Fuel and Oil Records

Fuel records will be retained in the OFP, the aircraft technical log and journey report (voyage report).
Oil loaded and consumed data will be entered into the aircraft technical log (refer to 8.1.11. Operator's Aircraft Technical Log).

8.1.7.5 Isolated Airport Procedure

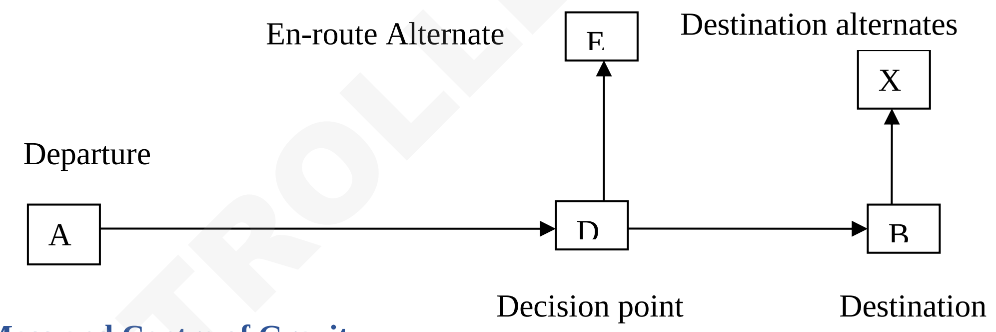
It is Nesma Airlines policy not to operate to isolated aerodromes.

8.1.7.6 Decision Point Procedure (Re-Clearance)

When planning to a destination aerodrome via a Decision Point along the route, the amount of fuel required should be greater of condition a) or b) below:

a) The sum of: – Taxi fuel; – Trip fuel to the destination aerodrome, via the decision point; – Contingency fuel of not less than 5% of the estimated fuel used from the decision point to the destination aerodrome; – Alternate fuel, if a destination alternate is required; – Final Reserve fuel; – Additional fuel of 15 minutes if no destination alternate is plan, and – Extra fuel, at the discretion of the Pilot in Command.	- or -	**b)** The sum of: – Taxi fuel; – Trip fuel from the departure to a suitable en-route alternate via the decision point; – Contingency fuel equal to not less than 3% of the estimate fuel consumption (trip fuel) from the departure airport to the en-route alternate, via the decision point; – Final Reserve fuel; – Additional fuel, if required; and – Extra fuel, at the discretion of the Pilot in Command.

The decision point (preclearance) fuel planning is the greater of F1 or F2:
F1 = Taxi + Trip AB + 5% DB + BX + Hold + Additional fuel + Extra fuel
F2 = Taxi + Trip AE + 3% AE + Hold + Additional fuel + Extra fuel
The contingency fuel from departure airport (A) to the decision point (D) may be omitted on segment AD, provided decision to B or diversion to E is taken before or when reaching D.



8.1.8 Mass and Centre of Gravity

In accordance with ICAO Annex 5 -Units of Measurement to be Used in Air and Ground Operations- and the International System of Units (SI), the actual and limiting masses of airplanes, the payload and its constituent elements, the fuel load etc., are expressed in units of mass (kg for Nesma Airlines fleet). However, in most approved flight manuals and other operational documentation, these quantities are published as weights in accordance with the common language. In the SI system, a weight is a force rather than a mass. Since the use of term “weight” does not cause any problem in the day to day handling of airplanes, its continued use in operational applications and publications is acceptable.
All details regarding mass and balance and loading for a particular aircraft type are found in the Weight and Balance Manual (WBM).

8.1.8.1 Definitions

8.1.8.1.1 Weights

Minimum Weight: the minimum weight at which the aircraft can operate.
Manufacturer's Empty Weight (MEW): The weight of the structure, power plant, furnishings, systems and other items of equipment that are considered an integral part of the aircraft. It is essentially a "dry" weight, including only those fluids contained in closed systems (e.g. hydraulic fluid).
Operational Empty Weight (OEW): The manufacturer's weight empty plus the operator's items, i.e. the flight and cabin crew and their baggage, unusable fuel, engine oil, emergency equipment, toilet chemicals and fluids, galley structure, catering equipment, seats, documents, etc…
Dry Operating Weight (DOW): The total weight of an aircraft ready for a specific type of operation excluding all usable fuel and traffic load. Operational Empty Weight plus items specific to the type of flight, i.e. catering, newspapers, pantry equipment, extra crew etc…
Zero Fuel Weight (ZFW): The weight obtained by addition of the total traffic load and the dry operating weight.
Landing Weight (LW): The weight at landing at the destination airport. It is equal to the Zero Fuel Weight plus the fuel reserves.
Takeoff Weight (TOW): The weight at takeoff at the departure airport. It is equal to the landing weight at destination plus the trip fuel (fuel needed for the trip), or to the zero fuel weight plus the takeoff fuel (fuel needed at the brake release point including reserves).
Take-off fuel: The weight of the fuel on board at take-off.
Trip fuel: The weight of the fuel necessary to cover the normal leg without reserves.
Traffic load: The total weight of the passengers, baggage and cargo, including non-revenue loads.
TOW = DOW + Traffic load + Reserve fuel* + trip fuel
LW = DOW + Traffic load + Reserve fuel*
ZFW = DOW + Traffic load
*Reserve fuel = Contingency + alternate + final reserve + additional fuel
Refer to 8.1.7.1.1. Standard Fuel Planning
Maximum weights
There are two different categories of "Maximum Weights", which shall be never exceeded:

- Maximum Gross Weights are the maximum weight for zero fuel, maximum weight for take-off and maximum weight for landing. These weights are fixed weights established by the manufacturer based on structural limitations.
- Performance-limited weights: like the operational-RTOW, are the maximum weight for take-off and the maximum weight for landing for a particular flight sector. This weight is always limited by aircraft structural weights established in the AFM and represents the limitation of the aircraft performance at given conditions. Refer to Chapter 14 Performance Engineering for elaboration on performance limitation.

8.1.8.1.2 Passengers and Baggage

Nesma Airlines policy regarding passenger and baggage is established following the IATA Reference Manual, 5th edition of July 2014. Every person onboard shall be assigned to at least one definition in the official documents and every item inside the cargo compartments shall also be classified following these definitions.

- **Baggage:** The personal property or other articles of a passenger or crewmember that is transported on an aircraft. It can be either checked or carry-on. Interchangeable with **Luggage**.
- **Cabin Baggage:** Baggage that is or is intended to be brought onto an aircraft in the custody of a passenger or crewmember for stowage in the cabin. Interchangeable with **Unchecked Baggage**, **Carry-on Baggage** and **Hand Baggage**.
- **Checked Baggage:** Passenger baggage that has been taken into custody by the Operator, and for which a baggage claim check has been issued to the passenger.
- **Cargo:** Any revenue or non-revenue shipment of goods or property, that is transported on an aircraft and is not consumed or used during flight. It is classified to either revenue or non-revenue cargo.
- **COMAT (Company Materials):** Any non-revenue cargo that is owned by or is for use by the operator, and is transported on the operator's aircraft.
- **Crewmember:** A member of either the flight crew or the cabin crew who has duties onboard during flight.
- **Passenger:** A person that is transported onboard an aircraft by an operator, mostly for commercial purposes, who is not an operating crewmember or a supernumerary.
- **Deadhead Crew (DHC):** a non-operating crewmember that is being transported in a passenger seat, and not a part of the working crew, typically for positioning purposes.
- **Supernumerary:** A person who is not a cabin crewmember, but is on board an aircraft during commercial or non-commercial operations, and is not classified as a passenger by the operator or the Authority. Such person is typically any of the following:
  - Assigned to the flight by the operator as necessary for the safety of operations and has certain knowledge and abilities gained through selection and mandatory training (e.g. ground engineer, loadmaster, security personnel, cargo handler, security guard)
  - An inspector, auditor or observer authorized by the operator and the State to be on board the aircraft in the performance of his or her duties (e.g. CAA inspector, IOSA auditor).
  - 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 and not designated to perform any safety duties.
  - Any other individual that has a relationship with the operator, is not classified as a passenger by the Authority and authorized by the operator and the State to be on board the aircraft

- Assigned to the flight by the operator as necessary for the safety of operations and has certain knowledge and abilities gained through selection and mandatory training (e.g. ground engineer, loadmaster, security personnel, cargo handler, security guard).

8.1.8.1.3 Technical Terms

- **Centre of Gravity (CG):** the point where the aircraft weight is applied (center of mass). It has to be maintained within certain limits because it affects aircraft maneuverability, stability and structural weight limits as per WBM.
- **Datum:** the point on the longitudinal axis (or extension thereof) from which the centers of gravities of all masses are referenced.
- **Reference Chord:** the chord at which the location of aircraft CG is expressed as a percentage of. Values of reference chords are found in WBM.

- **H-arm:** the length between the datum and the center of gravity of each mass component onboard.
- **Certified Envelope:** the manufacturer certified CG limits for all flight phases.
- **Operational Envelope:** a curtailed certified envelope to account for uncertainties in balance calculations
- **Load and Trim Sheet (LTS):** a legal document which states the weight data and the balance condition of the loaded aircraft for each individual flight. LTS shall clarify the operational envelope. LTS could be in manual format or computerized format.
  - **Dry Operating Index (DOI):** a dimensionless unit used to facilitate CG calculations and representation on diagrams. Its formula can be obtained from WBM.

8.1.8.1.4 Passenger Classification

- Adults, male and female, are defined as persons of an age of 12 years and above
- Children are defined as persons of an age of 2 years and above but who are less than 12 years of age
- Infants are defined as persons who are less than 2 years of age

8.1.8.2 Methods, Procedures and Responsibilities for Preparation and Acceptance of Mass and Centre of Gravity Calculations

8.1.8.2.1 Process for Establishment of DOW/DOI

DOW/DOI are established through standard aircraft weighing and calculations in accordance with WBM and manufacturer instructions.

As per the WBM, the OEW serves as the basis of aircraft weight and CG calculations. It is the responsibility of Nesma Airlines to account for:

- Items not included in the OEW which are installed after aircraft weighing
- Replacements of onboard items after proper weighing and arm determination.

And in all cases, Nesma Airlines is permitted to re-establish the weight and the CG from the OEW by calculation if Nesma Airlines is able to provide the necessary justification to prove the validity of the selected method of calculation in accordance with AFM and WBM.

Weighing of an aircraft is carried out by the technical department in coordination with the operations engineering department and copies of official weighing report should be sent to the operations engineering department and archived at the operations library.

Establishment of DOW/DOI is carried out at the operations engineering department in accordance with the aforementioned manuals through the addition of operational items.

In accordance with ECAR part 91, attachment 1, Nesma Airlines shall not re-establish its DOW calculations and as long as the change in DOW does not exceed ± 0.5% of the maximum landing weight or the cumulative change in CG position does not exceeds 0.5% of the mean aerodynamic chord.

8.1.8.2.2 Production of LTS and Operational Envelope

LTS and operational envelope represent the stability characteristics of the airplane, and they should be furnished exclusively from the manufacturer, an organization approved by the manufacturer or generated in-house using tools provided by the manufacturer by trained personnel.

In case of EFB operations, LTS should be presented in manual form and electronically available for EFB load sheet setup.

In case LTS is produced in-house, it shall be generated by trained personnel using the manufacturer approved application. Development of LTS passes through these steps:

- Receiving of cabin configuration from the technical department
- Setting up of operational margin based on the calculation of operational errors
- Setting up of cabin configuration (including PAX seats, galleys, lavatories, ... etc.)
- Production of manual LTS in printable forma
- Production of electronic LTS for EFB setup if applicable.

Nesma Airlines used the Airbus LTS software for the generation of its load and trim sheet both the paper and EFB formats.

8.1.8.2.3 Establishment of Balance Calculations:

LTS is issued in triplicate and distributed as follows:

- Original for Pilot-in-Command
- Copy into the station trip file and
- Copy for Cabin Senior.

The Pilot-in-Command shall ensure that before each flight a "Load and Trim Sheet" is prepared on the correct form and complies with the aircraft weights and CG certified limitations as referenced to in 13.1 Operations Forms. Aircraft mass and Centre of Gravity are calculated using a "Load and Trim sheet form" or a "computerized Load and Trim sheet".

For EFB operations, data retrieval and calculations are done in accordance with 8.12.11.2 EFB Training Program – Fly Smart.

The correct loading of the aircraft is the legal responsibility of the Pilot-in-Command.

In practice, station officers complete the LTS preparation. The person preparing the LTS confirms the correct distribution of the load with his signature on the form.

The Pilot-in-Command must satisfy himself that the load is distributed in a correct and safe manner and that it is properly stowed and secured.

The Pilot-in-Command considers the following assumptions:

- The weighing report showing the weight and the basic index of the empty aircraft has been correctly compiled.
- The freight has been correctly weighed and loaded in accordance with the Load and Trim sheet.

The Pilot-in-Command is personally responsible for:

- Checking that sufficient fuel and oil are on board and correctly loaded and distributed.
- Checking the Load and Trim sheet Calculation.
- Accepting and signing the Load and Trim

If deemed necessary, the Pilot-in-Command has full authority to modify the aircraft loading such as number of passengers, usable cabin seats and cargo compartments loading and distribution.

The method for preparation of the Load and Trim sheet is given in FCOM – LOADING chapter.

The CG limits given in the Load and Trim sheet include tolerances to cope with the combination of the following independent errors:

- Error on initial conditions (Dry operating weight and index)
- Error on cargo loading (weight and distribution)
- Error on passenger boarding (weight and distribution)
- Error on fuel (quantity and distribution)
- Error due to graphical method and the following movements:
- • landing gear, flaps and slats movements
- • movements in the cabin

Fuel weight determination
The weight of fuel on board the aircraft is directly given by the Fuel Quantity Indication (FQI) of the aircraft.
The Pilot-in-Command should assess this quantity by comparing this figure with the quantity on board before refueling plus the quantity delivered by the tanker. A small discrepancy may be evidenced due to the fuel quantity consumed by the APU during this time period and the respective FQI and tanker accuracies.
In such a case, it is not advisable to perform additional fuel measurement through magnetic fuel level indicators (dipsticks) to cross check FQI indication, as the accuracy of dipsticks is less than FQI accuracy.
Dipsticks have to be used only in case of FQI failure (dispatch under MEL)

8.1.8.3 Policy for Determining Crew Masses

The standard masses of crewmembers and crew baggage included in the OEW are standards masses (85 kg for flight crew, 75 kg for cabin crew - including hand baggage).
Actual masses including any crew additional baggage may be used.
The OEW will be corrected for any additional baggage and the aircraft CG position will take into account their position.

8.1.8.4 Method for Determining Passengers, Baggage and Cargo Mass

Actual or standard masses may be used for passengers and baggage when determining the aircraft traffic load. Actual masses shall be used when taking freight into account.

- **Passengers plus hand baggage**: standard masses used
- **DHC**: standard passenger mass including baggage
- **Supernumerary**: standard passenger mass including baggage.
- **Baggage**: weighed at check-in. If not, possible standard masses are used
- **Freight**: must be always weighed.

8.1.8.5 Passenger and Baggage

8.1.8.5.1 Standard Passenger and Baggage Masses

To avoid having to weigh each passenger and baggage, a standard weight is used for Load and Trim sheet calculation.
For **charter flights**, the standard weight of passengers including hand baggage is the following:
Table 1: Mass values for passengers including hand baggage
For charter flights

Passenger seats	30 and more
Adult	76 kg
Children	35 kg
Infant	0 kg

For **scheduled flights**, the standard weight of passengers including hand baggage is the following:
Table 2: Mass values for passengers including hand baggage
For scheduled flights

Passenger seats	30 and more
Adult	84 kg
Children	35 kg
Infant	0 kg

Corrections have to be made if the actual weight of passengers with their hand baggage is known or if the average weight can be estimated as obviously different from the standard weight given above.
When the passenger checked baggage (loaded in the cargo compartment) is not weighed, the following standard weight per piece of checked baggage is used:
Table 3: Mass values for each piece of check baggage

Type of flight	Baggage standard mass
Domestic flights	15 kg
All others	15 kg

Note:

(1) Domestic flight means a flight with origin and destination within the borders of one State;

The cargo must be weighed and positioned to respect both individual Unit Load device position weight limitation and total cargo compartment weight limitation as given in FCOM - LOADING chapter and in the Weight and Balance Manual.

8.1.8.6 General Instruction for Load and Trim Sheet Verification

The Pilot-in-Command shall recalculate the LTS starting from the established DOW and considering possible last-minute changes in paying particular attention to:

- Flight number, destination, aircraft registration
- Date and time of the flight
- Correct DOW and index
- Number and the distribution of passengers
- Cargo loading which should be in accordance with the cargo manifest
- Fuel quantity and distribution.

The fuel index given by the manual LTS takes into account the fuel specific gravity and assumes that the fuel is loaded normally (as mentioned in the AFM) and does not apply in case of unusual loading. For electronic LTS on the EFB, different fuel densities could be accounted for if the interface of the application allows.
For aircraft fitted with a trim tank, particular care should be taken to the actual fuel quantity in the trim tank as any deviation of fuel quantity in the trim tank has a tremendous effect on the CG.
Check fuel imbalance is within prescribed limits.

- the MTOW, MZFW and associated CG
- The expected landing weight below MLW.

In case a computerized Load and Trim sheet is produced, above data should be checked, computation is assumed to be correct.
The Pilot-in-Command shall sign the Load and Trim sheet after having checked it.

8.1.8.7 Last Minute Change Procedures

Last Minute Change means any change concerning traffic load: passengers, baggage, cargo, fuel (usable or not) occurring after the issuance of the Load and Trim sheet.
A Last-Minute Change is permitted only if the changes of the load are within the following prescribed limits:

Aircraft Type	LMC Limit
A320 Family	500 kg

In case of Last-Minute Change, it is mandatory to check that:

- none of the maximum operational limiting weight are exceeded (ZFW, TOW, LW)
- no loading limitation is exceeded

- ZFW CG and TOW CG remain within allowed limits

In case of Last-Minute Change loading, the Pilot-in-Command will correct the previous Load and Trim sheet. A copy of the corrected Load and Trim sheet must be left to the flight operations.
Whenever any Last-Minute Change is necessary after the load sheet has been handed over to Pilot-in-Command and the aircraft doors are closed, the Ramp Agent informs the Pilot in Command about these changes via head set. The Pilot-in-Command then records the LMC in his load sheet copy. The person responsible for LMC handling enters the LMC into the original of the load sheet.
Take-off fuel adjustment:
In case of Take-off fuel change or a difference between the requested and the actual block fuel the following procedure apply:

1) Take-off fuel decrease are only possible up to:

- 500 kg for A320 family

If the Actual Take-off fuel is lower than requested, the person responsible for the load sheet enters the take-off fuel adjustment in the LMC Box.

2) Take-off fuel increase are only possible up to:

- 500 kg for A320 family

The person responsible for the load sheet corrects the Actual take-off fuel figure and re-calculates the Actual Take-off Weight and Actual Landing Weight.
The additional Take-off Fuel shall not be shown in the LMC box of the load sheet.
For EFB operations, Nesma Airlines advises its pilots to recalculate the DOW and DOI.

8.1.8.8 Specific Gravity of Fuel and Oil

The fuel and oil supplier generally provide the specific gravity of fuel and oil to be used. If not known, the following values are used:
Fuel:

JET A/A1:	0.785 kg/l
JET B, JP4:	0.76 kg/l
AVGAS:	0.71 kg/l
Oil:	0.88 kg/l

8.1.8.9 Load and Trim Sheet Description

8.1.8.9.1 EDP/DCS Load and Trim Sheet

Most Load and Trim Sheets used by Nesma Airlines are produced by contracted Handling Agents by inputting last revision of AHM560 and sending test of load and trim sheet for verification and final approval of the DCS (Departure Control System) to generate the Load and Trim Sheet for the specific aircraft. Where DCS systems are used, the data input and electronic generation of the load and trim sheet may be carried out at a regional center and merely printed off - together with corresponding Loading Instructions - by the aircraft operator or the contracted handling agent employees.
TABLE OF FORMAT

Ref. No.	Printed Heading	Definition/Description	Format/Example	M/C/O	Remarks
Part 1. Heading					

Ref. No.	Printed Heading	Definition/Description	Format/Example	M/C/O	Remarks
1	From	Three-letter IATA airport code of airport of movement	e.g. JFK LHR	M	
2	To	Three-letter IATA airport code of station of first intended landing		M	
3	Flight	Flight number/identifier	Format: two- or three-character airline code followed by up to eight characters. Maximum 11 characters for flight identifier. A two-character date may be included in these 11 characters preceded by an oblique	M	
			e.g. LH402/06 SR504		
4	A/C reg.	Aircraft registration	Format: 2–10 characters. No hyphen to be shown and/or transmitted	M	
			e.g. 4XAXA GAWNA N12345	M	
5	Version	Version/Configuration code of aircraft used by carrier	Format: 1–12 characters		
			e.g. 10A/Q 20/124 8065	M	
6	Crew	Number of crew, excluding crew travelling as passengers For passengers occupying crew seats see AHM 533	Format: 3–7 characters	M	Crew figures must be separated by an oblique
		Option 1: Cockpit crew followed by cabin crew	e.g. 2/5 or 3/15	C	

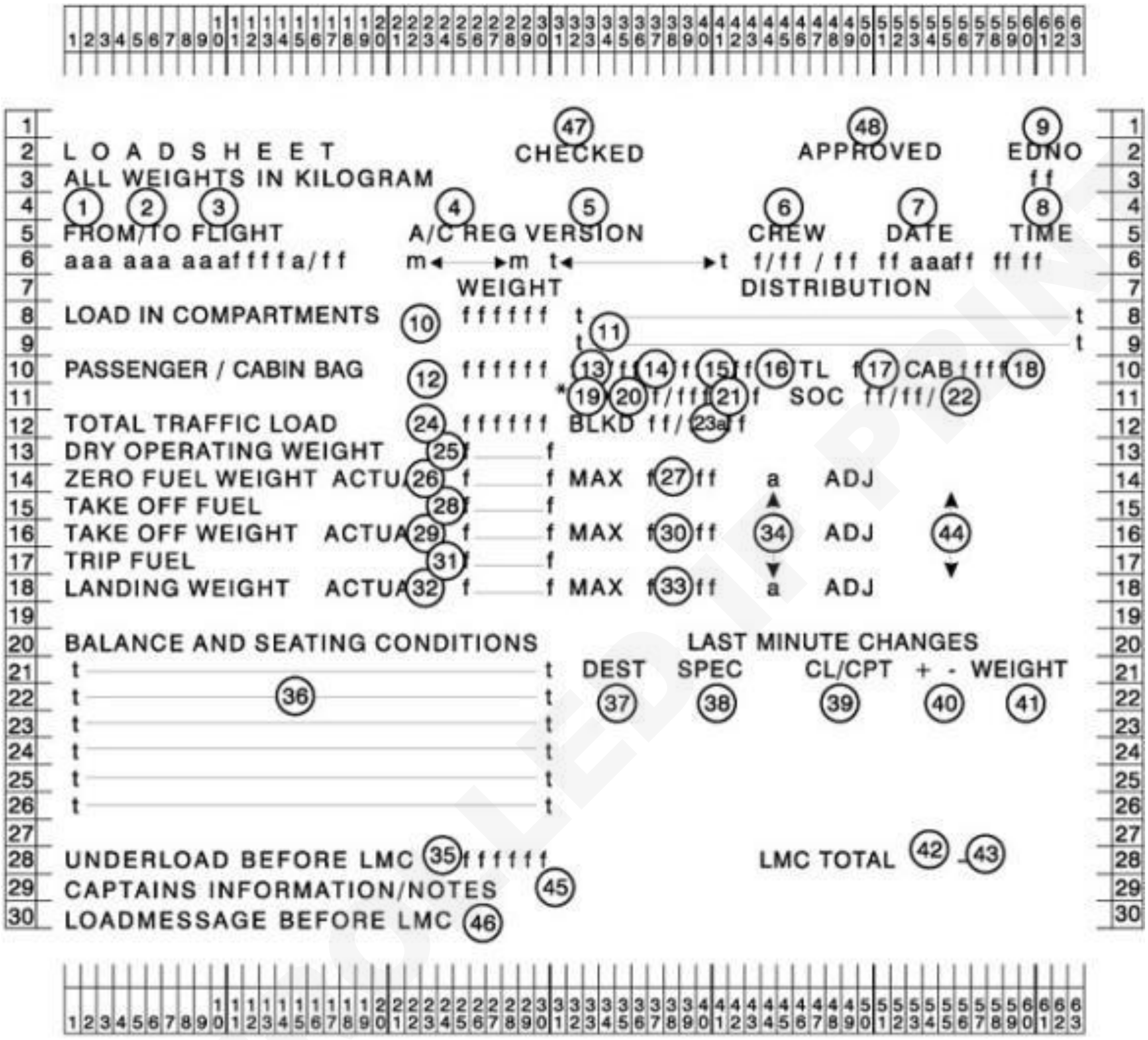
Ref. No.	Printed Heading	Definition/Description	Format/Example	M/C/O	Remarks
		Option 2: Cockpit crew/cabin crew male/cabin crew female	e.g. 2/2/5 or 3/5/10	C	
7	Date	Self-explanatory	e.g. 05 JUN 89	M	Local date
8	Time	Four-digit value of local time this edition was produced	e.g. 0920 1215	O	
9	Ed. No.	Edition number	Maximum two figures	O	
			e.g. 01 12		
Part 2. Load and Distribution					
10	Total weight	Total of weight of dead load in compartments		M	
11	Load in compartments	Total weight of dead load per compartment and/or position of unitized load		C	
12	Total weight	Total passenger weight calculated according to company procedures based on the figures of items 13, 14, 15, 16 and 18		M	
13	M	Total number of males		M	
14	F/Adults	Total number of female or adult passengers		C	
15	CHD	Total number of children		M	
16	INF	Total number of infants		M	
17	Total No.	Total number of passengers on board. Sum of items 13, 14, 15 and 16		O	
18	Cabin Bag	Weight of cabin baggage not included in passenger weight		O	
19	PAX	Passenger Identifier		O	
20		Actual class of service designator(s)		O	
21		Total number of seats, per class, occupied by		M	

Ref. No.	Printed Heading	Definition/Description	Format/Example	M/C/O	Remarks
		outgoing passengers including PAD. Maximum of three classes.			
22	SOC	Seats occupied by cargo, baggage and/or mail per class		C	
23	Blocked	Fitted seats not available for passengers or dead load		O	
23a	BLKD				
24	Total Traffic Load	The total weight of passengers, baggage, cargo and mail. Operational items not included in DOW, e.g. pallets, nets, must be added to the cargo weight figures		M	
Part 3. Gross Weight Calculation					
25	Dry Operating Weight	The “Basic Weight” plus “Operational Items”, e.g. crew, crew baggage, flight equipment and pantry, company specification and is equal to “Operation Empty Weight”		M	
26	Actual Zero Fuel Weight	Sum of Ref. Nos. 24 and 25		M	
27	Maximum Zero Fuel Weight	Equal to “Maximum Design Zero Fuel Weight”		M	
28	Take-off Fuel	The amount of fuel on board less the fuel consumed before take-off		M	
29	Actual Take-off Weight	Sum of Ref. Nos. 26 and 28		M	
30	Maximum Take-off Weight	The “Maximum Design Take-off Weight”, or “Operational Take-off Weight”, whichever is lower		M	

Ref. No.	Printed Heading	Definition/Description	Format/Example	M/C/O	Remarks
31	Trip Fuel	The amount of fuel planned to be consumed from take-off to the station of first intended landing		M	
32	Actual Landing Weight	Ref. No. 29 minus Ref. No.31		M	
33	Maximum Landing Weight	The "Maximum Design Landing Weight" or the "Operational Landing Weight", whichever is the lower		M	
34		Indicator showing which of the maximum weights is limiting the allowed traffic load	L	M	
35	Under load before LMC	Difference between maximum and actual gross weight indicated by L		M	
Note: For aircraft operating with injection water or water methanol, the weight of this is to be included in the take-off and trip fuel entries. For captain's information a specification, e.g. "Injection Water 1,500 kg" to be shown under "Captain's Information Part" (Ref. No. 45).					
Part 4. Balance and Seating Conditions					
36	Balance and Seating Conditions	**According to carriers requirements. Use standard abbreviations for balance according to** AHM 516 **and** AHM 560		C	
37	Dest.	Destination of LMC		C	
38	Specification	Kind of LMC		C	
39	CL/CPT	Class/Compartment and/or position of unitized load		C	
40	+/-	Identification of on or off-load		C	
41	Weight	Weight of LMC stated in Ref. No. 38		C	
42	LMC total +/-	Identification of LMC sum total		C	
43	(LMC total weight)	Total weight of all LMC		C	

Ref. No.	Printed Heading	Definition/Description	Format/Example	M/C/O	Remarks
44	ADJ	Ref. No. 43 affects Ref. No. 44. Entry to be made according to company regulations		C	
Note: Completion to be in accordance with AHM 551**.**					
Part 5. Captain's Information/Notes					
45	Captain's Information/Notes	Any entries or remarks the company requires to be printed in this area		O	
Part 6. Load message Before LMC					
46	Load message	If Load message is shown it must be in standardized format		O	**Refer to** AHM 583 **for conditions of dispatch**
Part 7. Signatures					
47	Checked	Load sheet agent's signature or electronic identification		M	
48	Approved	Signature of authorized person, if required		C	

Description with reference numbers.



8.1.8.9.2 Manual Load sheets

You can find on the blank load sheet printed the aircraft MTOW, MZFW, MLW and index correction table for crew, and index correction for fuel, obtained from aircraft manufacture, and CG limits must be within the trim envelop.

The load sheet shall be prepared according to the following instructions:

The reference No. refer to those as stated in the specimen Load sheets;

M/C/O refers to this item as mandatory/conditional/optional;

The description is divided in eight parts.

Table of Format

Ref. No.	Printed Heading	Definition/Description	Format/Example	M/C/O	Remarks
Part 1. Addresses and Heading					
1	Priority	Priority indicator	e.g. QU or QX	C	As required by carrier

Ref. No.	Printed Heading	Definition/Description	Format/Example	M/C/O	Remarks
2	Address(ES)	Teletype address(ES) for load message as required	e.g. FRAKLLH	C	
3	Originator	Teletype address of originator	e.g. LISKLTP	M	Always to be shown
4	Recharge	Recharge facility	e.g. AF/	C	
5	Date/time	Date and time group	e.g. 120111	M	
6	Operators initials	Self-explanatory		O	
7	LDM	Standard message indicator	Format: LDM	M	Pre-printed
8	Flight	Flight number/identifier	Format: Two- or three-character airline code followed by up to eight characters. Maximum 11 characters for flight identifier. A two-character date may be included in the 11 characters preceded by an oblique (/). e.g. LH402/06 SR504	M	
9	A/C rec.	Aircraft registration	Format: 2–10 characters. No hyphen to be shown and/or transmitted. e.g. 4XAXA GAWNA N12345	M	
10	Version	Version/configuration code of aircraft used by carrier	Format: 1–12 characters e.g. 10A/Q 20/124 8065	M	
11	Crew	Number of crew excluding crew travelling as passengers	Format: 3–7 characters	M	Crew figures must be separated by an oblique
		For passengers occupying crew seats see AHM 533			

Ref. No.	Printed Heading	Definition/Description	Format/Example	M/C/O	Remarks
		Option 1: Cockpit crew followed by cabin crew	e.g. 2/5 or 3/15	C	
		Option 2: Cockpit crew/cabin crew male/cabin crew female	e.g. 2/2/5 or 3/5/10	C	
12	Date	Self-explanatory	e.g. 05 JUN 89	M	Local date
Note: Address and communication references (Ref. Nos. 1–7) must be in accordance with ATA/IATA Interline Communications Manual or AFTN if required.					
Part 2. Operating Weight Calculation					
13	Basic Weight	The "Basic Empty Weight" or "Fleet Empty Weight" and includes all fixed equipment, system fluids, unusable fuel and configuration equipment including galley structure		C	No entries to be made if carrier is publishing dry operating weights
14	Crew	Weight of crewmembers shown under Ref. No. 11		C	
15	Pantry	Weight of pantry and additional manifested catering material transported in the galley		C	No entries to be made if carrier is publishing dry operating weights
16		Spare line for adjustments to the basic weight		C	
17	Dry Operating	The "Basic Weight" plus "Operational Items", e.g. crew, crew baggage, flight equipment and pantry, as per company specification and is equal to "Operational Pantry Weight"		M	**Sum of items 13, 14, 15 and 16 (see also** AHM 540**)**
18	Take-off Fuel	The amount of fuel on board less the fuel consumed before take-off		M	
19	Operating Weight	Sum of Ref. Nos. 17 and 18		M	
Part 3. Allowed Traffic Load Calculation — Optional — (if used complete as below)					

Ref. No.	Printed Heading	Definition/Description	Format/Example	M/C/O	Remarks
20	Maximum weight for Zero Fuel	Equal to "Maximum Design Zero Fuel Weight"		M	
21	Maximum weight for Take-off	The "Maximum Design Take-off Weight" or "Operational Take-off Weight", whichever is lower		M	
22	Maximum weight for Landing	The "Maximum Design Landing Weight" or the "Operational Landing Weight", whichever is the lower		M	
23	Trip Fuel	The amount of fuel planned to be consumed from take-off to the station of first intended landing		M	
24	Allowed Weight for Take-off	Self-explanatory, use lowest of items 24a, b or c		M	
25	Allowed Traffic Load	Difference between 19 and the lowest of 24a, b or c		M	
Note: For aircraft operating with injection water or water methanol, the weight of this is to be included in the take-off and trip fuel entries. For Captain's information the note box shall include specification, e.g. "Injection Water 1,500 kg". On EDP-Load sheet same information to be shown under "Captain's Information Part".					
Part 4. Load Information per Destination and Totals					
26	Dest.	Airport of destination	e.g. JFK	M	Ref. Nos. 26–44 referring to an individual destination
27	No. of Passengers	Total number of transit passenger(s), including PAD(s)	Format according Ref. No. 29	C	
28	No. of Passengers	Total number of joining passenger(s), including PAD(s)	Format according Ref. No. 29	C	
29	No. of Passengers	Total number of outgoing passenger(s). Sum of Ref. Nos. 27 and 28 and LMC		C	Load message

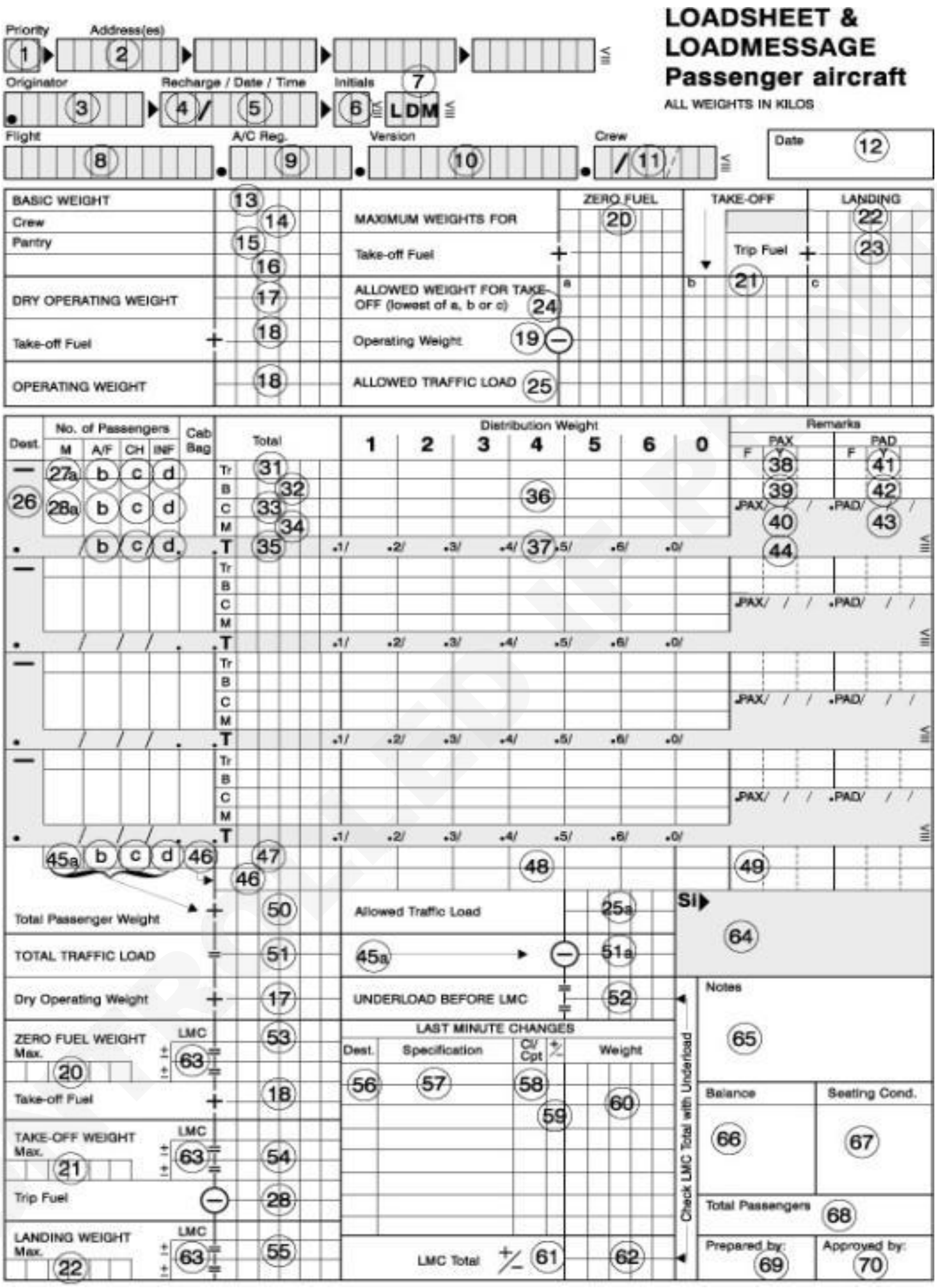
Ref. No.	Printed Heading	Definition/Description	Format/Example	M/C/O	Remarks
		Option 1: Adult/Children/Infant (Boxes b, c and d must be used)	e.g. 123/22/3		
		Option 2: Male/Female/Children/Infant (Boxes a, b, c and d must be used)	e.g. 76/94/22/3		
		Note: If there is a dead load to this destination but no passengers, zeros must be filled in.	e.g. 0/0/0 0/0/0/0		
		If there is no traffic load to this destination, enter NIL	e.g. NIL		
		Note: On cargo aircraft load sheets include the weight of any passenger, e.g. cargo attendants carried in specially fitted seats in a cargo bay, in the appropriate bay position. Use SI-box to notify onward station (format according to AHM 510)			
30	Cab Bag	Cabin baggage not included in standard passenger weight. Split-up in: Transit, Joining and Total, including LMC		O	
31	Total Tr.	Weight of transit dead load (to be obtained from incoming LDM or load sheet)		C	
32	Total B	Weight of joining baggage excluding Ref. No. 30		C	
33	Total C	Weight of joining cargo		C	**To be in accordance with** AHM 540
34	Total M	Weight of joining mail		C	
35	Total T	Total weight of dead load. Sum of Ref. Nos. 31–34 and LMC		C	Load message
35a	TW	Total weight of dead load per destination, Ref. No. 37		C	Cargo aircraft only

Ref. No.	Printed Heading	Definition/Description	Format/Example	M/C/O	Remarks
36	Distribution	Weight distribution of the different load categories per compartment and/or position(s) of unitized load.		C	
37		Total weight of dead load (transit dead load plus joining baggage, cargo, mail and LMC) per compartment and/or position(s) of unitized load. Entries to be made only for compartment(s) holding load		C	Load message
	REMARKS				
38	PAX	Seat(s) occupied by transit passenger(s) per class, including PAD(s) (Ref. Nos. 27a, b and c)			
39		Seat(s) occupied by joining passenger(s) per class, including PAD(s) (Ref. Nos. 28a, b and c)		C	
40	.PAX/	Total seat(s) occupied by outgoing passenger(s) per class, including PAD(s) and LMC. Sum of Ref. Nos. 38 and 39	e.g. .PAX/2/111 .PAX/19/93	C	Load message on a one class aircraft PAX information may be omitted. If transmitted it must be in the standard format
41	PAD	Seat(s) occupied by transit PAD(s) per class		C	
42		Seat(s) occupied by joining PAD(s) per class		C	
43	.PAD/	Total seats occupied by outgoing PAD(s) by class, including LMC. Figure group of each class to be separated by an oblique. All PAD(s) are included in the FY distribution	e.g. .PAD/3/2 .PAD/5/16	C	Load message. If no PAD(s) are on board, PAD

Ref. No.	Printed Heading	Definition/Description	Format/Example	M/C/O	Remarks
					information may be omitted. If transmitted it must be in the standard format, e.g. PAD/0/0
44		**Additional remarks as per** AHM 510	e.g. .RRY/1/6 .HUM/4/258	C	
45		Total number of passenger(s)		C	
46		Total weight of cabin baggage		C	Ref. Nos. 45–50 referring to the totals of all destinations
47		Total weight of dead load. Sum of Ref. Nos. 31, 32, 33 and 34		C	
48		Total weight of dead load per compartment and/or position of unitized load		C	
49		Total number of seats occupied by passengers per class. Sum of Ref. Nos. 38 and 39		C	
50	Total Passenger Weight	Total passenger weight is calculated according to company procedures based on the figures of items 45a, b, c and d		C	
51	Total Traffic Load	The total weight of passengers, baggage, cargo and mail. Operational items not included in DOW, e.g. pallets, nets, must be added to the cargo weight figures		M	
52	Under load	Under load before LMC. Ref. Nos. 25 minus 51		M	
Part 5. Actual Gross Weight Calculation					

Ref. No.	Printed Heading	Definition/Description	Format/Example	M/C/O	Remarks
53	Zero Fuel Weight	Actual zero fuel weight. Sum of Ref. Nos. 17 and 51		M	
54	Take-off Weight	Actual take-off weight. Sum of Ref. Nos. 18 and 53		M	
55	Landing Weight	Actual landing weight. Ref. No. 54 minus Ref. No. 23		M	
Part 6.Last Minute Changes					
56	Dest.	Destination of LMC		C	
57	Specification	Kind of LMC		C	
58	CL/CPT	Compartment and/or position of unitized load		C	
59	+/-	Identification of on or off-load		C	
60	Weight	Weight of LMC stated in REF.NO. 57		C	
61	LMC total +/-	Identification of LMC, sum total		C	
62	(LMC total weight)	Resultant weight of all LMC		C	
63	LMC	Ref. No. 63 equals Ref. No. 62. Entry to be made according to company regulation		O	
Note: Completion to be in accordance with AHM 551**.**					
Part 7. Supplementary Information and Notes					
64	SI	Supplementary Information to be included in LDM. Free format		O	
65	Notes	Information not transmitted with LDM		O	
Part 8. Balance and Seating Conditions					
66	Balance	Balance conditions according to carriers requirements. Use the following abbreviations:		O	
		Basic Index BI			
		Dry Operating Index DOI			
		Dead load Index DLI			

Ref. No.	Printed Heading	Definition/Description		Format/Example	M/C/O	Remarks
		Loaded Index at zero fuel weight	LIZFW			
		Loaded Index at take-off weight	LITOW			
		Loaded Index at landing weight	LILAW			
		% MAC — at dead load weight	MACDLW			
		% MAC — at zero fuel weight	MACZFW			
		% MAC — at take-off weight	MACTOW			
		% MAC — at landing weight	MACLAW			
		Stabilizer trim setting at take-off	STAB TO or TOANU TOAND			
		Stabilizer trim setting at landing	STAB LA or LAANU LAAND			
67	Seating Conditions	Seating conditions according to carriers requirements			O	
68	Total Passengers	Total number of passengers on board. Sum of Ref. No. 45a, b, c, d and LMC		O		
69	Prepared by	Load sheet agent's signature			M	
70	Approved by	Signature of authorized person, if required			C	**Refer to** AHM 550



8.1.8.9.3 EFB Load and Trim Sheet

EFB LTS depends on the application used and the interface provided, and it is highly customizable as per manufacturer specifications. Generally, customization of EFB LTS includes general formats and data addition/removal in accordance with the input data but the general theme of the LTS does not change significantly.

General outline of the EFB LTS is depicted in this table:

Ref. No.	Printed Heading	Definition/Description	Format/Example	M/C/O	Remarks
Part 1. Heading					

Ref. No.	Printed Heading	Definition/Description	Format/Example	M/C/O	Remarks
1	From	Three-letter IATA airport code of airport of movement	e.g. JFK LHR	M	
2	To	Three-letter IATA airport code of station of first intended landing		M	
3	Flight	Flight number/identifier	Format: two- or three-character airline code followed by up to eight characters. Maximum 11 characters for flight identifier. A two-character date may be included in these 11 characters preceded by an oblique	M	
			e.g. LH402/06 SR504		
4	A/C reg.	Aircraft registration	Format: 2–10 characters. No hyphen to be shown and/or transmitted	M	
			e.g. 4XAXA GAWNA N12345	M	
5	Version	The only available version for EFB LTS is the configuration of the seats. It could be written by hand by the Pilot-in-command and signed.	Format: 1–12 characters	O	
6	Crew	Number of crew, excluding crew travelling as passengers For passengers occupying	Format: 3–7 characters	M	Crew figures must be separated

Ref. No.	Printed Heading	Definition/Description	Format/Example	M/C/O	Remarks
		crew seats see AHM 533			by an oblique
		Option 1: Cockpit crew followed by cabin crew	e.g. 2/5 or 3/15	C	
		Option 2: Cockpit crew/cabin crew male/cabin crew female	e.g. 2/2/5 or 3/5/10	C	
7	Date	Self-explanatory	e.g. 05 JUN 89	M	Local date
8	Time	Four-digit value of local time this edition was produced	e.g. 0920 1215	O	
9	Ed. No.	Edition number	Maximum two figures	O	
			e.g. 01 12		
10	A/C Type	Aircraft Type and model	Dependent on the manufacturer notation	O	A320-232
Part 2. Load and Distribution					
10	Total weight	Total of weight of dead load in compartments		M	
11	Load in compartments	Total weight of dead load per compartment and/or position of unitized load		C	
12	Passenger/Cabin Bag	Total passenger weight calculated according to company procedures based on the figures of items 13, 14, 15, 16 and 18		M	
13		Passenger distribution. It takes the form Adult Male / Adult Female/ Child/ Infant	82/18/10/5	M	
14		Passenger distribution per aircraft zone	30/35/42	C	

Ref. No.	Printed Heading	Definition/Description	Format/Example	M/C/O	Remarks
15	TTL	Total number of passengers onboard including infants		M	
16	Cargo Distribution	Distribution of cargo in compartments. It is arranged from the first cargo compartment to the latest	CP1 1100/CP3 800/ CP4 750	M	
17		No. of Supernumerary and DHC		M	
18	Dry Operating Weight	The "Basic Weight" plus "Operational Items", e.g. crew, crew baggage, flight equipment and pantry, company specification and is equal to "Operation Empty Weight"		M	
19	Actual Zero Fuel Weight	Sum of Ref. Nos. 24 and 25		M	
20	Maximum Zero Fuel Weight	Equal to "Maximum Design Zero Fuel Weight"		M	
21	Take-off Fuel	The amount of fuel on board less the fuel consumed before take-off		M	
22	Actual Take-off Weight	Sum of Ref. Nos. 26 and 28		M	
23	Maximum Take-off Weight	The "Maximum Design Take-off Weight", or "Operational Take-off Weight", whichever is lower		M	
24	Trip Fuel	The amount of fuel planned to be consumed from take-off to the station of first intended landing		M	
25	Actual Landing Weight	Ref. No. 29 minus Ref. No.31		M	

Ref. No.	Printed Heading	Definition/Description	Format/Example	M/C/O	Remarks
26	Maximum Landing Weight	The “Maximum Design Landing Weight” or the “Operational Landing Weight”, whichever is the lower		M	
27		Indicator showing which of the maximum weights is limiting the allowed traffic load	L	M	
28	Taxi Fuel	Fuel used for taxiing as indicated in the flight plan		M	
29	Under load before LMC	Difference between maximum and actual gross weight indicated by L		M	
Note: For aircraft operating with injection water or water methanol, the weight of this is to be included in the take-off and trip fuel entries. For captain's information a specification, e.g. “Injection Water 1,500 kg” to be shown under “Captain's Information Part” (Ref. No. 45).					
Part 4. Balance and Seating Conditions					
30	Deist	Destination of LMC		C	
31	Specification	Kind of LMC		C	
32	CL/CPT	Class/Compartment and/or position of unitized load		C	
33	+/-	Identification of on or off-load		C	
34	Weight	Weight of LMC stated in Ref. No. 38		C	
35	LMC total	Identification of LMC sum total		C	
36	ADJ	Ref. No. 43 affects Ref. No. 44. Entry to be made according to company regulations		C	
37	DOI	Dry Operating Index		C	
38	LIZFW	Loaded Index Zero Fuel Weight		C	

Ref. No.	Printed Heading	Definition/Description	Format/Example	M/C/O	Remarks
39	LITOW	Loaded Index Takeoff Weight		C	
40	LILAW	Loaded Index Landing Weight		C	
41	MACZFW	Zero Fuel Weight CG Location		C	
42	MACTOW	Takeoff Weight CG Location		C	
43	MACLAW	Landing Weight CG Location		C	
44	STAB TO	THS Angle		C	
Part 5. Captain Notes					
45	CG LIMITS MACTOW	Forward and Aft limit for Takeoff CG Location		O	
46	CG LIMITS MACZFW	Forward and Aft limit for Zero fuel weight CG Location		O	
47	FUEL Density	Self-explanatory		O	
48	Load Message	Standard Format Load message		O	
49	Checked By	Person who prepared the load sheet		C	
50	Approved By	Person in command		C	

8.1.8.10 Seating Policy

Free seating might require a repositioning of passengers in the cabin. The Pilot-in-Command may instruct the cabin crew to re-seat passengers to create the actual seating distribution in compliance with the aircraft operational envelope.

8.1.8.11 Distribution of DOW/DOI

After the establishment of the DOW/DOI, it shall be distributed to the following personnel using 13.1.15 Generic Document Distribution Form , email and/or one of the communication tools cited in 1.6.2 Communication Systems to the following personnel:

1. OCC
2. Operations records officer
3. Technical Pilot.

8.1.9 ATC Flight Plan

8.1.9.1 ATC Flight Plan

Flights are normally operated on an instrument flight rules plan. Certain short flights (ferry, non-revenue) may be dispatched under visual flight rules. For safety reasons, the ATC must be informed of the expected operation before each flight, and an ATC flight plan must to be filed for each flight (IFR and VFR), and special procedures or maneuverability limitation must be indicated.
An ATC flight plan shall be submitted for every flight in order to permit alerting services to be activated if required.

Two different methods are applied for the submission of the ATC flight plan:

- The ATC flight plan for an individual flight shall be submitted on an appropriate form designated by the State concerned and being generally identical or similar to the ICAO Model Flight Plan
- ATC flight plans for regularly operated flights with identical basic features may be submitted in the form of repetitive ('stored') flight plans (RPL) as far as relevant provisions are observed. The repetitive flight plans are retained by air traffic services units for repetitive use for a series of individual flights.

Information submitted in the individual ATC flight plan shall be based on the OFP for the respective flight. The RPL data shall refer to the standard flight planning data of the OFP concerned.

8.1.9.2 Filling and Filing ATC Flight Plan

The procedure to fill an ATC flight plan is defined in the Jeppesen Manual under "AIR TRAFFIC CONTROL".
The ATC flight plan must be filed at least 1 hour before the expected take off time, unless national regulations state otherwise (In Egypt the ATC flight plan must be filed at least 50 minutes before the expected take off time).
When a flight is subject to flow control measures, a time slot should be requested early enough.
The dispatcher on duty or if not, the flight crew has in charge to file the ATC flight plan and request a slot departure when needed.
The flight plan should be amended, or a new flight plan submitted, and the old flight plan cancelled, whichever is applicable in the event of a delay for which a flight plan has been submitted:

- of 30 minutes in excess of the estimated off-block time for a controlled flight (15 minutes in Egypt)
- of one hour for an uncontrolled flight

The Pilot in Command is responsible for ensuring that a plan has been filed, and that he is fully aware of the details including the routing selected. This should always be compared to the Computerized Flight Plan routing.
A copy of the accepted ATC flight plan with, any modifications to the filed flight plan, must be given to the Pilot in Command and be carried aboard.

8.1.9.3 Description of an ATC Flight Plan

Refer to Operations Manual Part C (Air traffic control-Appendix2-flight plan)

8.1.9.4 Pilot and ATC Agreement

A clearance issued by ATC and accepted by a pilot constitutes an agreement between ATC and the Pilot in Command as to the planned execution of the flight. This agreement is the current flight plan, whether it is the same as the originally filed flight plan.
If at any point after take-off the Pilot in Command wishes to change the flight plan, he must request the change and obtain the concurrence of ATC in the form of an amended clearance. Likewise, ATC may initiate an amended clearance for traffic requirement and if concurrence between the Pilot in Command and an ATC controller is not possible, the flight is continued under the emergency authority of the Pilot in Command.
Any request for an amended clearance should be made considering traffic and the planning and co-ordination requirements of the ATC.
A pilot must not accept a clearance with which he cannot safely comply or which exceeds the capabilities of the aircraft. The Pilot in Command is the final authority as to the operation of the aircraft; he is directly responsible for the operation of the aircraft.
An ATC clearance is not an authorization for a pilot to deviate from any regulation or to conduct an unsafe operation. If, due to severe weather, an immediate deviation is required, the pilot's emergency authority will be exercised.
A pilot should question any clearance or any part of a clearance that he does not understand.
Time Slot's (CTOTs) - Calculated Take-Off Time - European Operations
For flights into areas or aerodromes with limited acceptance rate a departure CTOT will be assigned by CFMU (Central Flow Management System), i.e. a specified time or time period at/during which the flight may take-off. The CTOT begins 5 Minutes before and ends 10 minutes after the predetermined Take-Off Time. The arrangement for departure shall ensure that the flight will be ready for departure at the runway at the assigned CTOT minus 5 Minutes.
Note: Pilots will be informed of their assigned CTOT by station personnel or the DISPATCH via the handling agent.
The flight crew will immediately inform the station about the assignment of a CTOT, or a revised CTOT as received.
Since assigned CTOTs are frequently improved (see Ready Message-below) at short notice, flights shall be prepared for departure from the parking position/gate as follows:
When it becomes apparent that for unforeseen reasons the deadline for passenger boarding/airplane handling cannot be accomplished a revised deadline shall be agreed between the station and the Captain who will then determine if the assigned CTOT can still be complied with or if a new one has to be requested.
Ready-Message
When the CTOT is clearly behind schedule and the flight is able to depart within the MINLINEUP period (-5 /+10 min), a ready message may be dispatched by the stations via JATE Operations Control. A ready message may lead to an improvement.
CTOT Revision Request Message
If a CTOT cannot be operationally met, it is important to instruct the handling agents to contact Flight DISPATCH immediately to request a revised CTOT.

8.1.9.5 ATC Clearance

The clarification of such clearance to ensure understanding is necessary, and include as minimum:

i. A requirement for at least two flight crewmembers to monitor and confirm clearance to ensure a mutual (flight crew) understanding of accepted clearance;

a) A crosscheck that the assigned altitude is above the minimum safe altitude;

b) In areas of high terrain;

c) That includes heading, altitude/flight level, frequency, route/waypoint changes;

d) That includes instructions for holding short of a runway.

ii. A requirement to clarify clearance with ATC whenever any flight crew is in doubt regarding the clearance or instruction received.

Direct clearance does not relieve Captain from ensuring terrain clearance

8.1.9.5.1 Clearance Limits

An ATC clearance issued before take-off normally includes the destination airport as the clearance limit. A flight may be cleared to a point short of the destination if ATC has no assurance that co-ordination with a subsequent area control center will be accomplished before that flight enters its FIR.

A flight must not continue beyond its clearance limit without further clearance. It is the controller’s responsibility to furnish further clearance before a flight reaches the clearance limit. This clearance may change the clearance limit to a point beyond or it may include holding instruction at the clearance limit. In the latter case the controller should provide the pilot with an expected further clearance time.

8.1.9.5.2 Departure Procedure

The departure procedure includes the routing and any altitude restrictions during after take-off to the En-route phase.

At some airports, Standard Instrument Departures (SID) have been established which identify each departure procedure with a name and a number. At airports where they are used, these SIDs are charted and used routinely to simplify and shorten clearance delivery. A pilot is to accept a SID as part of the ATC clearance only if the SID number in the clearance corresponds with his charted information.

8.1.9.5.3 Route of Flight

If the route of flight is different from that filed, or if the flight is an oceanic flight, or if a clearance is issued En-route, the clearance must include a description of the route using airway designations, radio fixes, or latitude and longitude.

When ATC includes the Mach number as part of the clearance, that Mach number must be maintained as closely as possible; any change in Mach number must be approved by ATC. Additionally, ETA amendments and/or TAS changes must be reported to ATC.

8.1.9.5.4 Altitude

A cleared altitude means an assigned altitude or flight level including any restrictions.

A new clearance is required to leave that altitude or flight level.

At airport without an approved instrument approach procedure, the destination clearance authorizes the pilot to proceed to the destination airport, descend, and land.

The clearance does not permit the pilot to descent below the MEA or MOCA unless the descent and landing are made in accordance with Visual reference Flight Rules.

In some part of the world, altitude clearances are based on separation from known air traffic and may not provide separation from terrain and obstructions. The Pilot in Command is responsible for ensuring that any clearance issued by ATC provides terrain and obstruction separation.

Upon receiving a clearance containing altitude information, the Pilot in Command must verify that the clearance does not violate any altitude restriction for the route to be flown.

8.1.9.5.5 Holding Instructions

If a flight is cleared to hold, ATC holding instructions must be complied with. These instructions may be issued by the controller or they may be required on the charts.

8.1.9.5.6 Arrival Route

Clearance for an arrival route is not issued until a flight is approaching the terminal area. This is a detailed clearance that fully describes the routing to a point from which the flight will be maneuvered for the approach to the airport.
At some airports, Standard Terminal Arrival Routes (STAR) has been established.

They identify each airport arrival route with a name and a number. STARs are charted and used routinely to simplify and shorten clearance delivery. A pilot is to accept a STAR as part of the ATC clearance only if the STAR number in the clearance corresponds with his charted information.

8.1.9.5.7 Communications

The frequency of departure control or the next en-route facility may be included with the clearance.

8.1.9.5.8 Approach Clearance

An approach clearance is authorization to conduct an approach and missed approach. If the type of approach is not specified, the pilot may execute any type of instrument approach approved for the runway to be used. In this case, the pilot must announce his intended choice of approach procedure. An approach clearance does not include clearance to land.

8.1.9.5.9 Complying with a Clearance

When ATC issues a clearance, a pilot is expected to comply promptly after acceptance.
ATC may use the term “immediate” to communicate urgency and the requirement for expeditious compliance.

8.1.9.5.10 Clearance Recording

A written record of the initial airway clearance, any significant re-clearance and deviations from planned figures shall be annotated on the OFP.
All ATC clearances, altimeter settings, runway in use, flight level, route/waypoint changes and any hold short instructions Taxi, Take off clearances must be read back including the full callsign.
After read back the clearance acceptance must be acknowledged and a requirement for at least two flight crew members to monitor and confirm clearances to ensure a mutual (flight crew) understanding of clearances accepted. Standard phraseology must be used.
Wording must be clear, precise and unmistakable. If any flight crew member is in doubt regarding any clearance or instruction received a clarification is required from ATC.
The PM must read back to the air traffic controller all safety-related parts of ATC clearances and/or instructions which are transmitted by voice.
Read back of a clearance should never be replaced using terms such as

″**ROGER**″, ″**WILCO**″ or ″**COPIED**″.

All requested/received CPDLCs shall be printed.
ATC clearances must be clearly understood especially during time of increased operational risks.
Note: The above refers to situations when a missed or misunderstood clearance could pose a safety risk to the flight (e.g. inadequate terrain clearance, runway incursion, loss of separation) includes the following:

- Heading, altitude/flight level, route/waypoint change.
- Frequency changes during critical phases of flight.
- Instructions for any operation on or near a runway.

The Commander is responsible to ensure that:
–he Commander is responsible to ensure that:runway.ge.clearance, runwaynwayedof ATCC.t and en-route, and

–en-route, andandresponsible to ensure that:runway.ge.clearance, runwaynwayedof ATCC.tth night curfew).

8.1.9.5.11 Canceling an IFR Flight Plan

The flight plan is normally cancelled by the "tower". After a landing on a non-controlled airport the Pilot in Command must ensure that the flight plan is cancelled.

8.1.10 Operational Flight Plan

8.1.10.1 General

Before each flight an operational flight plan must be prepared by dispatchers. It is normally obtained through a computerized process (Air support (PPS) Flight planning system). For this reason, Operational Flight Plan are also called Computerized Flight Plan (CFP).
The operational flight plan must be checked by the flight crew and approved by the Pilot In Command before the departure.
Dispatcher must sign the Operational flight plan by mentioning his name on it and Pilot In Command must sign the original Operational flight plan.
Amendments due to flight crew requirements, ATC clearance or limitations such as aircraft MEL or CDL items may require the operational flight plan to be updated by the flight crew.
The operational flight plan will be calculated with updated performance of the aircraft, ATC cleared route, the weather forecast on the route and the actual aircraft weights.
Aircraft limitations must be considered and indicated. Minimum flight altitudes shall be considered in accordance with 8.1.1 Minimum Flight Altitudes in all phases of flight.
Operational Flight Plan used by the flight crew must be in accordance with the approved ATC Flight Plan.
The content of the OFP consist of, as a minimum, the following elements:

- **i.** Aircraft registration
- **ii.** EFB version
- **iii.** Aircraft type and variant
- **iv.** Date of flight and flight identification
- **v.** Departure airport, STD, STA, destination airport
- **vi.** Route and route segments with check points/waypoints, distances and time
- **vii.** Types of operation (IFR, VFR, ETOPS etc.)
- **viii.** Planned cruising speed and flight times between waypoints/check points
- **ix.** Planned altitude and flight levels;
- **x.** Fuel calculations
- **xi.** Fuel on-board when starting engines
- **xii.** Alternate(s) for destination and, when applicable, takeoff and en route
- **xiii.** Relevant meteorological information (or attached separate)

According to the computerized flight plan (refer to 8.1.10.2.2. Computerized Flight Plan Explanation) the following must be filled in:

- **a)** Time
- **b)** Remaining fuel approximately every 30 minutes.

Note: Any en route amendments to the OFP due to unforeseen condition that may effect on flight such as diversion or reroute effect on original schedule, PIC to inform dispatcher on duty using AFIRS audio and to record these changes in the OFP.

8.1.10.2 Description of a Computerized Flight Plan

Example: Computerized flight plan for an A320 from HRG to CAI.

All Messages for flight **NMA171-OEJN-HECA** (STD 270415)

(Message search performed 2017-12-04 17:23:46 UTC)

EFB VERSION

Msg Sender: NMAADMIN Msg Sent: 2017-11-28 21:09 UTC

```
NMA271117A
```

End of message information

8.1.10.2.1 Computerized Flight Plan Sample

```
(01)Log Nr.:    1 Page  1                                     HECA-OEYN  NMA1234

(02)ATC ID: NMA1234            PIC : A            FLIGHT-MET : 033012       WEIGHT UNIT: Kg
(03)DATE  : 31.03.2016         F/O : B                                      DISP : TRANBJERG
(04)                           ACM : C            C/V : 3/4                 CALC : 302003 UTC
(05)-------------- FLIGHT INFO --------------     ------------------ TIME ------------------
(06)ACFT  : Airbus 320-232      REG : SU-NMA      STD         13:00         STA       14:21
(07)FLTNO : NMA1234             FL  :   370       CTOT       ___:___
(08)FROM  : HECA CAI  CAIRO INTL      467 ft      ON BLOCK   ___:___        LANDING  ___:___
(09)TO    : OEYN YNB  YENBO/PRINCE AB  26 ft      OFF BLOCK  ___:___        T/O      ___:___
(10)ALTN  : OEJN JED  JEDDAH/KING ABD  48 ft      BLOCK TIME ___:___        FLT TIME ___:___
(11)ALTN  :                             0 ft      LAND FUEL  _______( 3016) BURN OFF _______

(12)T/O ALTN :            ERA ALTN:               TOTAL PAX (SPLIT): 130  ( 60/ 60/ 10/  0 )
(13)---------------- WEIGHTS ----------------     ------------------- FUEL -----------------
(14)                                  STRUCT
(15)DOW  SCHEDULED 43939  __________              TRIP       :  1:21  3301  __________
(16)PAYLOAD     :  12380  __________              CONT MCF   :         400  __________
(17)ZFW         :  56319  __________   61000      TAXI       :         500  __________
(18)T/O FUEL    :   6317  __________              FINAL RES  :  0:30   986  __________
(19)TOW         :  62636  __________   77000      ALT (OEJN):   0:37  1630  __________
(20)TRIP FUEL   :   3301  __________              COMP FUEL  :  0:00     0  __________
(21)ELW         :  59335  __________   64500      MIN REQ    :  2:33  6817  __________
(22)                                              EXTRA      :  0:00     0  __________
(23)CMR         :   2616  __________
(24)                                              RAMP FUEL  :  2:33  6817  __________

(25)----------------- MISC ------------------     --------------- CORRECTIONS --------------
(26)GAIN / LOSS    : (not available)              FL      WC   TIME   TRIP  10KT  1TON  D/C
(27)RTE / GC DIST :    581 NM /   504 NM            0      0             0     0     0     0
(28)AIR DIST       :   547 NM                     390     24   82.3   3330    75    40    22
(29)AVG WC / TRACK:    29 KTS TAIL  / 134        |370     29   82.0   3301    74    44     0|
(30)TEMP AT TOC    :   -58                        350     29   82.3   3300    74    32     1
(31)COST INDEX     :  CI25                        330     28   81.8   3354    75    31    33
(32)                                              310     26   82.7   3376    76    35    56

(33)DEP. ATIS:                          RVSM  CAPT ALT(ft) F/O ALT(ft)  STBY ALT(ft) TIME
                                        CHK

                                        GND
(34)DEST. ATIS:
                                        FL

                                        FL
(35)ALTN. ATIS:
                                        FL

                                        FL

(36)FL PROFILE: HECA/FL370/

(37)ATC ROUTE : CVO L315 HGD UM872 WEJ UT510 VEDAX V22 YEN



(38)ATC CLEARANCE:

(39)RWY _____  FLEX TEMP ________  FLAP SET ________  V1 ________  Vr ________  V2 ________

(40)RWY _____  FLEX TEMP ________  FLAP SET ________  V1 ________  Vr ________  V2 ________

(41)ENG FAIL PROC:


(42)                              COMMANDER SIGNATURE: ..............................
```

```
(43)Log Nr.:    1 Page  2                                         HECA-OEYN  NMA1234

(44)MFA  AIRWAY     LAT/LON   WIND      SR   WC  TAS  DIST   TIME   ETA   ATA  F-REQ  DIFF   DIFF
(45)FL   WAYPOINT   N30:06.7  TEMP          ISA  GS   REM    TRACK              REM   TIME   FUEL
(46)HECA            E031:24.8                          581                      6317
    24     DCT      N30:05.5  298/021   1  T 20 362    12      2                5783
   CLB     CVO      E031:23.3 VAR             6 382   569    229                6183

    76     L315     N28:10.0  315/043   2  T 43 446   143     21                4186
   370     -TOC-    E032:59.9 VAR            -2 489   426    143                4586

   107     L315     N28:01.3  315/043   2  T 43 446    10      2                4142
   370     OBTAV    E033:06.9 -58            -2 489   416    143                4542

   107     L315     N27:10.6  309/034   3  T 33 448    63      8                3858
   370     HGD      E033:47.8 -56             0 481   353    144                4258

    83     UM872    N26:34.0  279/031   1  T 30 448    97     12                3419
   370     SILKA    E035:29.0 -55             1 478   256    112                3819

    49     UM872    N26:10.8  268/036   3  T 32 449    59      7                3154
   370     WEJ      E036:29.3 -54             2 481   197    113                3554

    75     UT510    N25:48.2  248/060   1  T 35 449    47      6                2945
   370     KULKI    E037:14.7 -54             2 484   150    119                3345

    75     UT510    N25:15.2  246/074   0  T  7 449    40      5                2756
   370     -TOD-    E037:39.7 -54             2 456   110    146                3156

    95     UT510    N24:14.4  240/045   0  T  7 347    73     12                2663
   DSC     VEDAX    E038:24.7 VAR            10 334    37    146                3063

    95     V22      N24:09.0  240/045   3  T 10 347    21      3                2636
   DSC     YEN      E038:02.3 VAR            10 334    16    255                3036

    95     YEN      N24:08.7  240/045      T 10 347    16      3                2616
           OEYN     E038:03.8 VAR            10 334     0    103                3016

(47)Alternate OEJN DCT YEN V44 RBG B412 JDW

    95     DCT      N24:09.0  243/070   1       433    11      2                2536
   CLB     YEN      E038:02.3 -33             6 377          283                2936

    95     V44      N23:40.8  243/070   1       433    35      6                2284
   CLB     DARES    E038:24.5 -33             6 438          144                2684

    73     V44      N22:47.5  243/070   1       433    65     10                1815
   270     RBG      E039:05.8 -33             6 438          144                2215

    73     B412     N22:42.7  243/070   1       433     5      1                1779
   270     LAGBO    E039:06.1 -33             6 400          177                2179

    73     B412     N21:42.6  243/070   1       433    60     10                1347
   DSC     JDW      E039:09.8 -33             6 400          177                1747

    43     STAR     N21:53.5  243/070   1       433    12      2                1260
   DSC     R023L    E039:15.3 -33             6 486          025                1660

    43     STAR     N21:53.9  243/070   1       433     9      1                1195
   DSC     MEDGO    E039:05.3 -33             6 371          273                1595

    43     DCT      N21:40.9  243/070   1       433    29      5                 986
   DSC     OEJN     E039:09.3 -33             6 414          164                1386

(48)Climb  :155 NM in 0:23 hrs  2230 Kg   Descent:110 NM in 0:18 hrs   140 Kg
______________________________________________________________________________________________

______________________________________________________________________________________________
(49)Log Nr.:   1 Page 2 PPS  8. 0. 519. 0 3 To be continued next page.....
```

```
(50)Log Nr.:    1 Page  3                                        HECA-OEYN  NMA1234

(51)                          ENROUTE WINDS
(52)IDENT     FL 330        FL 350        FL 370        FL 390        FL 410
(53)            W/V   TMP     W/V   TMP     W/V   TMP     W/V   TMP     W/V   TMP
    CVO       324/044 -50  324/045 -56  321/044 -58  318/044 -61  303/040 -63
    -TOC-     320/030 -48  320/034 -54  309/034 -56  298/036 -59  283/042 -61
    OBTAV     320/030 -48  320/034 -54  309/034 -56  298/036 -59  283/042 -61
    HGD       292/023 -48  292/031 -53  296/033 -55  300/040 -57  284/047 -60
    SILKA     280/025 -47  280/033 -53  268/036 -54  256/043 -57  255/056 -58
    WEJ       280/025 -47  280/033 -53  268/036 -54  256/043 -57  255/056 -58
    KULKI     250/052 -46  250/059 -52  248/060 -54  246/066 -56  247/070 -58
    -TOD-     244/074 -46  244/076 -51  244/078 -53  244/081 -55  244/082 -58
    VEDAX     236/086 -45  236/087 -50  240/088 -52  244/092 -54  244/093 -58
    YEN       236/086 -45  236/087 -50  240/088 -52  244/092 -54  244/093 -58

(54)FL300 240/089  FL240 252/056  FL180 240/045  FL100 350/013  FL050 020/013

(55)(FPL-NMA1234-IS
    -A320/M-SDFHIRWY/S
    -HECA1300
    -N0446F370 CVO L315 HGD UM872 WEJ UT510 VEDAX V22 YEN
    -OEYN0121 OEJN
    -PBN/B3B4B5 COM/DPDLCX DAT/V DOF/160331 REG/SUNMA
     EET/OEJD0045 SEL/QRCF CODE/010140 RVR/550 OPR/NMA PER/C
    -E/0232 P/137 R/V J/L
     A/WHITE
     C/)
```

8.1.10.2.2 Computerized Flight Plan Explanation

(01) Flight Plan number / page number / city pair / flight number
(02) ATC call sign / pilot in command / weather based on forecasted winds at MMDDTT / weight unit

(43) Flight Plan number / page number / city pair / flight number
(44) Grid mora for the actual leg / airway name / latitude - longitude / wind direction and velocity / wind shear rate / wind component / true air speed / distance from previous waypoint to this waypoint / time in minutes from previous waypoint to this waypoint / estimated time overhead (for pilots to fill in)/ actual time overhead (for pilots to fill in) / minimum required fuel from this waypoint to destination + alternate + final reserve / difference in time (for pilots to fill in) / difference in fuel (for pilots to fill in)
(45) Flight level / waypoint or airport / latitude - longitude / temperature / ISA temperature deviation / ground speed / distance remaining / true track / fuel remaining / difference in time (for pilots to fill in) / difference in fuel (for pilots to fill in)
(46) Departure airport / latitude - longitude / total distance in nm / take off fuel
(47) Alternate route section
(48) Climb distance in nm to TOC (TOC= top of climb) / climb time in minutes to TOC / used fuel at TOC (taxi + climb fuel) / descent distance in nm from TOD (TOD= top of descent) / descent time in minutes from TOD / fuel amount from TOD to destination
(49) Flight Plan number / page number / PPS version number / flight plan continues next page
(50) Flight Plan number / page number / city pair / flight number
(51) Enroute winds info section below
(52) Waypoint, TOC or TOD info below / info for filed flight level plus 2 levels below and 2 levels above
(53) Wind direction and velocity / temperature (shown at all 5 flight levels)
(54) Descent winds fixed at flight level 300, 240, 180, 100 and 050 showing wind and velocity
(55) Short ICAO Flight Plan

(39) RWY / FLEX TEMP / FLAP SET / V1 / Vr / V2 (all for pilots to fill in)
(40) RWY / FLEX TEMP / FLAP SET / V1 / Vr / V2 (all for pilots to fill in)
(41) Engine fail procedure (for pilots to fill in)
(42) Pilot in command signature

8.1.11 Operator's Aircraft Technical Log

8.1.11.1 Aircraft Technical Log System

The aircraft technical log system is a system for recording defects and malfunctions discovered during the operation and for recording details of all maintenance carried out on the particular aircraft to which the aircraft technical log applies whilst that aircraft is operating between scheduled visits to the base maintenance facility. In addition, it is used for recording operating information relevant to flight safety and must contain maintenance data that the operating crew needs to know.

It is the legal medium for written communication between flight crews and maintenance personnel.

All irregularities should be recorded even though they may be regarded as items that are "always that way". Recording these items is necessary until flight crews are advised by an insert in the appropriate aircraft operating manual that maintenance is aware of the problem and that no further recording of that particular defect is necessary.

The aircraft technical log system allows the Pilot in Command to satisfy himself that the aircraft is airworthy in accordance with MEL and CDL.

The Aircraft Technical log system is made of:

- Aircraft Maintenance logbook
- Acceptable Deferred Defect List (DDL - Hold Items List)
- Configuration Deviation List (CDL)
- Cabin logbook

8.1.11.2 Aircraft Technical (Maintenance) Logbook (ATL)

The aircraft technical (maintenance) logbook is a three-page manifold form serialized and bound in sets of 50 each. The logbook is designed to provide flight crew and maintenance personnel with a means of recording malfunctions, corrective action and other information that is of value to the operation:

- one white original
- one yellow copy and
- One blue copy.

8.1.11.2.1 Flight Crew Procedures for Aircraft Technical (Maintenance) Logbook Handling

The Pilot in Command is responsible for completing the aircraft technical logbook, however, he may delegate this to another crewmember.

The flight crew will verify that the aircraft technical logbook is on board the aircraft and that it contains a enough pages for the flights scheduled.

Pilot in Command or his delegate, will review the aircraft technical logbook for corrective action taken on prior flight irregularities, type of service performed, and airworthiness release, when required. At this time, any aircraft placards on the logbook will be reviewed for information and conformance with the Minimum Equipment List. If the airworthiness requirements of the Minimum Equipment List are not satisfied, PIC will request that the condition be corrected.

Discrepancies will be recorded in the aircraft technical logbook. Verbal reporting to maintenance personnel is unacceptable.

Each entry shall contain sufficient detail to assist maintenance personnel in making the necessary corrective action. The Pilot in Command must sign each flight crew entry.

8.1.11.2.2 Maintenance Procedures - Log Review

Maintenance personnel in duty shall review the technical logbook at all stations.
In reviewing the logbook, maintenance personnel is responsible for:

- Assuring that any log entries completed are accurate and complete.
- Removing all completes yellow log pages from aircraft and send them to Maintenance Control Centre (MCC).
- Upon completion of a maintenance action, enter date, local time, type of check, and signature and approval number in the block titled "Certificate" located in the right-hand corner of the log sheet.

8.1.11.2.3 Acceptable Log

a) General

- All entries will be printed in black or blue ink and must be legible.
- Engineer's full signature will be entered immediately following the description of inspection or work accomplished, in a legible manner and in ink, pencil is not allowed.
- If an error is made, a line will be drawn through the entry and a new entry must be made. Erasures are not permitted.
- Note: Never remove or destroy a log page because of an error.
- Maintenance action entries will list any or all work done to correct, defer or describe troubleshooting accomplished to correct a malfunction or pilot report. Such statements are necessary for record purposes and to eliminate repeating the work unnecessarily. The person making the corrective action entry is required to ensure that all work, checks or inspections were performed in accordance with manuals and procedures.

Civil Aviation Regulations require a complete description of the corrective action taken to correct a discrepancy and release an aircraft in airworthy status. Therefore use of words such as "Repairs", "Fixed" or "Corrected" as the sole entry for corrective action is not acceptable. The logbook entry should also include a description of the trouble-shooting procedure and/or reference to the manual that was used to correct the discrepancy.

8.1.11.2.4 Distribution of Log Sheet

- The original log page (white) is the permanent record of all maintenance accomplished on the aircraft. It is of the utmost importance that the white log pages are kept in good condition.
- Yellow to the technical department
- Blue to Handling Agent

8.1.11.2.5 Ordering Aircraft Technical (Maintenance) Logs

- It is the responsibility of the person accomplishing the maintenance service actions to determine that sufficient unused sheets are available in the Aircraft Technical Logbook.
- It is the responsibility of the person performing the post flight maintenance walk around check to determine that the Aircraft Technical Logbook is on board the aircraft.

8.1.11.3 Cabin Logbook

As for the Technical Logbook, the Cabin Logbook provides a means for in flight personnel to report to maintenance all pertinent information relative to cabin discrepancies.
Cabin Logbook format: See example
Cabin Logbook handling

- Specificity: the Chief De-Cabin will verify all Cabin Logbook entries and if he notes an airworthy discrepancy he will inform the Pilot in Command of the flight.

- For all other recommendations refer to Technical Logbook

8.1.11.4 Guideline to Fill in the Aircraft Technical or the Cabin Logbook

The following guidelines shall be applied on the aircraft technical or cabin logbook

- The aircraft technical logbook shall be filled in for each flight leg.
- If more than one defect exists for the same flight leg, each defect shall be entered in one defect description space but the flight information (except airplane identification and flight number) will be not repeated and the crew shall sign
- Each defect shall be clearly described by the flight crew or the certifying person and the defect description space shall be dated and signed
- If a certifying person takes the decision to defer the rectification of a defect, the cross reference on the Acceptable Deferred Defect (Hold item) sheet shall be mentioned on the corrective action space (with the station, date, name and signature information)
- The corrective action shall be clearly mentioned with all references used (manuals, repair drawing, SB, AD/CN, others…)
- If the corrective action taken requires additional work or re-inspection, the corrective action space shall be sign off. A new item shall be initiated through the deferred defect procedure to cover the additional work or re-inspection required.
- The corrective action may be carried-out during a schedule maintenance check.
- Therefore, this maintenance check reference shall be mentioned in the corrective action space.

Notes: The white original sheet of the aircraft technical or cabin log sheet shall remain in the logbook until the corrective(s) action(s) of the same flight leg has (have) been mentioned, answered and accepted by the certifying person.
Once completed, it shall be detached and sent to MCC for records updating within 24 hours. It shall be archived by Technical Records.

8.1.11.5 Acceptable Deferred Defect List (DDL)

8.1.11.5.1 Scope

This procedure shall be considered as exceptional.
For specific case, a certifying person may take the decision to defer the rectification of a discrepancy after determining the need and propriety for such deferral.
The Acceptable Deferred Defect List (DDL) is the document that lists all deferred defects still open.
Note: It shall be highly recommended to rectify any deferred defect as early as practical to avoid exposure to additional failure during continued operation with inoperative items.
If a Nesma Airlines aircraft develops a defect away from base, and the defect is allowable per MEL, the Pilot in Command shall check if the aircraft can be dispatched with defect can be deferred without any maintenance action being required.

8.1.11.5.2 Guideline to How Deferred Defect List (DDL) Is Filled In

DDL shall be filled in only by Maintenance personnel:
As one deferred defect is issued, a copy shall be sent immediately to Maintenance Engineering for action. Maintenance Engineering is responsible for the rectification planning for specific deferred defect (provisioning delay, lease-contract requirements, and configuration change…)
The following guideline shall be applied on the Acceptable Deferred sheet:

The DDL sheet shall be filled in for each defect deferred open on the aircraft technical or cabin logbook.
The cross reference (technical Log sheet number and item) with the aircraft technical or cabin logbook which has initiated the defect shall be mentioned (with date and signature)
The aircraft technical or cabin logbook's defect description shall be transferred word-to-word to the DDL defect description space.
For each deferred defect, the certifying person shall give at which maintenance check, in how many flight times or how many cycles and at which date, the corrective action shall be taken.
The rectification of a deferred defect shall be launched only by Certifying Staff against signature.

8.1.11.5.3 Certificate of Release to Service

The stamp or signature of the certifying person shall be taken as a declaration of the release statement.
No individual is entitled to sign such release unless:

- He is duly qualified by the quality assurance – Technical Department - of Nesma Airlines
- He is certifying personnel of an approved operator subcontractor.

8.1.11.6 Technical Log Book

Description: Refer to 13.1 Operation Forms.

8.1.11.7 Cabin Log Book

Description: Refer to 13.1 Operation Forms

8.1.12 Onboard Library

For each flight, following documents and forms must be carried on board:
Note1: In case of loss or theft of documents mentioned below and marked with (*), the operation is allowed to continue until the flight reaches the base or a place where a replacement document can be provided.
Aircraft documents

- The Certificate of Registration (*)
- The Certificate of Airworthiness (*)
- The original or a copy of the Noise Certificate (in English Language) (*)
- The original or a copy of the Air Operator Certificate (*)
- The Aircraft Radio License (in English Language) (*)
- The original or a copy of the third-party liability insurance certificate (*)
- Copy of Operation Specifications Certificate

Crew documents
Each flight crewmember shall carry:

- A valid flight crew license with appropriate ratings for the purpose of the flight. (*)
- Valid passport with appropriate visas (if applicable)
- Certificates of vaccination (if applicable)

Onboard documents (library)
A list of the following documents (up-to-date) available onboard each Nesma Airlines Aircraft as part of Nesma Airlines' EFB suite.

- EFB type A include:
  - ➢ Operations Manual (Part C –electronic Jeppesen FD Pro)
  - ➢ Operations Manual (Part A – Volume 1)

- Operations Manual (Part C – Company route manual)
- Weight and Balance Manual
- Security Manual
- CMEL

- EFB type B Include:
- EQRH
- Load sheet calculation
- Take-off performance
- Landing performance
- Operational Library Browser (OLB)
    - Approved Flight Manual (AFM)
    - Flight Crew Operating Manual (FCOM)
    - Flight Crew Techniques Manual (FCTM)
    - MMEL
    - Quick Reference Handbook (QRH)
- Quick Reference Handbook (QRH) (2 set hardcopies)
- DDL
- CCM (6 set)
- Blank Manual load sheet calculation forms (Blank binder, if manual Load sheet is used)
- Bomb Search Check-list (1 set)
- Security check-list (1 set)
- Pre-flight check list, and
- Post flight check list.

Technical Pilot shall issue – up to date – list for onboard documents, then pass it to dispatch office. The later shall re-print or send; when applicable, a copy of that list to deck crewmembers together with Flight specific documents.
Deck crewmembers are requested to check this list against check list available onboard.
Any deficiency shall be reported to Technical Pilot for corrective action and follow up.
Flight specific documentation
The following documents shall be available and/or prepared for each flight:

- Operational flight plan
- Aircraft Technical Log
- Journey log (voyage report) (see "Forms" Section)
- Filed ATS flight plan
- Appropriate NOTAM/AIS briefing documentation
- Appropriate Meteorological information (Terminal and alternate forecasts valid for the time of flights, appropriate upper wind charts and significant weather charts)
- Load and Trim sheet
- Notification of special categories of passengers such as handicapped persons, in-admissible passengers, deportees and persons in custody, security personnel.
- Notification of special loads.
- Current maps and charts covering the area of the operations (Jeppesen Manuals)
- Cargo manifest, passenger manifest, over flight permission (if applicable).
- Any other documents required by the states concerned with the flight (General Declaration etc.….)
- Take-off and Landing Data Cards (if applicable)
- Special Reports forms (Pilot in Command’s Discretion report, Occurrence/ Incident Reports, Bird-strikes etc.) may be at the a/c library.

- Crew briefing document.
- Cabin Defect Log.

Flight Envelopes

All flight documentation required to be retained will be placed in a “flight envelope” and returned to Company Operations.

All Documents that do not need signature could be replaced by an electronic copy on the relevant EFB application and shall be stored, archived and backed up on company server as per (EAC 121-15)

Documents that need signatures shall be signed.

8.2 Fueling Procedures

8.2.1 Safety Precautions

Safety precautions must be always taken to preclude the possibility of fire during refueling and de-fueling procedures.
The main causes of risk of fire with fuel deal with sparks due to static electricity and hot point (engines, APU, ground installations, smoking).
The fuel generally does not catch fire easily, but the risk of fire is increased when the fuel is sprayed (link, disconnecting pipe) and in the presence of fuel vapor especially when low flash point fuels are used.
The list of approved fuel types and additives are given in Aircraft Maintenance Manual (AMM) - servicing chapter.
General safety precautions for fueling procedures are given in the FCOM.
The following precautions apply during any fueling operations:

- Engine ignition system must be "OFF".
- The weather radar must be switched OFF
- Radio is not transmitting on HF
- Electrical circuits in the tanks area must not been connected or disconnected
- For A320, APU starts or shutdowns are permitted during refuel/de-fuel procedures. An APU start is not permitted during refuel/de-fuel if the APU has failed to start or an automatic shutdown has occurred
- A normal APU shutdown must be completed if a fuel spill has occurred during their fuel/de-fuel procedure
- No open flame, or smoking is permitted around the aircraft fueling / de-fueling is considered to start as soon as the filler hoses are connected to the aircraft and pressurized.

Fueling / de-fueling shall only be considered terminated after all filler hoses have been disconnected from the aircraft.
The engineer or flight crew, as appropriate, shall ensure adherence to safety precautions by spot checks.
During fueling / de-fueling the following safety precautions shall be adhered to:

- Fuel hoses shall be positioned by the shortest way to the fuel inlets. A sufficient safety distance shall be kept from wheel-brakes (at least 1 meter) and from APU Air inlet.
- Bonding connections from the fueling truck to the aeroplane must be established to discharge any static electricity before fuel hoses are connected.
- Ground Service Equipment, not immediately required for the handling of the flight shall not be positioned within the Fueling Zone (Refer to “fueling Zone” below)
- Spilled fuel shall be removed or dried up immediately in the presence of the fire brigade before passengers are boarded.
- During thunderstorms fueling/de-fueling is strictly prohibited

In the event of an emergency (e.g. APU fire), during fueling / de-fueling, the operation must be stopped, and an immediate disembarkation initiated. The flight crew will decide whether this should be an expeditious “normal” disembarkation or an “emergency evacuation”.
Fueling Zone
The Fueling Zone is an area of 3 meters around the aircraft tank filling or venting points, the fueling browser or hydrant and the hydrant pit used for refueling.
The venting points are located at the wing tips.

8.2.1.1 Refueling and Defueling When Passengers Are Embarking, On Board or Disembarking

Fueling is not permitted with passengers boarding, on board or disembarking with wide cut gasoline type fuel (JET B, JP4 or equivalent) or when a mixture with these types of fuel might occur.
Fueling with Kerosene (JET A, JET A1 JP8, TS1, RT, TH or equivalent as approved by the AFM), when passengers are embarking, on board, or disembarking is allowed.
However, when passengers are involved, precautions must be taken to ensure that they can be evacuated in the unlikely event that fire does occur. These precautions involve the ramp agent, the engineer (qualified ground crewmember), the cabin crew and the pilot(s). Refer also to 8.3.15.3. Fueling With Passengers On Board, Embarking Or Disembarking
The following special safety regulations have to be strictly adhered to:

- In principle, two main passenger doors shall be opened and passenger stairs/jet-ways shall be positioned at these doors, with all other doors remaining closed. All other exit doors must be attended by cabin crew and free of obstacles on the ramp within an area of at least 12 meters from the aircraft.
- If only one passenger stair / jet way is available, the requirement for the second exit (3L) may be met by positioning a qualified Cabin Crew, who will remain at (3L) throughout the refueling process and be readily available to arm the door and deploy the slide if necessary;
- In the cabin, the required emergency exits as well as the aircraft aisle(s) must never be blocked (stationery) by catering or cleaning materials.
- Passenger stairs / Jet ways must never be blocked (stationery) by catering or cleaning materials. If passengers are embarking during fueling, the aircraft may only be fueled from the right side and the embarkation process must be coordinated by station personnel in such a way that congestion in front of the aircraft doors is avoided.
- If passengers are embarking during fueling, the embarkation process must be coordinated by station personnel in such a way that congestion in front of the aircraft doors is avoided.
- De-fueling with passengers on board, embarking or disembarking is prohibited.

The start of re-fueling must be coordinated with the Pilot in Command to allow him to brief the entire crew concerning safety regulations and procedures. After re-fueling is completed, the Pilot in Command must be informed as well.

Notes:

- Local airport regulations may be more restrictive (e.g. fire trucks during fueling).

In the event of an emergency, (e.g. APU fire), during fueling/de-fueling, the operation must be stopped, and an immediate disembarkation initiated. The flight crew will decide whether this should be an expeditious "normal" disembarkation or an emergency evacuation.
The ramp agent must ensure that:

- A flight crewmember, cabin crew and ground engineer/re-fueling supervisor are at their stations,
- the area around emergency exits is kept clear,
- the fire service is alerted
- Passenger boarding / disembarkation is carried out in a controlled manner.

The pilot(s) must:

- Inform the cabin crew of the beginning and ending of fueling,("Fasten seat belt" sign must be "OFF"),("no smoking" sign must be "ON"),
- Listen for fire warning from the engineer.

Continuous communication between the flight/cabin crew and the ground engineer/re-fueling supervisor is not required. In the event of an incident requiring prompt disembarkation or rapid evacuation of the passengers the ground engineer/re-fueling supervisor will use the quickest available means of communication to notify the flight/cabin crew. (Flight or service interphone, Passenger steps, suitable aural or visual signals etc.)

- Be prepared to initiate passenger evacuation if necessary.
- Ensure that the Emergency Lights Switch is in the armed position.

The engineer must:

- establish communications with the pilot(s),
- inform the pilot(s) of the beginning and ending of fueling,
- alert pilot(s) if fire occurs,
- Stop fueling upon pilot request.

The cabin crew must:

- establish communication with the pilots,
- warn passengers not to smoke ("no smoking" sign must be "ON"),
- instruct passengers to unfasten their seat belts ("Fasten seat belt" sign must be "OFF"),
- Ensure that emergency exits are unobstructed and attended by a cabin crewmember ready to arm and open the exit in case emergency evacuation is imminent.
- ensure that "EXIT" sign is "ON"
- Ensure that ground servicing such as catering or cleaning don't risk creating hazard or hindering an emergency evacuation.

If presence of fuel vapor is detected inside the aircraft or any other hazard arises, re/de-fueling must be stopped immediately.

The fueling process must be interrupted immediately if it is observed that any of the safety regulations are not adhered to.

Rapid Deplaning/ Emergency Evacuation

In the event a situation on ground develops which could compromise safety, PIC shall decide whether a rapid deplaning or full-scale emergency evacuation is required.

Rapid deplaning is an expeditious disembarkation from the aircraft via the Aerobridge or stairs e.g. (in case of emergency hazard arises during refueling with passenger on board).

Emergency Evacuation is the immediate egress of passengers from an aircraft via the escape slides.

Method of communication to initiate rapid deplaning/emergency evacuation

- The first Crewmember aware of the situation shall immediately advise the Flight Crew (via Interphone). The Flight Crew will evaluate the situation and if necessary, initiates the deplaning or the evacuation by commanding Cabin Crew via PA **"DEPLANE, DEPLANE"** for Deplaning or **"EVACUATE, EVACUATE"** for evacuation.
- The Flight Crew aware of any emergency hazard arises during refueling with passengers on board, will evaluate the situation and immediately will notify the cabin crew and ground handling personnel involved in the refueling. Flight crew initiate the deplaning or the evacuation by commanding Cabin Crew via PA **"DEPLANE, DEPLANE"** for Deplaning or **"EVACUATE, EVACUATE"** for evacuation.
- Ground handling personnel or engineer involved in the refueling with passengers on board process aware of any external hazard arises when fueling operations shall be discontinued, shall notify the flight crew, who in turn shall notify the cabin crew.
- In case of a rapid deplaning or an emergency evacuation is required, cabin crew shall act as follows:

In case of a rapid deplaning is required, All Cabin Crew shall:

- Stop passenger boarding if boarding is in process.

- Order all passengers and ground staff using PA announcement in an orderly manner to leave personal items behind and disembark via doors connected with aerobridge or stairs as soon as possible.
- Assist with disembarkation.
- Check cabin and lavatories are clear in their designated areas.
- When cabin is clear, leave the aircraft.

8.2.1.2 Precautions with Mixed Fuels

8.2.1.2.1 Safety Precautions

The various types of jet engine fuels are miscible, in all proportions:

- the density varies proportional to the percentage of the mixture
- The flash point of the mixture vary in function of non-straight laws.

JET A, JET A1 JP8, TS1, RT and TH are kerosene type fuel.
JET B and JP4 are wide-cut gasoline type fuel with a low flash point which are not widely used. JP4 is used in military aviation but is being replaced by JP8 (kerosene type fuel) which provide more safety.
More stringent precautions must be observed when re-fuelling an aircraft with JET B or JP4 fuel where the fuel tanks already contain JET B or JP4 or a mixture of JET B / JP4 and JET A, JET A1 JP8, TS1, RT or TH.
A major consideration when mixing fuels at normal temperatures is the fuel air mixture that develops in the space above the fuel inside the tank. JP4 and JET B develop an ignitable fuel air mixture at frequently encountered ambient temperatures.
When JP4 or JET B and JET A1 are being mixed, the fuel vapor mixture with air is in the explosive or ignitable envelope throughout the range of ground temperatures common at the majority of airports during all or part of the year.
Wide-cut fuel is considered to be "involved" when it is being supplied or when it is already present in aircraft fuel tanks (when loading JET B or JP4 into an aircraft with JET A1 or other kerosene type already on board and vice versa).
When wide-cut fuel has been used, this should be recorded in the technical log. The next two uplifts of fuel should be treated as though they too involved the use of wide-cut fuel.
Over-wing re-fueling is not permitted when wide-cut fuels are involved.
When re-fueling/de-fueling with fuels not containing anti-static additive, and where wide-cut fuel are involved, top-up at fuel filling rates reduced by 50% of the normal filling rate.

8.2.1.2.2 Fuel Freezing Point Determination

The freezing point of a fuel mixture varies in function of non-straight laws. Therefore, the only reliable way to obtain an accurate freeze point of a mixture of fuels is to make an actual freeze point measurement.
When this is not possible, consider the freezing point of the mixture to be the same as the highest freezing point when the fuel type in lowest quantity reaches 10% of the mixture.
Determination of the fuel freezing point of fuel mixtures may be particularly a concern when operating transatlantic or transpacific routes and when very low OAT are expected as the aircraft will have to continuously cope with the mixture of JET A generally delivered in USA and JET A1 elsewhere.
On a practical point of view, in order to determine the fuel freezing point, apply the following:

- When the mixture contains less than 10% JET A, the fuel is considered as JET A1
- When the mixture contains more than 10% JET A, the fuel is considered as JET A

Mixing all the residual JET A with all the refuel JET A1 to achieve maximum dilution is not considered practical.
To practically achieve the best dilution, all the JET A should be placed in the inner wing tanks as these have the largest volume (by transfer of outer tanks JET A fuel into the inner tanks either during the previous flight or on ground before re-fueling).
Depending on the aircraft model, inner tanks will receive fuel from the centre tank early in the flight, further diluting the JET A.
Placing all the JET A into the inner wing tanks potentially enables a maximum dilution but does not guarantee that the mixture will be homogenous. In reality, due to the compartmental structure of the inner wing tank and the fact that the residual JET A fuel will start at the inboard end of the tank, the concentration of JET A will be greater near the tank's inboard end.
The poor dilution of the JET A in the inner wing tank and its concentration near the inboard end of the tank has a potentially positive consequence. This is because the fuel near the inboard end of the inner wing tank tends to be consumed first by the engines. Thus, the concentration of the remaining JET A fuel on board, later in flight, when low fuel temperatures might be encountered in the case of low OATs, will be less than at takeoff. This gives a higher confidence margin that low concentrations of JET an in JET A1 will have a freeze point similar to JET A1 and can thus be treated as JET A1 with respect to the cold fuel alert.
For in-flight fuel management of fuel freezing, refer to 8.3.7.2.

8.2.1.3 Refueling with One Engine Running

Re-fueling with one engine running is **not permitted** unless, authorized by the Manager Flight Operations.
Procedure for re-fueling with one engine running is given in FCOM "Loading" chapter.
This procedure may be used only if:

- No external ground pneumatic is available while APU is unserviceable.
- Airport authorization is obtained for this operation.
- Airport fire department stands by at the aircraft during the entire refueling procedure.
- One flight crewmember can manage the operation and monitor all systems and the engine running from the cockpit.
- A qualified ground crewmember is present at the fueling station.
- The re-fueling system is fully operational (over-wing filling is not permitted).

8.2.2 Aircraft, Passengers and Baggage Handling Procedures Related To Safety

8.2.2.1 Embarking, Disembarking Passengers

Before Embarking / Disembarking passengers, ground staff/flight crew must brief them on all relevant safety aspects (e.g. "No Smoking") to be observed whilst boarding/leaving the air-craft. When jet ways are in use, ground staff must be positioned at appropriate locations to provide supervision and assistance. When passengers are required to walk on the ramp they shall be escorted by ground staff to/from the aircraft or their approved transport. Passenger routes shall be clear of oil, ice, snow and other hazards and shall be selected in such a way as to prevent damage and accidents (e.g. no passing below wings or engines).
Boarding shall not commence until clearance has been given by the Pilot in Command or his representative.
Disembarkation shall not commence until the crew has received confirmation from the ground staff that passengers' steps/jet ways are safely in position and that ground equipment will not be a hazard.

For embarkation/disembarkation when refueling / de-fueling is in progress, refer to the relevant section.
Only in exceptional cases, and with the consent of the Pilot in Command, embarkation / disembarkation is permissible with any engine running. In this case, passengers shall be directed to leave/enter the aircraft on the side opposite to the running engine.
Before disembarking or embarking, cabin stair or Jet way and guard rail must be in position. The step between stair and aircraft should not be too high and the stair should be against the aircraft.
Remark: during refueling the weight of the aircraft increases and the shock absorbers settle down. In consequence the bottom of the door may touch the stair and may be damaged.

8.2.2.2 Seats Allocation

Refer to CCM 2.6 – Passengers Seat Allocation.
All persons on board aged 2 years or more must occupy a fixed seat fitted with a safety belt (or a berth fitted with a restraining belt). Seats layout must permit access to emergency evacuation doors and the assistance of the cabin crew.
Any infant (less than 2 years old) must be attended by an adult. This adult may hold the infant in his arms and the safety belt of this adult seat must not strap the infant but only the adult. A supplementary loop belt or other restraint device must be used for the infant.
The number of life vests and oxygen masks per seat row must not be less than the number of passengers of the seat row.
Any child (less than 12 years old) should be assisted by an adult seated near him.
One adult may assist a group of no more than twelve children. The adult attending children must be informed of safety instructions, the lay out of the emergency exits and of the use of the individual safety equipment. An adult may attend a group of children if he is not in charge during the flight of an infant less than 2 years old. This adult could be a flight attendant in addition of the minimum flight attendants' number and being not on safety duty during the flight.

If there are many infants booked on a flight, ensure that in every 4 rows, one side of a row equipped with 4 oxygen masks must be kept "infant-free" as cabin crew must be able to grab the nearest available oxygen mask (in the event of cabin depressurization)
Maximum Number of infants that can be carried onboard A-320 are 20 infants. Refer to CCM 2.26.4.1
Unaccompanied Minors (UM) are children at less than legal age traveling on their own, not being in custody of a person that has attained full legal age.
The prescribed seating of infants and Unaccompanied Minors (UM) and their maximum number, if any, are laid down in the Cabin crew manual (CCM 2.26.3.1).
When passengers are embarking required cabin crew must be on board able to give instruction about seat availability or allocation and hand baggage storage.
Cabin crew has to be informed by ground crew or flight crew about hazardous situation and must be able to manage emergency evacuation of passengers.
The number of passengers must be checked with the passenger manifest (list of passengers) established by the operations.
Before departure, a copy of the checked passenger manifest must be left to a ground agent and kept by Nesma Airlines.
In case a passenger is missing or disembarked for any reason, his checked baggage must be unloaded. If necessary all checked baggage should be unloaded and all passengers should be

disembarked and required to identify their baggage. The captain shall request airport security assistance should any unidentified baggage remain.
In case the number of passenger is higher than the number on the passenger manifest, a check of all passenger-boarding pass must be done.
At arrival copies of the checked passenger manifest must be available on board the aircraft to be given to the authorities (police, custom...).
An approved child restraint system on an extra seat booked by the passenger, bearing either a label showing approval of a foreign government or a label showing that the seat was manufactured under the standards of the United Nations for aircraft or automobile, may be used, provided the certificate holder complies with the following requirements:

1. The restraint system must be properly secured to an approved forward-facing seat or berth; and
2. The child must be properly secured in the restraint device and must not exceed the specified weight limit for the restraint device. However, an adult who is occupying a seat may hold an infant. In such case, and when oxygen dispensing units are prescribed, one unit each shall be installed and available for both the adult and the infant.

8.2.2.3 Exit Row Seating Assignments

Seats which permit direct access to emergency exits shall be assigned only to passengers who appear to be reasonably fit, strong and able to assist the rapid evacuation of the Aeroplan in an emergency after an appropriate briefing by the crew. In all cases, passengers who, because of their condition, might hinder other passengers during an evacuation or who might impede the crew in carrying out their duties, should not be allocated seats, which permit direct access to emergency exits.
The following categories of passengers are among those who should **not** be allocated to, or directed to seats, which permit direct access to emergency exits:

- Passengers suffering from obvious physical, or mental, handicap to the extent that they would have difficulty in moving quickly if asked to do so;
- Passengers who are either substantially blind or substantially deaf to the extent that they might not readily assimilate printed or verbal instructions given;
- Passengers who because of age or sickness are so frail that they have difficulty in moving quickly;
- Passengers who are so obese that they would have difficulty in moving quickly or reaching and passing through the adjacent emergency exit;
- Children (whether accompanied or not) and infants;
- Deportees or prisoners in custody; and,
- Passengers with animals.

Note: “Direct access” means a seat from which a passenger can proceed directly to the exit without entering an aisle or passing around an obstruction.
In addition, designated exit row seat will not be assigned to passengers who are unwilling to assist in the event of an emergency.

8.2.2.4 Multiple Occupancy of Aircraft Seats

No seat must be occupied by more than one person, except for infants hold in the arms of an adult.

8.2.2.5 Sick Passengers and Persons with Reduced Mobility

The acceptance for transportation of sick, disabled and handicapped passengers is restricted in the interest of their own safety and that of other passengers. A person with reduced mobility (PRM) is understood to mean a person whose mobility is reduced by physical incapacity, (sensory or locomotors), an intellectual deficiency, age, illness or any other cause of disability when using transport, and whose situation requires special attention and the adaptation, to his needs, of the service made available to all passengers. Nesma Airlines therefore, is entitled to insist upon the production of a written report on fitness for travel, issued by a medical practitioner (MEDIF or Medical form).
For sick passengers using the oxygen equipment due to medical need, it's not permitted to be onboard Nesma Airlines flights.
The Pilot in Command must be informed about presence on board of any sick passenger or persons with reduced mobility. If deemed necessary, he may request a medical examination by a qualified physician.
The Pilot in Command should satisfy himself that the carriage of such passengers will not cause inconvenience or discomfort to other passengers and that emergency evacuation and safety during the flight will be guaranteed.
Sick and disabled passengers and PRMs should be boarded separately, (normally prior to all other passengers), as well as disembarked separately, (normally after all other passengers have left the cabin). The Pilot in Command shall be notified by "Special Categories of Passenger Notification" form, when handicapped passengers and PRMs are to be carried on board and shall brief his crew accordingly. Information on passengers requiring any assistance at transit or destination airports, must be forwarded by telex, telefax or phone to the ground staff or handling agent at the respective down line stations(s).
Under no circumstances will transportation be provided to a person who:

- Has a contagious/infectious disease, e.g. open tuberculosis, infectious hepatitis; scarlet fever, diphtheria, chicken pox etc.
- Pregnant woman after 32 weeks.
- Has suffered a heart attack or stroke within the last eight weeks
- Requires medical treatment by pneumatically or electrically operated apparatus which for specific reasons, is not allowed to be operated on board.

For the carriage of gas cylinders, drugs, medicines, other medical material, dry cell or lithium battery powered wheel chairs refer to Chapter 9
The following definitions constitute commonly agreed indications for the degree of immobility and extent of the assistance required for the journey:
Stretcher patients (STCR)
A passenger who can only be transported on a stretcher.
Stretcher patients are not permitted to be carried onboard Nesma Airlines flights, unless special contracts and/or Accountable Executive approval are presented.
Carriage of any stretcher patient is subject to the approval of the patient's physician and should be accompanied by an able-bodied adult attendant qualified to provide him required En-route care.
The stretcher must be secured to the aircraft. The patient must be secured by an adequate harness to the stretcher or aircraft.
Refer to CCM 2.26.1.7
Wheelchair passengers
Wheelchair Ramp (WCHR): A passenger who can walk up and down stairs and move about in an aircraft cabin, but who requires a wheelchair or other mechanical means for movement

between the aircraft and the terminal, in the terminal, and between arrival and departure points on the city side of the terminal.

Wheelchair Steps (WCHS): A passenger who cannot walk up or down stairs, but who can move about in a aircraft cabin and requires a wheelchair to move between the aircraft and the terminal, in the terminal, and between arrival and departure points on the city side of the terminal.

Wheelchair Cabin (WCHC): A passenger who is completely immobile, who can move about only with the help of a wheelchair or other mechanical means and who requires assistance at all times from arrival at the airport to seating in the aircraft, the process being inverted at arrival.

Acceptance restrictions:

WCHR, WCHS no restrictions on the number of passengers per flight.

The maximum number of individual **WCHC** passengers (i.e. not in group) that can be accepted is **two (2)**.

WCHC passengers traveling individually don't need to be accompanied unless required for medical reasons.

WCHC passengers should be seated near an exit but must **not** be allocated to, or directed to seats which permit direct access to emergency exits.

Note: "Direct access" means a seat from which a passenger can proceed directly to the exit without entering an aisle or passing around an obstruction.

WCHC, WCHS should be boarded separately, (normally prior to all other passengers), as well as disembarked separately, (normally after all other passengers have left the cabin).

It is therefore essential that, at the time of booking, the precise condition of the passenger is ascertained and the correct code is established. It is not acceptable to simply enter WCH or WCHR when in fact passenger is unable to walk at all and hence should be classified as WCHC.

In case WCHC passengers are traveling in an organized group, the Tour operator must inform Nesma Airlines in advance and a case-by-case study by the Flight Operations Department must be conducted.

The prescribed seating of WCHC passengers traveling in-group and their maximum number will be than determined.

Refer to the Cabin Crew Manual (CCM 2.26.1.6).

Blind, Deaf and Dumb Passenger

Refer to the Cabin Crew Manual (CCM 2.26.1.8).

Expectant Mothers

An expectant mother is a passenger who is expecting the birth of a child. Expectant mothers are normally not regarded as incapacitated. However certain restrictions apply, which are given below:

Up to 28 weeks of Pregnancy:

Passenger may be accepted for travel provided that they have completed the Expectant Pregnancy Declaration Form (CCM 11.2.8).

From 29th to 36th week of Pregnancy:

Passenger may be accepted for travel provided that they have:

a) Completed the Expectant Mother Pregnancy Declaration Form, and.
b) Is in possession of a "Fit for Air Travel" medical certificate. This certificate shall be signed by a Doctor and issued within 24 Hours before commencement of travel

After 36th week of Pregnancy (Ninth month):

Passenger with normal pregnancies and **"no previous history of premature labor"** can travel up to and including the 36th week. After that time pregnant women can be travel under the following conditions:

- Medical certificate by the treating physician that there is no sign of imminent delivery and confirmation about the expected delivery date.
- Is in possession of a "Fit for Air Travel" medical certificate. This certificate shall be signed by a Doctor and issued within 24 Hours before commencement of travel
- Completed the Expectant Mother Pregnancy Declaration Form,

Note:
Air travel is not accepted in Nesma Airlines for women within the last seven days prior to delivery and within the first seven days after delivery.
Serious passenger illness, injury or death in flight (ECAR 121.715)
Any action must be taken in case of serious illness, injury or death in flight, to avoid contagion for the other persons on board.
The ill person should be isolated for the comfort and the safety of the ill person and of the other passengers.
If the ill person is on board, first aid must be given by flight attendants or competent passengers.
It is the Pilot in Command responsibility to decide if an immediate landing is to be made.
Such a situation can be considered as an "Emergency".
In the event of a death in flight the Pilot In Command must advise the relevant ground authorities, through ATC, of the State's airspace in which the death occurred and also the destination State's authorities, if different, when entering their airspace.
Each medical emergency occurring during flight time resulting in use of the emergency medical kit, a diversion of the aircraft, or death of a passenger or crewmember, shall be recorded by a report. This report shall include a description of how the medical kit was used, by whom, and the outcome of the medical emergency.
The Pilot in Command must complete a report, which records the name of the deceased person, nationality, the time of the death, location and registration of the aircraft. One copy of this report is to be given to ground authorities at destination and another to the director of the flight operations. Nesma Airlines consequently shall submit these reports, or a summary thereof, to its assigned ECAA operations inspector within 30 days after the medical emergency date.

8.2.2.6 Transport of Inadmissible Passengers, Deportees or Persons in Custody

"Inadmissible Passengers" (INADs) are passengers who are refused admission to a country by authorities of such country, e.g. due to lack of a visa, expired passport, lack of funds or other reasons.
"Deportees" (DEPU - Unaccompanied or DEPA - Accompanied) are foreign persons who had legally been admitted to a country or who had entered a country illegally, and who at some later time are formally ordered by the authorities to be removed from that country for whatever reason.
Nesma Airlines has the right to refuse the transportation of such passengers if their carriage poses risk to the safety of the aircraft or its occupants.
At all time, it is the prerogative of the Pilot In Command to refuse to carry any inadmissible passenger, deportee or person in custody or to impose any additional restrictions as considered necessary.
Refer to CCM 2.26.2.2
Handling Procedures
Refer to Chapter 10 Security

8.2.2.7 Disorderly Passengers

Disorderly passengers should not be accepted on board at the discretion of the Pilot in Command (Refer to 10.1.11. Unruly Passengers)

8.2.2.8 Hand Baggage

Cabin baggage will normally be restricted to handbags, briefcases, coats and other items that can be reasonably stowed in approved stowage, unless the carriage in the cabin of other items has been cleared with the company at the time of booking.
The size and the placarded weight limitation of the overhead stowage depend on the aircraft type. This determines the weight and size limitations of hand baggage for a given cabin configuration:

- Each item carried in the cabin must be stowed and restrained in an approved stowage.
- Baggage placed in lockers must not be of a size such that they prevent latched doors from being securely closed.
- Hand baggage heavier than 5 kg (Maximum allowable is 7 kg) must be stored in overhead stowage, or under seats.
- Under seat stowage must not be used unless the seat is equipped with a restraint bar and the baggage is of such size that it may adequately be restrained by this equipment and not obstruct exit from the seat row.
- Hand baggage must not impede access to emergency exits or emergency equipment e.g. life vests.

When boarding is in progress ground staff and crewmembers shall visually scan the hand baggage held by passengers, and, when any baggage exceeds the allowance, politely relieve the passenger of the baggage so that it can be stowed in a baggage/cargo hold.
Checks to ensure that baggage is correctly stowed must be made before take-off and before landing and when fasten seat belts signs are illuminated.

8.2.2.9. Loading and Securing the Items in the Aircraft

Nesma Airlines is not authorized to transport cargo and/or mail.
SPECIAL LOADS AND CLASSIFICATION OF LOAD COMPARTMENTS
Nesma Airlines does not accept to transport any kind of the special loads such as the following but not limited to:

a) Wet Cargo
b) Live Animals
c) Perishable Cargo
d) Human Remains

Live animals are not accepted to be loaded into passenger cabin except pets (dog, cat and eagle) according to the following requirements:

- The pet shall be accompanied by the passenger.
- The pet shall be kept in a cage.
- The pet shall have a seat.
- The pet shall be fastened by strap as applicable.

Note: See Eye Dogs is not accepted on board Nesma Airlines air crafts.
Classification of Load Compartments
Classification of load compartments is given in the Weight and Balance Manual of the aircraft and to the IATA "Airport Handling Manual".
Nesma Airlines aircraft cargo holds are designated as follows:
Category C for A320
Refer to relevant Load and Balance Manual for more information.
The cargo compartments are classified as follows:

1. **Class A**: A Class A cargo or baggage compartment is one in which:

a) The presence of a fire would be easily discovered by a crewmember while at his station; and

b) Each part of the compartment is easily accessible in flight.
2. **Class B**: A Class B cargo or baggage compartment is one in which:
a) There is sufficient access in flight to enable a crewmember to effectively reach any part of the compartment with the contents of a hand held fire extinguisher;
b) No hazardous quantity of smoke, flames or extinguishing agent will enter any compartment occupied by the crew or passengers when the compartment is accessed for firefighting; and
c) There is a separate approved smoke detector or fire detector system to give warning to the Pilot or flight engineer station.
3. **Class C**: A Class C cargo or baggage compartment is one not meeting the requirements for either a Class A or B compartment but in which:
a) There is a separate approved smoke detector or fire detector system to give warning at the Pilot or flight engineer station;
b) There is an approved built-in fire-extinguishing system controllable from the Pilot or flight engineer stations;
c) It is possible to exclude hazardous quantifies of smoke, flames, or extinguishing agent from any compartment occupied by the crew of passengers; and
d) It is possible to control ventilation and draughts within the compartment so that the extinguishing agent used can control any fire that may start within the compartment.
4. **Class D**: A Class D cargo or baggage compartment is one in which :
a) A fire occurring in it will be completely confined without endangering the safety of the aircraft or the occupants;
b) It is possible to exclude hazardous quantities of smoke, flames or other noxious gases, from any compartment occupied by the crew or passengers;
c) Ventilation and draughts are controlled within each compartment so that any fire likely to occur in the compartment will not progress beyond safe limits;
d) Consideration is given to the effect of heat within the compartment on adjacent critical parts of the aircraft.
e) The compartment volume does not exceed 1000 cubic ft. For compartments of 500 cubic ft. or less, an airflow rate of 1500 cubic ft per hour is acceptable.
5. **Class E**: A Class E cargo compartment is one on aircraft used only for the carriage of cargo and in which:
a) There is a separate approved smoke detector or fire detector System to give warning at the Pilot or flight engineer station;
b) It is possible for the crew to shut OFF the ventilating airflow to, or within, the compartment;
c) It is possible to exclude hazardous quantifies of smoke, flames, or noxious gases from the flight-crew compartment; and
d) The crew emergency exits are accessible under any cargo loading condition.

Some dangerous goods are not permitted in the cabin (Refer to Chapter 9 - Dangerous goods)

8.2.2.10 Positioning of Ground Equipment

Positioning of ground equipment for servicing is indicated in the relevant FCOM and in the CCM for each aircraft type.

The following rules shall be adhered for the Positioning of Ground Equipment":

- Ground Servicing Equipment (GSE) used to service QR aircraft shall only be operated by well-trained / licensed personnel.
- Ground Servicing Equipment must be of a construction and condition that is suitable and safe for the use for Nesma Airlines aircraft.

- Ground Servicing Equipment must not approach aircraft until the engines have come to a complete stop, anti-collision light switched off and the parking brake of the aircraft is set or the chocks are positioned respectively.
- Nesma Airlines must maintain a reasonable distance between the aircraft and G.SE, in order to avoid damage caused by vertical movements of the fuselage during loading, unloading and fueling.
- The maneuvering of equipment in the vicinity of aircraft must take place with utmost care and accuracy. If the equipment is parked in the vicinity of the aircraft, it must be secured against movement either by parking brakes of chocks.
- Hose lines and connecting cables must neither be crossed by Ground Servicing Equipment nor by any other kind of vehicle.
- Ground Servicing Equipment, excluding fuel trucks or hydrants, must not be positioned or maneuvered under the aircraft wings.
- Ground Servicing Equipment, excluding fuel trucks or fuel hydrants, must not be positioned within the venting areas during fueling and de-fueling (Refer to 8.2 Fueling Procedures).
- During start-up and after removing stairs or jet-ways, no Ground Servicing Equipment shall be positioned in the area below the emergency exit doors so that the emergency exit chutes can be deployed immediately.
- Exception: When starting the engines by means of air start units (ASU), a momentary blocking of a maximum of one emergency exit by the ASU is permitted. In this case a reduction of the maximum permissible number of passengers is not required.
- Aircraft and passengers have the right-of-way. Equipment should never move across the path of taxiing aircraft.
- Personnel shall not ride on elevating platforms of moving ground equipment.

8.2.2.11 Operation of Aircraft Doors

Operation of Cabin Doors
Before start-up or push-back, once all doors are closed and the area below the doors is clear, a cockpit crew, or the senior cabin attendant should request, through the aircraft PA, flight attendants to arm doors and cross-check (the opposite door).
Opening the doors must not be without the allowance of the Pilot in Command. Before opening the doors, no cabin differential pressure should exist. Some doors on some aircraft are fitted with a cabin differential pressure indicator and / or a warning.
All passenger and service doors may only be opened by staff trained to open doors or crewmembers.
Passenger jet-ways / steps or servicing equipment (e.g. catering trucks) shall be positioned at the aircraft prior to opening the respective doors. If passenger jet-ways / steps or servicing equipment's are used, which do not permit opening of the doors after positioning the equipment, the respective doors may only be opened immediately prior to the positioning of the equipment at the aircraft; the door safety strap must be attached in this case.
Before passengers are allowed to disembark, a clearance must be given for the respective passenger jet-ways or steps.
Passenger jet-ways / steps or servicing equipment (e.g. catering trucks) shall be removed from the aircraft only after the responsible ground handling staff has informed the respective crewmember responsible for the cabin door concerned and the door has been dosed. If passenger jet-ways / steps or servicing equipment are used, which do not permit closing of

doors prior to the removal of the equipment, the respective doors must be secured with door safety strap and must be closed immediately after the equipment has been removed from the aircraft.
When escape slide deployment is not required, cabin doors must be disarmed before opening. Opening a door or emergency exit from the outside automatically deactivates the escape slide / raft, if armed.
Should the slide / raft, at this door location, be used for evacuation, the door must be first closed and the escape slide / raft re-armed and the door opened from inside.
Operation of Compartment Doors
Opening and closing of electrically / hydraulically operated lower compartment doors may only be performed by loading staff which have been instructed by training staff, authorized to instruct on the respective aircraft type.
For all other compartment doors no special instruction is necessary for opening or closing.
After the compartment doors are opened, make sure that the door net are not hanging out of the door opening.
In all cases it is the duty of the person conducting the Final walk around check to make sure that compartment doors are closed and locked properly after loading has been completed.
The AFM specifies maximum wind speeds for door operation. If difficulties occur when attempting to close doors in strong winds, the aircraft shall be moved in order to position the doors concerned on the downwind side

8.2.2.12 Safety on the Ramp

In addition to any local airport safety regulations, the following rules must be strictly adhered to for handling of Nesma Airlines aircraft:

- No unauthorized person shall be in the vicinity of or enter a Nesma Airlines aircraft
- Smoking and the use of open fire on the ramp are strictly forbidden
- Prior to arrival of the aircraft the ramp position has to be checked and cleared of any foreign objects in order to avoid damage to the aircraft.
- When passengers are required to walk on the ramp they shall be escorted by ground staff to and from aircraft. Passengers routes, as well as passenger stairs shall be clear of oil, ice, snow and other hazards and shall be selected in such a way that the risk of accidents is kept to a minimum (for example no passing below wings or engines),
- The responsible Engineer in charge or Ramp Agent must make sure that the engine blast and intake areas are clear of personnel and equipment before start-up clearance is given.

Nesma Airlines personnel shall wear high visibility clothing while on the ramp.

8.2.2.12.1 Engines Blast and Suction Areas

Normally engines are not running when passengers are embarking or disembarking.
However, if one engine is running, keep preferably a right-hand engine running for convenience of disembarkation and boarding of passengers. The way for embarking or disembarking passengers should avoid blast and suction areas. These danger areas are defined in FCOM - Standard Operating Procedures (SOP) chapter.

8.2.2.12.2 Fire Prevention

8.2.2.12.2.1 Protective Clothes / Protective Breathing Equipment

Hydraulic fluid leakage under high pressure (3000 psi) may result in serious injury and contamination. The use of protective clothes and protective breathing equipment is recommended whenever fighting an aircraft emergency.
Carbon fibers and other composite materials used in airframe structure and cabin furniture require the use of a protective breathing equipment whenever fighting any aircraft fire

8.2.2.12.2.2 Brakes Overheat / Fire

In case of smoke, protective breathing equipment should be wearing since the dense smoke generated by tire rubber results in major and irreversible lung damage.
Carbon brakes and steel brakes are to be treated using same techniques and agents.
In case of severe brake overheat, fuse plugs melting should result in tires deflating and should prevent tires and wheels burst. (Refer to AMM)

- If a tire is inflated, do not go near the area around the wheel for about one hour. When you do go near, go from the front or rear and not from the side of the wheel.
- Unless there is a fire, do not apply the extinguishing agent (liquid, water, mist, foam etc.) with a spray gun onto a hot tire if it is inflated.

Do not apply the extinguishing agent directly into the heat pack of the brake or into the wheel. This can cause thermal shock to the stressed parts. Especially,
Do not use CO2 as this has a strong cooling effect which is not the same in all areas. It can cause an explosion in the stressed parts.
Extinguishing on hot wheels can:

- increase the time necessary for the fuse(s) to melt, or
- Prevent operation of the fuse(s).

You must let the brake get cool by itself for at least one hour and use the cooling fans (if installed).
Note: You can use blowers or air conditioning equipment only after:

- the temperature of the fuses decreases (more than one hour after the aircraft stops) or
- The fuses are melted.

You must not use these if you can see flames or burning ambers.

- In the event of fire, immediately stop the fire. Do not wait until the tires are deflated. Come near the wheel only from the front or from the rear.

Note: It is not recommended to use multi-purpose powders as they may be changed into solid or enameled deposit. These agents stop the fire but they decrease the heat dissipation speed. This can cause permanent structural damages at the brake, the wheel or wheel axle.

- Do not apply the parking brake.
- Put a warning notice in the cockpit to tell persons not to operate the landing gear control lever.
- Put the wheel chocks in position
- Clean all the parts if extinguishing agents were used.

8.2.2.12.2.3 Cargo Compartment Fire

The appropriate flight crew procedures are given in FCOM - Emergency procedures. If case cargo compartment smoke warning occurred with cargo door closed, the ground crew should be informed not to open the door of the affected cargo compartment unless passengers have disembarked and fire services are present.

If the smoke warning is displayed on ground with cargo compartment door open, the aircraft extinguishing agent should not be discharged. Ground crew should be requested to investigate and to fight the smoke source.
Multi-purpose or specific foam or type B or type C powder or water, as a function of the burning cargo material (as known) should be used. If foam is used first, do not use powder afterwards. If powder is used first, foam may be used in addition, if required.

8.2.2.12.2.4 Engine or APU Compartment Fire

The appropriate flight crew procedures are given in FCOM - Emergency procedures.
If fire persists, ground firefighting using a Halon or CO2 spray gun is possible through the following external access:

- Engines: Oil tank, IDG and other service panels,
- APU: access panels

8.2.2.12.2.5 Engine Tailpipe Fire

The engine tailpipe fire being an internal engine fire, do not discharge the engine fire extinguishing agent. The agent has an effect on the nacelle fire only.
The appropriate flight crew procedure is given in FCOM - Abnormal procedures.
Engine motoring by the flight crew is the normal and most effective action.
External fire agents can cause severe corrosive damage and therefore should only be considered if fire persists after flight crew procedure application or if no bleed air source is available to motor the engine.
In such a case, Halon or CO2 should be sprayed in engine exhaust nozzle.

8.2.2.13 Start-Up, Ramp Departure and Arrival Procedures

All start-up, ramp departure and arrival procedures shall be applied as per aircraft type Standard Operating Procedures given in the FCOM.
Ground marshals and pilots should use hand signals defined in ICAO rules of the air - annex 2 and in the "Rules of the Air" and "Signals for Aerodrome Traffic" Chapters in the Jeppesen Manual, section "AIR TRAFFIC CONTROL".
Engine start clearance shall only be given after the staff member in charge has ascertained that the security zones around the suction and blast areas are clear.
The ground to Flight Crew communication shall normally be performed by means of a headset; or, if that is impossible, by hand signals.
Normally, engine starting during pushback and towing is permitted.

8.2.2.14 Servicing of the Aircraft

Refer to chapter 12 "Servicing" of the Aircraft Maintenance Manual" (AMM) of the aircraft.

- Oxygen

The following safety provisions shall be observed when oxygen bottles of the aircraft are being filled or exchanged:

- No passenger shall be on board
- No ground power unit shall be connected or disconnected
- The relevant FCOM specify regarding which electrical systems shall be "OFF" or, alternatively, not operating shall be followed;
- No fueling/de-fueling is permitted;
- Filling/exchanging is not permitted during a thunderstorm.

- Cleaning of Cabin

Cleaning should have been finished, and cleaning personnel should have left the aircraft before passenger embarkation. If passengers stay on board during transit, cabin cleaning should be performed in such a way as not to disturb the passengers.
The Flight Crew may only be cleaned under supervision of an authorized employee of Nesma Airlines.

8.2.2.15 Documents and Forms for Aircraft Handling

Refer to IATA "Airport Handling Manual".

8.2.3 Procedure for the Refusal of Embarkation

The Pilot in Command can refuse to carry or to off-load at any aerodrome any person if, in his opinion, the conduct, status, age or mental or physical condition of the person is such as to:

- Such action is necessary in the interest of safety of the aircraft or its occupants - Render him incapable of caring for himself without special assistance of cabin crew.
- Cause discomfort or make himself objectionable to other passengers.
- Involve any hazard or risk to himself or to other persons, to property or to the aircraft such action is necessary to prevent violation of laws, regulations or decrees of any country to be flown from, into or over - He fails to observe instructions of the crew.

Such persons could include those who are obviously under the influence of alcohol or drugs. However this does not apply to persons under the influence of drugs who are subject to such condition following emergency medical treatment after commencement of the flight, nor to persons under medical care accompanied by personnel trained for that purpose.
Note: Cabin crew shall be discreet in serving alcoholic beverages to passengers. No alcoholic beverages shall be served to passengers who appear to be on the verge of intoxication, or to inadmissible/deported passengers or their escorts.
No person shall be allowed to drink any alcoholic beverage unless a member of staff has served it to him.
Whenever it becomes necessary to remove a passenger from an aircraft, the flight crew shall inform the local company representative or the handling staff who, in turn, shall take the necessary actions, considering assistance of local law enforcement officers.
Passengers who have been refused embarkation or who has been disembarked are left with the airport authorities.
Responsibilities of persons other than the Pilot in Command
In order to assist the Pilot in Command in the proper exercise of his authority, all company personnel engaged in passenger handling and loading, including other crewmembers, handling agents and check-in personnel, should alert the Pilot in Command if at any time they consider that the condition of a passenger could jeopardize the safety of a flight.

8.2.4 De-Icing and Anti-Icing on the Ground

8.2.4.1 Glossary / Definitions

The terms more specific to this section are defined here.
Anti-icing is a precautionary procedure, which provides protection against the formation of frost or ice and the accumulation of snow on treated surfaces of the aircraft, for a limited period of time (holdover time).
Anti-icing code describes the quality of the treatment the aircraft has received and provides information for determining the holdover time.
Check is an examination of an item against a relevant standard by a trained and qualified person.
Clear ice is a coating of ice, generally clear and smooth, but with some air pockets. It is formed on exposed objects at temperatures below, or slightly above, freezing temperature, with the freezing of super-cooled drizzle, droplets or raindrops. See also "cold soak".
Cold soak: Even in ambient temperature between -2°C and at least +15°C, ice or frost can form in the presence of visible moisture or high humidity if the aircraft structure remains at 0°C or below. Anytime precipitation falls on a cold-soaked aircraft, while on the ground, clear icing may occur. This is most likely to occur on aircraft with integral fuel tanks, after a long flight at high altitude. Clear ice is very difficult to visually detect and may break loose during or after takeoff. The following can have an effect on cold soaked wings:
Temperature of fuel in fuel cells, type and location of fuel cells, length of time at high altitude flights, quantity of fuel in fuel cells, temperature of refueled fuel and time since refueling.
Contaminated runway: A runway is considered to be contaminated when more than 25% of the runway surface area (whether in isolated areas or not) within the required length and width being used is covered by the following:

- Surface water more than 3 mm (0.125 in) deep, or slush, or loose snow, equivalent to more than 3 mm (0.125 in) of water; or
- Snow which has been compressed into a solid mass which resists further compression and will hold together or break into lumps if picked up (compacted snow); or - Ice, including wet ice

Damp runway: A runway is considered damp when the surface is not dry, but when the moisture on it does not give it a shiny appearance.
De-icing is a procedure by which frost, ice, slush or snow is removed from the aircraft in order to provide clean surfaces. This may be accomplished by mechanical methods, pneumatic methods, or the use of heated fluids.
De/Anti-icing is a combination of the two procedures, de-icing and anti-icing, performed in one or two steps.
A de-/anti-icing fluid, applied prior to the onset of freezing conditions, protects against the buildup of frozen deposits for a certain period of time, depending on the fluid used and the intensity of precipitation. With continuing precipitation, holdover time will eventually run out and deposits will start to build up on exposed surfaces. However, the fluid film present will minimize the likelihood of these frozen deposits bonding to the structure, making subsequent de-icing much easier.
Dew point is the temperature at which water vapor starts to condense.
Dry runway: A dry runway is one which is neither we nor contaminated, and includes those paved runways which have been specially prepared with grooves or porous pavement and maintained to retain “effectively dry” braking action, even when moisture is present.
Fluids (de-icing and anti-icing)

- De-icing fluids are:

a) Heated water
b) Newtonian fluid (ISO or SAE or AEA Type I in accordance with ISO 11075 specification)
c) Mixtures of water and Type I fluid
d) Non-Newtonian fluid (ISO or SAE or AEA Type II or IV in accordance with ISO 11078 specification)
e) Mixtures of water and Type II or IV fluid

De-icing fluid is normally applied heated to ensure maximum efficiency

- Anti-icing fluids are:

a) Newtonian fluid (ISO or SAE or AEA Type I in accordance with ISO 11075 specification)
b) Mixtures of water and Type I fluid
c) Non-Newtonian fluid (ISO or SAE or AEA Type II or IV in accordance with ISO 11078 specification)
d) Mixtures of water and Type II or IV fluid

Anti-icing fluid is normally applied unheated on clean aircraft surfaces.

Freezing conditions are conditions in which the outside air temperature is below +3°C (37.4F) and visible moisture in any form (such as fog with visibility below 1.5 km, rain, snow, sleet or ice crystals) or standing water, slush, ice or snow is present on the runway.

Freezing fog (Meter code: FZFG) is a suspension of numerous tiny super cooled water droplets which freeze upon impact with ground or other exposed objects, generally reducing the horizontal visibility at the earth's

Surface to less than 1 km (5/8 mile).

Freezing drizzle (meter code: FZDZ) is a fairly uniform precipitation composed exclusively of fine drops - diameter less than 0.5 mm (0.02 inch) - very close together which freeze upon impact with the ground or other objects.

Freezing rain (meter code: FZRA) is a precipitation of liquid water particles which freezes upon impact with the ground or other exposed objects, either in the form of drops of more than 0.5 mm (0.02 inch) diameter or smaller drops which, in contrast to drizzle, are widely separated.

Friction coefficient: Relationship between the friction force acting on the wheel and the normal force on the wheel. The normal force depends on the weight of the aircraft and the lift of the wings.

Frost is a deposit of ice crystals that form from ice-saturated air at temperatures below 0°C (32°F) by direct sublimation on the ground or other exposed objects. **Hoar frost** (a rough white deposit of crystalline appearance formed at temperatures below freezing point) usually occurs on exposed surfaces on a cold and cloudless night. It frequently melts after sunrise; if it does not, an approved de-icing fluid should be applied in sufficient quantities to remove the deposit. Generally, hoar frost cannot be cleared by brushing alone.

Thin hoar frost is a uniform white deposit of fine crystalline texture, which is thin enough to distinguish surface features underneath, such as paint lines, markings, or lettering.

Glaze ice or rain ice is a smooth coating of clear ice formed when the temperature is below freezing and freezing rain contacts a solid surface. It can only be removed by de-icing fluid; hard or sharp tools should not be used to scrape or chip the ice off as this can result in damage to the aircraft.

Grooved runway: see dry runway.

Hail (Meter code: GR) is a precipitation of small balls or pieces of ice, with a diameter ranging from 5 to 50 mm (0.2 to 2.0 inches), falling either separately or agglomerated.

Holdover time is the estimated time anti-icing fluid will prevent the formation of frost or ice and the accumulation of snow on the protected surfaces of an aircraft, under (average) weather conditions mentioned in the guidelines for holdover time.
The ISO/SAE specification states that the start of the holdover time is from the beginning of the anti-icing treatment.
Ice Pellets (Meter code PE) is a precipitation of transparent (sleet or grains of ice) or translucent (small hail) pellets of ice, which are spherical or irregular, and which have a diameter of 5 mm (0.2 inch) or less. The pellets of ice usually bounce when hitting hard ground.
Icing conditions may be expected when the OAT (on the ground and for takeoff) or when TAT (in flight) is at or below 10°C, and there is visible moisture in the air (such as clouds, fog with low visibility of one mile or less, rain, snow, sleet, ice crystals) or standing water, slush, ice or snow is present on the taxiways or runways. (AFM definition)
Icy runway: A runway is considered icy when its friction coefficient is 0.05 or below.
Light freezing rain is a precipitation of liquid water particles which freezes upon impact with exposed objects, in the form of drops of more than 0.5 mm (0.02 inch) which, in contrast to drizzle, are widely separated.
Measured intensity of liquid water particles are up to 2.5mm/hour (0.10 inch/hour) or 25 grams/dm2/hour with a maximum of 2.5 mm (0.10 inch) in 6 minutes.
Non-Newtonian fluids have characteristics that are dependent upon an applied force. In this instance it is the viscosity of Type II and IV fluids which reduces with increasing shear force. The viscosity of Newtonian fluids depends on temperature only.
One step de-/anti-icing is carried out with an anti-icing fluid, typically heated. The fluid used to de-ice the aircraft remains on aircraft surfaces to provide limited anti-ice capability.
Precipitation: Liquid or frozen water that falls from clouds as rain, drizzle, snow, hail, or sleet.

- Continuous: Intensity changes gradually, if at all.
- Intermittent: Intensity changes gradually, if at all, but precipitation stops and starts at least once within the hour preceding the observation.

Precipitation intensity is an indication of the amount of precipitation falling at the time of observation. It is expressed as light, moderate or heavy. Each intensity is defined with respect to the type of precipitation occurring, based either on rate of fall for rain and ice pellets or visibility for snow and drizzle. The rate of fall criteria is based on time and does not accurately describe the intensity at the time of observation.
Rain (meter code: RA) is a precipitation of liquid water particles either in the form of drops of more than 0.5 mm (0.02 inch) diameter or of smaller widely scattered drops.
Rime (a rough white covering of ice deposited from fog at temperature below freezing). As the fog usually consists of super-cooled water drops, which only solidify on contact with a solid object, rime may form only on the windward side or edges and not on the surfaces. It can generally be removed by brushing, but when surfaces, as well as edges, are covered it will be necessary to use an approved de-icing fluid.
Saturation is the maximum amount of water vapor allowable in the air. It is about 0.5 g/m3 at - 30°C and 5 g/m3 at 0°C for moderate altitudes.
Shear force is a force applied laterally on an anti-icing fluid. When applied to a Type II or IV fluid, the shear force will reduce the viscosity of the fluid; when the shear force is no longer applied, the anti-icing fluid should recover its viscosity. For instance, shear forces are applied whenever the fluid is pumped, forced through an orifice or when subjected to airflow. If excessive shear force is applied, the thickener system could be permanently degraded and the anti-icing fluid viscosity may not recover and may be at an unacceptable level.

SIGMET is information issued by a meteorological watch office concerning the occurrence, or expected occurrence, of specified en-route weather phenomena, which may affect the safety of aircraft operations.
Sleet is a precipitation in the form of a mixture of rain and snow. For operation in light sleet treat as light freezing rain.
Slush is water saturated with snow, which spatters when stepping firmly on it. It is encountered at temperature around 5°C.
Snow (meter code SN): Precipitation of ice crystals, most of which are branched, star-shaped, or mixed with unbranched crystals. At temperatures higher than about -5°C (23°F), the crystals are generally agglomerated into snowflakes.
Dry snow: Snow which can be blown if loose or, if compacted by hand, will fall apart upon release; specific gravity: up to but not including 0.35.
Dry snow is normally experienced when temperature is below freezing and can be brushed off easily from the aircraft.
Wet snow: Snow which, if compacted by hand, will stick together and tend to or form a snowball. Specific gravity: 0.35 up to but not including 0.5.
Wet snow is normally experienced when temperature is above freezing and is more difficult to remove from the aircraft structure than dry snow being sufficiently wet to adhere.
Compacted snow: Snow which has been compressed into a solid mass that resists further compression and will hold together or break up into chunks if picked up. Specific gravity: 0.5 and over.
Snow grains (meter code: SG) is a precipitation of very small white and opaque grains of ice. These grains are fairly flat or elongated. Their diameter is less than 1 mm (0.04 inch). When the grains hit hard ground, they do not bounce or shatter.
Snow pellets (meter code: GS) is a precipitation of white and opaque grains of ice. These grains are spherical or sometimes conical. Their diameter is about 2 to 5 mm (0.1 to 0.2 inch). Grains are brittle, easily crushed; they bounce and break on hard ground.
Super cooled water droplets are a condition where water remains liquid at negative Celsius temperature. Super cooled drops and droplets are unstable and freeze upon impact.
Two-step de-icing/anti-icing consists of two distinct steps. The first step (de-icing) is followed by the second step (anti-icing) as a separate fluid application. After de-icing a separate overspray of anti-icing fluid is applied to protect the relevant surfaces, thus providing maximum possible anti-ice capability.
Visible moisture: Fog, rain, snow, sleet, high humidity (condensation on surfaces), ice crystals or when taxiways and/or runways are contaminated by water, slush or snow.
Visual meteorological conditions: Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling, equal to or better than specified minima.
Wet runway: A runway is considered wet when the runway surface is covered with water, or equivalent, less than or equal to 3 mm or when there is sufficient moisture on the runway surface to cause it to appear reflective, but without significant areas of standing water.

8.2.4.2. De-/Anti-Icing Awareness - The Basic Requirements

Responsibility

The person technically releasing the aircraft is responsible for the performance and verification of the results of the treatment. The responsibility of accepting the performed treatment lies, however, with the pilot in command. The transfer of responsibility takes place at the moment the aircraft starts moving under its own power.

Necessity

Icing conditions on ground can be expected when air temperatures approach or fall below freezing and when moisture or ice occurs in the form of either precipitation or condensation.

Aircraft-related circumstances could also result in ice accretion when humid air at temperatures above freezing comes in contact with cold structure.
Checks
Have you enough information and adequate knowledge in order to dispatch.

8.2.4.3 De-/Anti-Icing Aircraft on the Ground: "When, Why and How"

8.2.4.3.1 Communication

To get the highest possible visibility concerning de-/anti-icing, a good level of communication between ground and flight crews is necessary.
Any observations or points significant to the flight or ground crew should be reported between them.
These observations may concern the weather or aircraft-related circumstances or other factors important for the dispatch of the aircraft.
Several incidents have shown that increased awareness of one part of the flight/ground crew team could have avoided a critical situation.
The minimum requirements of communication must comprise the details of when the aircraft was de-iced and the quality of treatment (type of fluid).
This is summarized by the anti-icing code.
Remember: Uncertainty should not be resolved by transferring responsibility. The only satisfactory answer is clear communication.

8.2.4.3.2 Conditions Which Cause Aircraft Icing

- Weather-related conditions

Weather conditions dictate the "when" of the "when, why and how" of aircraft de-/anti-icing on the ground.
Icing conditions on the ground can be expected when air temperatures fall below freezing and when moisture or ice occurs in the form of either precipitation or condensation. Precipitation may be rain, sleet or snow. Frost can occur due to the condensation of fog or mist.
To these weather conditions must be added further phenomena that can also result in aircraft ice accretion on the ground.

- Aircraft-related conditions

The concept of icing is commonly associated only with exposure to inclement weather. However, even if the OAT is above freezing point, ice or frost can form if the aircraft structure is below 0° C (32° F) and moisture or relatively high humidity is present.
With rain or drizzle falling on sub-zero structure, a clear ice layer can form on the wing upper surfaces when the aircraft is on the ground. In most cases this is accompanied by frost on the under-wing surface.

8.2.4.3.3 Checks to Determine the Need to De-Ice/Anti-Ice

8.2.4.3.3.1 The Clean Wing Concept

Why de-ice/anti-ice on ground? The aircraft performance is certified based upon an uncontaminated or clean structure. Ice, snow or frost accumulations will disturb the airflow, affecting lift and drag and also increasing weight. The result on performance can be dramatic.
Aircraft preparation for service begins and ends with a thorough inspection of the aircraft exterior. The aircraft and especially its surfaces providing lift, controllability and stability must be aerodynamically clean. Otherwise, safe operation is not possible.
An aircraft ready for flight must not have ice, snow, slush or frost adhering to its surfaces. Exceptions are sometimes allowed. Refer to FCOM:

- For A320 Supplementary techniques chapter - Adverse weather - Cold weather

But the critical flying surfaces must be free of any contamination.

8.2.4.3.3.2 External Inspection

An aircraft exterior inspection (walk-around) shall be performed prior to each flight. This inspection shall be conducted by one of deck crewmembers or may be delegated to a licensed maintenance Engineer or technician. Pilot in Command must be notified with results of inspection prior to each flight.
An inspection of the aircraft must visually cover all critical parts of the aircraft and be performed from points offering a clear view of these parts ensuring that they are not damaged, obstructed, disabled or contaminated.
These parts are especially:

- wing surfaces including leading edges
- horizontal stabilizer upper and lower surface
- vertical stabilizer and rudder
- fuselage
- air data probes
- static vents
- angle-of-attack sensors
- flight control surfaces and cavities
- engines
- generally, intakes and outlets
- Landing gear and wheel base.
- Aircraft structure or structural components are free of damage.

8.2.4.3.3.3 Clear Ice Phenomenon

Under certain conditions, a clear ice layer or frost can form on the wing upper surfaces when the aircraft is on the ground. In most cases this is accompanied by frost on the under wing surface. Severe conditions occur with precipitation when subzero fuel is in contact with the wing upper surface skin panels.
The clear ice accumulations are very difficult to detect from ahead of the wing or behind during walk-around, especially in poor lighting and when the wing is wet. The leading edge may not feel particularly cold. The clear ice may not be detected from the cabin either because wing surface details show through.
The following factors contribute to the formation intensity and the final thickness of the clear ice layer:

- Low temperature of fuel that was added to the aircraft during the previous ground stop and/or the long airborne time of the previous flight resulting in a situation that the remaining fuel in the wing tanks is below 0° C.
- Abnormally large amount of remaining cold fuel in wing tanks causing the fuel level to be in contact with the wing upper surface panels as well as the lower surface, especially in the wing tank area.
- Temperature of fuel added to the aircraft during the current ground stop, adding (relatively) warm fuel can melt dry, falling snow with the possibility of re-freezing.

Drizzle/rain and ambient temperatures around 0°C on the ground is very critical. Heavy freezing has been reported during drizzle/rain even at temperatures of 8 to 14° C (46 to 57° F).
The use of thermal leading edge anti-icing may melt falling dry snow that re-freezes later.
The area's most vulnerable to freezing are:

- the wing root area between the front and rear spars,
- any part of the wing that will contain unused fuel after flight,
- The areas where different structures of the wing are concentrated (a lot of cold metal), such as areas above the spars and the main landing gear double plate.

8.2.4.3.3.4 General Checks

A recommended procedure to check the wing upper surface is to place high enough steps as close as possible to the leading edge and near the fuselage and climb the steps so that you can touch a wide sector of the tank area by hand. If clear ice is detected, the wing upper surface should be de-iced and then re-checked to ensure that all ice deposits have been removed.
It must always be remembered that below a snow / slush / anti-icing fluid layer there can be clear ice.
During checks on ground, electrical or mechanical ice detectors should only be used as a back-up advisory. They are not a primary system and are not intended to replace physical checks.
Ice can build up on aircraft surfaces when descending through dense clouds or precipitation during an approach.
When ground temperatures at the destination are low, it is possible that when flaps are retracted accumulations of ice may remain undetected between stationary and moveable surfaces. It is therefore important that these areas are checked prior to departure and any frozen deposits removed.
Under freezing fog conditions it is necessary for the rear side of the fan blades to be checked for ice build-up prior to start-up. Any deposits discovered should be removed by directing air from a low flow hot air source, such as a cabin heater, onto the affected areas.
When slush is present on runways, inspect the aircraft when it arrives at the ramp for slush/ice accumulations. If the aircraft arrives at the gate with flaps in a position other than fully retracted, those flaps which are extended must be inspected and, if necessary, de-iced before retraction.
The flight crew operating manual for individual aircraft types may allow take-off with a certain amount of frost on certain parts of the aircraft (refer to the individual FCOM).
It is important to note that the rate of ice formation is considerably increased by the presence of an initial depth of ice. Therefore, if icing conditions are expected to occur along the taxi and take-off path, it is necessary to ensure that all ice and frost is removed before flight. This consideration must extend the awareness of flight crew to include the condition of the taxiway, runway and adjacent areas since surface contamination and blown snow are potential causes for ice accretion equal to natural precipitation.

8.2.4.3.4 Responsibility: The De-Icing/Anti-Icing Decision

Maintenance responsibility
The information report (de-icing/anti-icing code - see 8.2.4.3.5.5) given to the cockpit is a part of the technical airworthiness of the aircraft. The person releasing the aircraft is responsible for the performance and verification of the results of the de/anti-icing treatment. The responsibility of accepting the performed treatment lies, however, with the Pilot in Command.
Operational responsibility
The general transfer of operational responsibility takes place at the moment the aircraft starts moving by its own power.

8.2.4.3.4.1 Maintenance / Ground Crew Decision

The responsible ground crewmember should be clearly nominated. He should check the aircraft for the need to de-ice. He will, based on his own judgment, initiate de-/anti-icing, if required, and he is responsible for the correct and complete de-icing and/or anti-icing of the aircraft.

8.2.4.3.4.2 Pilots Decision

As the final decision rests with the Pilot in Command regarding de-icing/anti-icing whenever deemed necessary, his request will supersede the ground crewmember's judgment not to de-ice/anti-ice.
As the Pilot in Command is responsible for the anti-icing condition of the aircraft during ground maneuvering prior to takeoff, he can request another anti-icing application with a different mixture ratio to have the aircraft protected for a longer period against accumulation of precipitation. Equally, he can simply request a repeat application.
Therefore the Pilot in Command should take into account forecasted or expected weather conditions, taxi conditions, taxi times, holdover time and other relevant factors. The Pilot in Command must, when in doubt about the aerodynamic cleanliness of the aircraft, perform (or have performed) an inspection or simply request a further de-/anti-icing.
Even when responsibilities are clearly defined and understood, enough communication between flight and ground crews is necessary. Any observation considered valuable should be mentioned to the other party to have redundancy in the process of decision making

8.2.4.3.5 The Procedures to De-Ice and Anti-Ice an Aircraft

When aircraft surfaces are contaminated by frozen moisture, they must be de-iced prior to dispatch. When freezing precipitation exists and there is a risk of precipitation adhering to the surface at the time of dispatch, aircraft surfaces must be anti-iced. If both anti-icing and de-icing are required, the procedure may be performed in one or two steps. The selection of a one or two step process depends upon weather conditions, available equipment, available fluids and the holdover time required to be achieved.
When a large holdover time is expected or needed, a two-step procedure using undiluted fluid should always be considered for the second step.

8.2.4.3.5.1 De-Icing

Ice, snow, slush or frost may be removed from aircraft surfaces by heated fluids or mechanical methods or any other approved methods such as infrared de-icing which is being developed.
For maximum effect, fluids shall be applied close to the aircraft surfaces to minimize heat loss.
Different methods to efficiently remove frost, snow, and ice are described in detail in the ISO method specification.

- General de-icing fluid application strategy

The following guidelines describe effective ways to remove snow and ice.
However, certain aircraft may require unique procedures to accommodate specific design features. The relevant aircraft maintenance or servicing manuals should be consulted.
Wings/horizontal stabilizers: Spray from the tip towards the root, from the highest point of the surface camber to the lowest.
Vertical surfaces: Start at the top and work downward.
Fuselage: Spray along the top centerline and then outboard; avoid spraying directly onto windows.
Landing gear and wheel base: Keep application of de-icing fluid in this area to a minimum. It may be possible to mechanically remove accumulations such as blown snow. However, where deposits have bonded to surfaces they can be removed using hot air or by careful spraying with hot de-icing fluids. It is not recommended to use a high-pressure spray.
Engines: Deposits of snow should be mechanically removed (for example using a broom or brush) from engine intakes prior to departure. Any frozen deposits that may have bonded to either the lower surface of the intake or the fan blades may be removed by hot air or other means recommended by the engine manufacturer.

8.2.4.3.5.2 Anti-Icing

Applying anti-icing protection means that ice, snow or frost will, for a period of time, be prevented from adhering to, or accumulating on, aircraft surfaces. This is done by the application of anti-icing fluids.
Anti-icing fluid should be applied to the aircraft surfaces when freezing rain, snow or other freezing precipitation is falling and adhering at the time of aircraft dispatch.
For an effective anti-icing protection an even film of undiluted fluid is required over the aircraft surfaces which are clean or which have been de-iced. For maximum anti-icing protection undiluted, unheated Type II or IV fluid should be used. The high fluid pressures and flow rates normally associated with de-icing are not required for this operation and, where possible, pump speeds should be reduced accordingly. The nozzle of the spray gun should be adjusted to give a medium spray.
The anti-icing fluid application process should be continuous and as short as possible. Anti-icing should be carried out as near to the departure time as is operationally possible in order to maintain holdover time.
In order to control the uniformity, all horizontal aircraft surfaces must be visually checked during application of the fluid. The amount required will be a visual indication of fluid just beginning to drip off the leading and trailing edges.
Most effective results are obtained by commencing on the highest part of the wing section and covering from there towards the leading and trailing edges. On vertical surfaces, start at the top and work down.
Surfaces to be protected during anti-icing are:

- Wing upper surface
- Horizontal stabilizer upper surface
- Vertical stabilizer and rudder
- Fuselage depending upon amount and type of precipitation

Type I fluids have limited effectiveness when used for anti-icing purposes. Little benefit is gained from the minimal holdover time generated.

8.2.4.3.5.3 Limits and Precautions

- Aircraft related limits

The use of Type II or IV fluids in 100% concentration or 75/25 mixture is limited to aircraft with a rotation speed (VR) higher than 85kt. This is to assure the sufficient flow-off of the fluid during take-off.

- Temperature limits

When performing two-step de-icing / anti-icing, the freezing point of the heated fluid used for the first step must not be more than 3°C above ambient temperature.

The freezing point of the Type I fluid mixture used for either one-step de-icing / anti-icing or as the second step in a two-step operation shall be at least 10°C below the ambient temperature.

Type II and IV fluids used as de-icing / anti-icing agents have a lower temperature application limit of -25°C.

The application limit may be lower, provided that a 7°C buffer is maintained between the freezing point of the undiluted fluid and the outside air temperature. Freezing points are provided in the fluid manufacturer's documentation.

- Application limits under no circumstances can an aircraft that has been anti-iced receive a further coating of anti-icing fluid directly on top of the existing film.

In continuing precipitation, the original anti-icing coating will be diluted at the end of the holdover time and re-freezing could begin. Also a double anti-ice coating should not be applied because the flow-off characteristics during take-off may be compromised. Should it be necessary for an aircraft to be re-protected prior to the next flight, the external surfaces must first be de-iced with a hot fluid mix before a further application of anti-icing fluid is made.

- Precautions

The fluids used should be limited to those complying respectively with standards AMS 1424B/ISO 11075 and AMS 1428C/ISO 11078 for Type I, Type II and Type IV.

AMS 1428C reflects the additional requirements for fluid dry out and flow off behavior for type IV fluids.

With specific regard to the application of Type IV fluids, and indeed Type II fluids, special care needs to be taken. Repeated application in dry conditions, as a preventive measure, may leave a residue that when exposed to precipitation can dehydrate.

This takes the form of a high freeze point gel in aerodynamically quiet areas of the aircraft. This gel could lead to the restricted movement of control surfaces. To date this has only been reported on aircraft types with empowered flying controls and has not been reported on Airbus aircraft.

Therefore the aircraft should be frequently cleaned of any residue and/or de-iced using a heated Type I fluid or hot water prior to the application of Type II or Type IV fluids (two-step process).

De/anti-icing activities should only be carried out by personnel that are fully trained to ISO, SAE or AEA standards and furthermore that those persons understand their responsibilities and are authorized/approved to carry out such activities.

For de/anti-icing activities the following standards should be followed:

- ISO 11076 aircraft de-icing/anti-icing methods with fluids.
- SAE ARP 4737E aircraft de-icing/anti-icing methods with fluids.
- AEA recommendations for the de-icing/anti-icing of aircraft on ground,

In order to fully benefit from the longer hold over times of Type IV fluids, they must be used undiluted. Diluted Type IV are only tested to the same specification as a Type II fluid.

The aircraft must always be treated symmetrically - the left hand and right-hand sides (e.g. left wing/right wing) must receive the same and complete treatment.

Engines are usually not running or are at idle during treatment. Air conditioning should be selected OFF. The APU may be run for electrical supply but the bleed air valve should be closed.
All reasonable precautions must be taken to minimize fluid entry into engines, other Intakes / outlets and control surface cavities.
Do not spray de-icing / anti-icing fluids directly onto exhausts or thrust reversers.
De-icing / anti-icing fluid should not be directed into the orifices of pitot heads, static vents or directly onto angle-of-attack sensors.
Do not direct fluids onto Flight Crew or cabin windows because this can cause Cracking of acrylics or penetration of the window sealing.
All doors and windows must be closed to prevent:

- galley floor areas being contaminated with slippery de-icing/anti-icing fluids
- Upholstery becoming soiled.

Any forward area from which fluid may blow back onto windscreens during taxi or subsequent take-off should be free of fluid residues prior to departure. If Type II or IV fluids are used, all traces of the fluid on flight deck windows should be removed prior to departure, particular attention being paid to windows fitted with wipers.
De-icing/anti-icing fluid can be removed by rinsing with clear water and wiping with a soft cloth. Do not use the windscreen wipers for this purpose. This will cause smearing and loss of transparency.
Landing gear and wheel bays must be kept free from build-up of slush, ice or accumulations of blown snow.
Do not spray de-icing fluid directly onto hot wheels or brakes.
When removing ice, snow or slush from aircraft surfaces, care must be taken to prevent it entering and accumulating in auxiliary intakes or control surface hinge areas, i.e. remove snow from wings and stabilizer surfaces forward towards the leading edge and remove from ailerons and elevators back towards the trailing edge.
Do not close any door until all ice has been removed from the surrounding area.
A functional flight control check using an external observer may be required after de-icing / anti-icing. This is particularly important in the case of an aircraft that has been subjected to an extreme ice or snow covering.

8.2.4.3.5.4 Checks

- Final check before aircraft dispatch

No aircraft should be dispatched for departure under icing conditions or after a deicing / anti-icing operation unless the aircraft has received a final check by a responsible authorized person. The inspection must visually cover all critical parts of the aircraft and be performed from points offering sufficient visibility on these parts (e.g. from the de-icier itself or another elevated piece of equipment). It may be necessary to gain direct access to physically check (e.g. by touch) to ensure that there is no clear ice on suspect areas.

- Pre takeoff check

When freezing precipitation exists, it may be appropriate to check aerodynamic surfaces just prior to the aircraft taking the active runway or initiating the take-off roll in order to confirm that they are free of all forms of frost, ice and snow. This is particularly important when severe conditions are experienced, or when the published holdover times have either been exceeded or are about to run out.
When deposits are in evidence it will be necessary for the de-icing operation to be repeated.

If the take-off location cannot be reached within a reasonable time and/or a reliable check of the wing upper surface status cannot be made from inside the aircraft, consider a repeat aircraft treatment.
If aircraft surfaces cannot adequately be inspected from inside the aircraft, it is desirable to provide a means of assisting the flight crew in determining the condition of the aircraft. The inspection should be conducted as near as practical to the beginning of the departure runway.
When airport configuration allows, it is desirable to provide de-icing/anti-icing and inspection of aircraft near the beginning of departure runways to minimize the time interval between aircraft de-icing / anti-icing and take-off, under conditions of freezing precipitation.

8.2.4.3.5.5 Flight Crew Information - Communication

No aircraft should be dispatched for departure after a de-icing / anti-icing operation unless the flight crew has been notified of the type of de-icing / anti-icing operation performed. The ground crew must make sure that the flight crew has been informed. The flight crew should make sure that they have the information.
This information includes the results of the final inspection by qualified personnel, indicating that the aircraft critical parts are free of ice, frost and snow. It also includes the necessary anti-icing codes to allow the flight crew to estimate the holdover time to be expected under the prevailing weather conditions.

- Anti-icing codes

It is essential that flight crew receives clear information from ground personnel as to the treatment applied to the aircraft.
This gives flight crew the minimum details to assess holdover times. The use of local time is preferred but, in any case, statement of the reference is essential. This information must be recorded and communicated to the flight crew by referring to the last step of the procedure.
Examples of anti-icing codes:
AEA Type II/75/16.43 local/FRA 19 Jan 02
AEA Type II: Type of fluid used
75: Percentage of fluid/water mixtures by volume 75% fluid/25% water
16.43: Local time of start of last application
19 Jan 02: Date

ISO Type I/50:50/06.30 UTC/ 19 Jan 02
50:50: 50% fluid / 50 % water
06.30: Time (UTC) of start of last application
Standard communication terminology

- De-icing/anti-icing supervisor:

"Set parking brakes, confirm aircraft is ready for treatment, inform any special requests"

- Pilot In Command:

"Brakes are set, you may begin treatment and observe… (Any special requests like: ice under wing/flaps, clear ice on top of wing, snow on fuselage, ice on landing gear, anti-ice type IV…)"

- De-icing/anti-icing supervisor:

"We begin treatment and observe… (Special requests mentioned above). I will call you back when ready".
Only after equipment is cleared from aircraft and all checks are made:

- De-icing/anti-icing supervisor:

"De-icing/anti-icing completed. Anti-icing code is… (Plus any additional info needed). I am disconnecting, standby for clear signal at right/left and/or contact ground/tower for taxi clearance".

- Pilot in Command:

"De-icing/anti-icing completed, anti-icing code is…"

➢ Fluid application and holdover time guidelines

Holdover protection is achieved by anti-icing fluids remaining on and protecting aircraft surfaces for a period of time.
With a one-step de/anti-icing operation holdover begins at the start of the operation and with two-step, at the start of the second (anti-icing) step. Holdover time will have effectively run out, when frozen deposits start to form/accumulate on aircraft surfaces.
Due to its properties Type I fluid forms a thin liquid wetting film, which gives a rather limited holdover time, depending on weather conditions. With this type of fluid increasing the concentration of fluid in the fluid/water mix would provide no additional holdover time.
Type II and Type IV fluids contain a thickener which enables the fluid to form a thicker liquid wetting film on external surfaces. This film provides a longer holdover time, especially in conditions of freezing precipitation. With this type of fluid additional holdover time will be provided by increasing the concentration of fluid in the fluid/water mix, with maximum holdover time available from undiluted fluid.
The tables 3, 4 and 5 hereafter give an indication of the time frame of protection that could reasonably be expected under conditions of precipitation.
However, due to the many variables that can influence holdover times, these times should not be considered as minimum or maximum as the actual time of protection may be extended or reduced, depending upon the conditions existing at the time.
The lower limit of the published time span is used to indicate the estimated time of protection during heavy precipitation and the upper limit, the estimated time of protection during light precipitation

Caution
The times of protection represented in these tables are for general information purposes only. They are taken from the ISO/SAE specification, however local authority requirements may differ.
The time of protection will be shortened in severe weather conditions. Heavy precipitation rates or high moisture content, high wind velocity and jet blast may cause a degradation of the protective film. If these conditions occur, the time of protection may be shortened considerably. This is also the case when the aircraft skin temperature is significantly lower than the outside air temperature.
The indicated times should therefore only be used in conjunction with a pre-takeoff check.

Table 1 -Guidelines for the application of Type I fluid/water mixtures (minimum concentrations)
As a function of OAT

OAT	One-Step Procedure	Two-Step Procedure	
	De-icing/Anti-icing	First step: De-icing	Second step: Anti-icing (1)
-3 °C (27 °F) and above	Heated fluid/water mixture with a	Heated water or a heated fluid/water mixture	Heated fluid/water mixture with a freezing point of at least 10 °C (18 °F) below OAT

below -3 ˚C (27 ˚F) down to LOUT	freezing point of at least 10 °C (18 ˚F) below OAT	Heated fluid/water mixture with a freezing point not more than 3 ˚C (5 ˚F) above OAT	

(1) To be applied before first step fluid freezes.

NOTE 1: Temperature of water or fluid/water mixtures shall be at least 60 °C (140 °F) at the nozzle. Upper temperature limit shall not exceed fluid and aircraft manufacturer's recommendations.
NOTE 2: This table is applicable for the use of Type I Holdover Time Guidelines.
If holdover times are not required, a temperature of 60 °C (140 °F) at the nozzle is desirable.
NOTE 3: To use Type I Holdover Time Guidelines, at least 1 liter/m^2 (~2 Gals/100ft^2) must be applied To the de-iced surfaces.
CAUTION: Wing skin temperatures may be lower than OAT. If this condition is identified, a stronger Mixture (more glycol) may need to be used to ensure a sufficient freezing point buffer.

Table 2 -Guidelines for the application of Type II, Type III, and Type IV fluid/water mixtures (Minimum concentrations) as a function of OAT

OAT (1)	Concentration of neat fluid/water mixture in Vol%/Vol%		
	One-Step Procedure	Two-Step Procedure	
	De-icing/ Anti-icing	First step: De-icing	Second step: Anti-icing (2)
-3 ~C (27 ~F) and above	50/50 Heated (3) Type II, III, or IV fluid/water mixture	Heated water or a heated Type I, II, III, or IV fluid/water mixture	**50/50** Type II, III, or IV fluid/water mixture
below -3 ~C (27 ~F) to -14 ~C (7 ~F)	**75/25** Heated **(3)** Type II, III **(4)**, or IV fluid/water mixture	Heated Type I, II, III, or IV fluid/water mixture with a freezing point not more than 3 ~C (5 ~F) above OAT	**75/25** Type II, III **(4)**, or IV fluid/water mixture
below -14 ~C (7 ~F) to -25 ~C (- 13 ~F)	**100/0** Heated **(3)** Type II, III **(4)**, or IV	Heated Type I, II, III, or IV fluid/water mixture with a freezing point not more than 3 ~C (5 ~F) above OAT	**100/0** Type II, III **(4)**, or IV

below -25 °C (- 13 ˚F)	Type II/Type III/Type IV fluid may be used below -25 ˚C (-13 ˚F) provided that the freezing point of the fluid is at least 7 ˚C (13 ˚F) below OAT and that aerodynamic acceptance criteria are met (LOUT). NOTE: Type II/Type III/Type IV fluid may not be used below -25°C (-13°F) in active frost conditions Consider the use of Type I fluid/water mixture when Type II, III, or IV fluid cannot be used (see Table 1).
	1) Fluids must only be used at temperatures above their LOUT. 2) To be applied before first step fluid freezes. 3) Clean airplanes may be anti-iced with unheated fluid. Type III fluid may be used below -10 ˚C (14 ˚F) provided that the freezing point of the fluid is at least 7 ˚C (13 ˚F) below OAT and that aerodynamic

NOTE: For heated fluid and fluid mixtures, a temperature not less than 60 ˚C (140 ˚F) at the Nozzle is desirable. When the first step is performed using a fluid/water mixture with A freezing point above OAT, the temperature at the nozzle shall be at least 60 °C (140 °F) and at least 1 liter/m^2 (~2 Gals/100 ft^2) must be applied to the surfaces to be de-iced.

Upper temperature limit shall not exceed fluid and aircraft manufacturer's recommendations.

CAUTION: Wing skin temperatures may be lower than OAT. If this condition is identified, it shall Be verified if a stronger mixture (more glycol) may need to be used to ensure a sufficient freezing point buffer. As fluid freezing may occur, 50/50 Type II, III, or IV fluid shall not be used for the anti-icing step of a cold soaked wing as indicated by frost or ice on the lower surface of the wing in the area of the fuel tank.

CAUTION: An insufficient amount of anti-icing fluid, especially in the second step of a two step Procedure, may cause a substantial loss of holdover time.

This is particularly true when using a Type I fluid mixture for the first step (de-icing).

CAUTION: Some fluids shall only be used undiluted. For some fluids the lowest operational use Temperature (LOUT) may differ. For details refer to fluid manufacturer's documentation.

Table 3 - Guidelines for holdover times anticipated for Type I, II, III and IV fluid mixtures in Active Frost Conditions as a function of OAT (Valid for metallic and composite surfaces)

Approximate Holdover Time (hours: minutes) Active Frost	OAT	Type II, III, and IV Fluid	Approximate Holdover Times (hours: minutes) Active Frost

Type I (1) (2)	°C	°F	Concentration Neat Fluid/Water	Type II (3)	Type III (3)	Type IV (3)
00:35	-1 and above	30 and above	100/0	8:00	2:00	12:00
			75/25	5:00	1:00	5:00
			50/50	3:00	0:30	3:00
	below -1 to -3	below 30 to 27	100/0	8:00	2:00	12:00
			75/25	5:00	1:00	5:00
			50/50	1:30	0:30	3:00
	below -3 to -10	below 27 to 14	100/0	8:00	2:00	10:00
			75/25	5:00	1:00	5:00
	below -10 to -14	below 14 to 7	100/00	6:00	2:00	6:00
			75/25	1:00	1:00	1:00
	below -14 to -21	below 7 to -6	100/0	6:00	2:00	6:00
	below -21 to -25	below -6 to -13	100/0	2:00	2:00	4:00

1. **1.** Type I fluid/water mixture is selected so that the freezing point of the mixture is at least 10 °C (18 °F) below the outside air temperature.
2. **2.** May be used below -25 °C (-13 °F) provided the lowest operational use temperature (LOUT) of the fluid is respected.
3. **3.** These fluids may not be used below -25 °C (-13 °F) in active frost conditions.

De-icing/anti-icing fluids used during ground de-icing/anti-icing are not intended for - and do not provide - protection during flight

Table 4 - Guidelines for holdover times anticipated for Type I fluid mixtures as a function of weather conditions and OAT (Valid for metallic and composite surfaces)

OAT (1)		Approximate Holdover Times under various weather conditions (hours: minutes)					
°C	°F	Freezing Fog	Snow/ Snow Grains/ Snow Pellets **(2)**	Freezing Drizzle	Light Freezing Rain	Rain on Cold Soaked Wing	Other(4) (5)
-3 and above	27 and above	00:09 - 0:16	0:03 - 0:06	0:08 - 0:13	0:02 - 0:05	0:01 - 0:05 **(6)**	
below-3 to -6	below 27 to 21	0:06 - 0:08	0:02 - 0:05	0:05 - 0:09	0:02 - 0:05		

below-6 to -10	below 21 to 14	0:04 - 0:08	0:02 - 0:05	0:04 - 0:07	0:02 - 0:05	
below-10	below14	0:04- 0:07	0:02 - 0:04	CAUTION No Holdover Time Guidelines exist		

1. Ensure that the lowest operational use temperature (LOUT) is respected.
2. In light "Rain and Snow" conditions use "Light Freezing Rain" holdover times
3. If positive identification of "Freezing Drizzle" is not possible use "Light Freezing Rain" holdover times
4. Other conditions are: Heavy snow, ice pellets, hail, moderate freezing rain and heavy freezing rain
5. For holdover times under active frost conditions see the separate frost table (Table 3)
6. No holdover time guidelines exist for this condition for 0 °C (32 °F) and below

Type I Fluid/water Mixture is selected so that the Freezing Point of the mixture is at least 10 °C (18 °F) below actual OAT

CAUTION: The time of protection will be shortened in heavy weather conditions. Heavy precipitation rates or high moisture content, high wind velocity or jet blast may reduce holdover time below the lowest time stated in the range.

Holdover time may also be reduced when the aeroplane skin temperature is lower than OAT. Therefore, the indicated times should be used only in conjunction with a pre-takeoff check.

De-icing/anti-icing fluids used during ground de-icing/anti-icing are not intended for - and do not provide - protection during flight.

Table 5 -Guidelines for holdover times anticipated for Type II fluid mixtures as a function of weather conditions and OAT
(Valid for metallic and composite surfaces)

OAT (1)		**Type II Fluid Concentration** Neat-Fluid/ Water (Vol %/Vol %)	Approximate Holdover Times under various weather conditions (hours: minutes)					
°C	°F		Freezing Fog	Snow/ Snow Grains/ Snow (Pellets 2	Freezing Dry (3)	Light Freezing Rain	Rain on Cold Soaked Wing	Other (4)(5)
-3 and above	27 and above	100/0	0:35 - 1:30	0:20 - 0:45	0:30 - 0:55	0:15 - 0:30	0:08 - 0:40 (6)	
		75/25	0:25 - 1:00	0:15 - 0:30	0:20 - 0:45	0:10 - 0:25	0:05 - 0:25 (6)	
		50/50	0:15 - 0:30	0:05 - 0:15	0:08 - 0:15	0:05 - 0:09		
below -3 to -14	below 27 to 7	100/0	0:20 - 1:05	0:15 - 0:30	0:20 - 0:45 (7)	0:10 - 0:20 (7)		

		75/25	0:25 - 0:50	0:10 - 0:20	0:15 - 0:30 (7)	0:08 - 0:15 (7)		
below -14 to -25 or LOUT	below 7 to -13 or LOUT	100/0	0:15 - 0:35	0:15 - 0:30	CAUTION No Holding Time Guidelines exist			

1. Ensure that the lowest operational use temperature (LOUT) is respected. Consider the use of Type I fluid when Type II fluid cannot be used.
2. In light "Rain and Snow" conditions use "Light Freezing Rain" holdover times
3. If positive identification of "Freezing Drizzle" is not possible use "Light Freezing Rain" holdover times
4. Other conditions are: Heavy snow, ice pellets, moderate and heavy freezing rain, hail
5. For holdover times under Active Frost conditions see the separate frost table (Table 3)
6. No holdover time guidelines exist for this condition for 0 °C (32 °F) and below
7. No holdover time guidelines exist for this condition below -10 °C (14 °F).

CAUTION: The time of protection will be shortened in heavy weather conditions. Heavy precipitation rates or high moisture content, high wind velocity or jet blast may reduce holdover time below the lowest time stated in the range.
Holdover time may also be reduced when the aeroplane skin temperature is lower than OAT.
Therefore, the indicated times should be used only in conjunction with a pre-takeoff check.
De-icing/anti-icing fluids used during ground de-icing/anti-icing are not intended for - and do not provide - protection during flight.
Table 6 -Guidelines for holdover times anticipated for Type III fluid mixtures as a function of weather conditions and OAT
(Valid for metallic and composite surfaces)

OAT (1)		**Type III Fluid Concentration**	Approximate Holdover Times under various weather conditions (hours: minutes)					
°C	°F	Neat Fluid/ Water (Vol %/Vol %)	Freezing Fog	Snow/ Snow Grains/ Snow Pellets **(2)**	Freezing Drizzle (3)	Light Freezing Rain	Rain on Cold Soaked Wing	Other (4) (5)
-3 and above	27 and above	100/0	0:20 - 0:40	0:10 - 0:20	0:10 -0:20	0:08 - 0:10	0:06 - 0:20 **(6)**	CAUTION No Holdover Time Guidelines exist
		75/25	0:15 - 0:30	0:08 - 0:15	0:08 -0:15	0:06 - 0:10	0:02 - 0:10 (6)	
		50/50	0:10 - 0:20	0:04 - 0:08	0:05 -0:09	0:04 - 0:06		
below -3 to -10	below 27 to 14	100/0	0:20 - 0:40	0:09 - 0:15	0:10 -0:20	0:08 - 0:10		
		75/25	0:15 - 0:30	0:07 - 0:10	0:09 -0:12	0:06 - 0:09		

below -10	below 14	100/0	0:20 - 0:40	0:08 - 0:15		

1. Ensure that the lowest operational use temperature (LOUT) is respected. Consider the use of Type I fluid when Type III fluid cannot be used.
2. In light "Rain and Snow" conditions use "Light Freezing Rain" holdover times
3. If positive identification of "Freezing Drizzle" is not possible use "Light Freezing Rain" holdover times
4. Other conditions are: Heavy snow, ice pellets, moderate and heavy freezing rain, hail
5. For holdover times under active frost conditions see the separate frost table (Table 3)
6. No holdover time guidelines exist for this condition for 0 °C (32 °F) and below

CAUTION: The time of protection will be shortened in heavy weather conditions. Heavy precipitation rates or high moisture content, high wind velocity or jet blast may reduce holdover time below the lowest time stated in the range.

Holdover time may also be reduced when the aeroplane skin temperature is lower than OAT. Therefore, the indicated times should be used only in conjunction with a pre-takeoff check.

De-icing/anti-icing fluids used during ground de-icing/anti-icing are not intended for - and do not provide - protection during flight.

Table 7 -Guidelines for holdover times anticipated for Type IV fluid mixtures as a function of weather conditions and OAT

(Valid for metallic and composite surfaces)

OAT (1)		**Type IV Fluid Concentration**	Approximate Holdover Times under various weather conditions (hours: minutes)					
°C	°F	Neat Fluid/ Water (Vol %/Vol %)	Freezing Fog	Snow/ Snow Grains/ Snow Pellets	Freezing Drizzle (3)	Light Freezing Rain	Rain on Cold Soaked Wing	Other (4) (5)
-3 and above	27 and above	100/0	1:55 -3:10	0:35 - 1:15	0:45 – 1:30	0:25 - 0:40	0:10 - 1:15 (6)	
		75/25	1:05 - 1:45	0:30 - 0:55	0:45 – 1:10	0:30 – 0:45	0:09 - 0:50 (6)	
		50/50	0:15 - 0:35	0:07 - 0:15	0:15 - 0:20	0:08 - 0:10		
below -3 to -14	below 27 to 7	100/0	0:20 - 1:20	0:25 - 0:50	0:20 - 1:00 (7)	0:10 - 0:25 (7)		
		75/25	0:25 - 0:50	0:20 - 0:35	0:15 – 1:05 (7)	0:10 - 0:25 (7)		
below -14 to -25 or LOUT	below 7 to -13 or LOUT	100/0	0:15 - 0:40	0:15 - 0:30	CAUTION No Holdover Time Guidelines exist			

1. Ensure that the lowest operational use temperature (LOUT) is respected. Consider the use of Type I fluid when Type IV fluid cannot be used.
2. In light "Rain and Snow" conditions use "Light Freezing Rain" holdover times
3. If positive identification of "Freezing Drizzle" is not possible use "Light Freezing Rain" holdover times
4. Other conditions are: Heavy snow, ice pellets, moderate and heavy freezing rain, hail
5. For holdover times under Active Frost conditions see the separate frost table (Table 3)
6. No holdover time guidelines exist for this condition for 0 °C (32 °F) and below

7. No holdover time guidelines exist for this condition below -10 °C (14 °F)

CAUTION: The time of protection will be shortened in heavy weather conditions. Heavy precipitation rates or high moisture content, high wind velocity or jet blast may reduce holdover time below the lowest time stated in the range.
Holdover time may also be reduced when the aeroplane skin temperature is lower than OAT. Therefore, the indicated times should be used only in conjunction with a pre-takeoff check.
De-icing/anti-icing fluids used during ground de-icing/anti-icing are not intended for - and do not provide - protection during flight.

8.2.4.3.6. Pilot Techniques

The purpose of this section is to deal with the issue of ground de-icing/anti-icing from the pilot's point of view. The topic is covered in the order it appears on cockpit checklists and is followed through, step by step, from flight preparation to take-off.
The focus is on the main points of decision-making, flight procedures and pilot techniques.
For additional information refer to FCOM:

- For A320

Supplementary techniques chapter - Adverse weather - Cold weather
8.2.4.3.6.1. Receiving Aircraft
When arriving at the aircraft, local advice from ground maintenance staff may be considered because they may be more familiar with local weather conditions. If there is nobody available or if there is any doubt about their knowledge concerning de-icing/anti-icing aspects, pilots have to determine the need for de-icing/anti-icing by themselves.
Checks for the need to de-ice/anti-ice are presented in section 8.2.4.3.3 and the methods in section 8.2.4.3.5.
If the prevailing weather conditions call for protection during taxi, pilots should try to determine «off block time» to be in a position to get sufficient anti-icing protection regarding holdover time.
This message should be passed to the de-icing/anti-icing units, the ground maintenance, the boarding staff, dispatch office and all other units involved.
8.2.4.3.6.2. Cockpit Preparation
Before treatment, avoid pressurizing or testing flight control systems. Try to make sure that all flight support services are completed prior to treatment to avoid any delay between treatment and start of taxiing.
During treatment observe that:

- engines are shut down or at idle
- APU may be used for electrical supply, bleed air OFF
- air conditioning should be OFF
- All external lights of treated areas must be OFF.

Consider whether communication and information with the ground staff is/has been adequate.
The minimum requirement is to receive the anti-icing code in order to figure out the available protection time from the holdover timetable.
Do not consider the information given in the holdover timetables as precise. There are several parameters influencing holdover time.
The time frames given in the holdover timetables consider the very different weather situations world-wide. The view of the weather is rather subjective; experience has shown that a certain snowfall can be judged as light, medium or heavy by different people. If in doubt, a pre-take-off check should be considered.
As soon as the treatment of the aircraft is completed, proceed to engine starting.
Regarding responsibility and decision, see section 8.2.4.3.4.

8.2.4.3.6.3. Taxiing

During taxiing, the flight crew should observe the intensity of precipitation and keep an eye on the aircraft surfaces visible from the cockpit. Ice warning systems of engines and wings or other additional ice warning systems must be considered.

Sufficient distance from the preceding aircraft must be maintained as blowing snow or jet blasts can degrade the anti-icing protection of the aircraft.

The extension of slats and flaps should be delayed, especially when operating on slushy areas. However, in this case slat/flap extension should be verified prior to take-off.

8.2.4.3.6.4. Take-off

Recommendations given in FCOM of individual aircraft types regarding performance corrections (effect of engine bleeds) or other procedures applied when operating in icing conditions should be considered.

8.2.4.3.6.5. General Remarks

In special situations, flight crews must be encouraged not to allow operational or commercial pressures to influence decisions. The minimum requirements have been presented here, as well as the various precautions.

If there is any doubt as to whether the wing is contaminated or the performance and/or controllability of the aircraft is affected – DO NOT commence take off.

As in any other business, the key factors to keep procedures efficient and safe are awareness, understanding and communication.

If there is any doubt or question at all, ground and flight crews must communicate with each other.

8.2.4.4.1. Aerodynamics and the Contaminated Wing

Aircraft designers do their best to ensure airframes have smooth surfaces to ease the surrounding airflow. This rule is applied with special care to the wing leading edge and upper surface, because smoothness in these areas produces the best lift force.

Any type of ice accretion is an obstacle to smooth airflow. Any obstacle will slow the airflow down and introduce turbulence. That will degrade the lifting performance of the wing.

Both the maximum lift and the maximum achievable angle of attack have been decreased. The mechanism by which lift is affected has to do with the evolution of the boundary layer along the wing chord.

The boundary layer is thicker and more turbulent along the wing chord, and therefore, flow separation will occur at a lower angle of attack. Stall speed will be increased. Note how insidious that effect is, because at a moderate angle of attack, lift is about the same, as seen in figure 1.

As it is not possible to take into account the whole possible variety of ice shapes, Airbus has defined procedures based on the worst possible ice shapes, as tested in flight with artificial ice shapes. As a consequence, in case of icing conditions, minimum speeds are defined allowing keeping adequate margins in terms of maneuverability relative to the actual stall with ice accretions. For example, when landing in configuration FULL with ice shapes, speed must be above VREF+5 kt. However, for the Airbus Fly-By-Wire system, the settings of the alpha protection system have been adjusted with ice shapes. This means that the aircraft remains protected in case of ice accretions. In turn, this means also that there is an increased margin relative to the stall in the normal clean wing status.

In the case of ground icing, a similar result will be reached because the boundary layer will thicken more rapidly along the chord. Earlier separation will occur, resulting in lower max angle of attack and max lift. As a relatively high angle of attack is normally reached during the takeoff rotation, it is easy to understand that wings must be cleaned prior to takeoff.

Even the very thin layer of velvet morning frost must be cleared. Thickness may be very small, but it covers 100% of the upper wing surface and the rate of thickening of the boundary layer along the wing chord is still considerable. That is a threat for takeoff, as nothing tells the pilot that he might not have the desirable lift for lift-off.
This also applies to the tail plane. Ice deposits must be cleared off tail plane before takeoff to provide the expected rotation efficiency.
If the lower airframe structure has been extensively slushed during taxi time, it might be advisable not to takeoff. The slush would freeze in flight, and an incident on landing gear Retraction might occur. Upon return to the gate, braking should be cautious and slats and flaps should not be retracted prior to cleaning.
Frost initially forms as individual grains about 0.004 inch (0.1 mm) in diameter.
Additional build-up comes through grain growth to 0.010/0.015 inch (0.25/0.38 mm) in diameter, grain layering, and the formation of frost needles.
Available test data indicate that a limited thickness of frost on the wing lower surface will have no significant effect on lift. Airbus aircraft may be dispatched for flight with slight amounts (less than 3 mm) of frost adhering to the fuel tank areas of wing undersurfaces (Refer to FCOM).
During these conditions, clear ice will form on the upper side of the wing, especially if there is cold fuel in contact with the upper wing skin.

8.2.4.4.2. Fluid Characteristics and Handling

8.2.4.4.2.1. De-Icing/Anti-Icing Fluids - Characteristics

Although numerous fluids are offered by several manufacturers worldwide, fluids can be principally divided in two classes, Type I and Type II/IV fluids.

- Type I fluid characteristics
  - No thickener system
  - Minimum 80 percent glycol content
  - Viscosity depends on temperature
  - Newtonian fluid
  - Relatively short holdover time

Depending on the respective specification, they contain at least 80 percent per volume of either monoethylene-, ethylene- or monopropyleneglycol or a mixture of these glycols. The rest comprises water, inhibitors and wetting agents. The inhibitors act to restrict corrosion, to increase the flash point or to comply with other requirements regarding materials' compatibility and handling. The wetting agents allow the fluid to form a uniform film over the aircraft's surfaces.
Type I fluids show a relatively low viscosity which only changes depending on temperature. Glycols can be well diluted with water.
The freezing point of a water/glycol mixture varies with the content of water, whereas the concentrated glycol does not show the lowest freezing point; this is achieved with a mixture of approximately 60 percent glycol and 40 percent water (freezing point below -50°C). The Freezing point of the concentrated monoethylene, ethylene or propylene glycol is in the range of -10°C.
Therefore Type I fluids are normally diluted with water of the same volume. This 50/50 mixture has a lower freezing point than the concentrated fluid and, due to the lower viscosity, it flows off the wing much better.

- Type II/IV fluid characteristics
  - With thickener system
  - Minimum 50 percent glycol
  - Viscosity depends on temperature and shear rates to which the fluid is exposed

- Pseudo-plastic or non-Newtonian fluid
- Relatively long holdover time

Type II/IV fluids contain at least 50 percent per volume monoethylene-, ethylene- or propylene glycol, different inhibitors, wetting agents and a thickener system giving the fluid a high viscosity. The rest is water.
Although the thickener content is less than one percent, it gives the fluid particular properties. The viscosity of the fluid and the wetting agents causes the fluid to disperse onto the sprayed aircraft surface, and acts like a protective cover.
The fundamental idea is a lowering of the freezing point. Due to precipitation such as snow, freezing rain or any other moisture, there is a dilution effect on the applied fluid. This leads to a gradual increase of the freezing point until the diluted fluid layer is frozen due to the low ambient temperature. By increasing the viscosity, a higher film thickness exists having a higher volume which can therefore absorb more water before freezing point is reached. In this way the holdover time is increased.
The following summarizes the properties of particular constituents of Type II and IV fluids:

- The **glycol** in the fluid reduces the freezing point to negative ambient temperatures.
- The **wetting agent** allows the fluid to form a uniform film over the aircraft's surfaces.
- The **thickening agent** in Type II and IV fluids enables the film to remain on the aircraft's surfaces for longer periods.

Type II and IV fluids can be diluted with water. Because of the lower glycol content, compared to the Type I fluids, the freezing point rises all the time as water is added.
The viscosity of Type II and IV fluids is a function of the existing shear forces. Fluids showing decreasing viscosity at increasing shear forces have pseudo-plastic or non-Newtonian flow properties.
During aircraft take-off, shear forces emerge parallel to the airflow at the fluid and aircraft surface. With increasing speed, the viscosity decreases drastically and the fluid flows off the wing.
The protective effect of the Type II and IV fluids is much better when compared to the Type I fluids. Therefore, they are most efficient when applied during snowfall, freezing rain and/or with long taxiways before take-off.
Type II/IV and Type I fluids can all be diluted with water. This may be done if due to weather conditions, no long conservation time is needed or higher freezing points are sufficient.
All above types of fluid have to meet the specified anti-icing performance and aerodynamic performance requirements as established in the respective specifications (ISO, SAE, AEA). This has to be demonstrated by the fluid manufacturer.

82.4.4.2.2. Fluid Handling

General
De-icing/anti-icing fluids are chemical products with an environmental impact. During fluid handling, avoid any unnecessary spillage, comply with local environmental and health laws and the manufacturer's safety data sheet.
Mixing of products from different suppliers is generally not allowed and needs extra qualification testing.
Slippery conditions due to the presence of fluid may exist on the ground or on equipment following the de-icing/anti-icing procedure. Caution should be exercised due to increased slipperiness, particularly under low humidity or non-precipitating weather conditions.
Fluid handling equipment
The following information is generally valid for all types of fluid, but especially for Type II and IV fluids.

As the structure of Type II and IV fluids is relatively complicated to comply with several requirements, they are rather sensitive with regard to handling.
The holdover time, as one of the most important criteria, is gained essentially by viscosity. The viscos-elastic property of the fluid can be adversely affected by overheating, mechanical shearing and contamination by corroded tanks in such a manner that the expected and required holdover times cannot be achieved.
Therefore trucks, storage tanks and dressing plants have to be adequately conceived and maintained to comply with these requirements.
Fluid shearing occurs when adjacent layers of fluid are caused to move relative to one another, whether in opposite directions or in the same direction at different speeds. This condition is unavoidable when pumping a fluid. For example, when merely moving a fluid through a pipe, fluid velocity ranges from zero at the pipe wall to a maximum at the centre. Type II and IV fluids are damaged when the magnitude of shear is sufficient to break the long-polymer chains that make up the thickener.
Therefore specific equipment must be used.
Storage
Tanks dedicated to storage of the de-icing/anti-icing fluid are required. The tanks should be of a material of construction compatible with the de-icing/anti-icing fluid, as specified by the fluid manufacturer. They should be conspicuously labeled to avoid contamination.
Tanks should be inspected annually for corrosion and/or contamination. If corrosion or contamination is evident, tanks should be maintained to standard or replaced. To prevent corrosion at the liquid/vapor interface and in the vapor space, a high liquid level in the tanks is recommended.
The storage temperature limits must comply with the manufacturer's guidelines. The
Stored fluid shall be checked routinely to ensure that no degradation or contamination has taken place.
Pumping
De-icing/anti-icing fluids may show degradation caused by excessive mechanical shearing. Therefore, only compatible pumps as well as compatible spraying nozzles should be used. The design of the pumping systems must be in accordance with the fluid manufacturer's recommendations.
Transfer lines
Dedicated transfer lines must be conspicuously labeled to prevent contamination and must be compatible with the de-icing/anti-icing fluids to be transferred. An in-line filter, constructed according to the fluid manufacturer's recommendations, is recommended to remove any solid contaminant.
Heating
De-icing/anti-icing fluids must be heated according to the fluid manufacturer's guidelines. The integrity of the fluid following heating in storage should be checked periodically, by again referring to the fluid manufacturer's guidelines. Such checks should involve at least checking the refractive index and viscosity.
Application
Application equipment shall be cleaned thoroughly before the first fill with de-icing/anti-icing fluid in order to prevent fluid contamination. Fluid in trucks should not be heated in confined or poorly ventilated areas such as hangars. The integrity (viscosity) of the Type II and IV fluids at the spray nozzle should be checked annually, preferably at the beginning of the winter season.

8.2.4.4.2.3. Environment and Health

Besides water, de-icing/anti-icing fluids contain glycols and different additives as main ingredients. Type II and IV fluids also contain a thickener system.
The glycols used are bivalent alcohols. Glycols are colorless fluids with a sweet taste (not recommended to try).
Regarding environmental compatibility, the most important criteria are biodegradability and toxicity.
Biological degradation
The single glycols, like monoethylene, ethylene and propyleneglykol, are entirely biodegradable. Biodegradable means that a conversion is achieved by aerobe bacteria changing glycol to water and carbon dioxide by the aid of oxygen.
For the different glycols there are minor differences with regard to the rapidity of biodegradation and the oxygen used. Also, the temperature is an important parameter. Biodegradation results faster at higher temperatures and slower at lower temperatures.
The best way to handle waste fluids is to drain them into local waste water treatment plants. Fluids can be drained into surface waters during winter as the oxygen content will be higher than during summer. The colder the water, the more oxygen is available.
Substantial drainage into surface waters during summer is not ideal as the biodegradation occurs faster and, moreover, less oxygen is available. The overall effect on surface waters can be adverse in such a case.
The glycols mentioned are practically non-toxic versus bacteria. Exceptionally high amounts (10 to 20 grams per liter water) would be necessary to adversely affect the biodegradation. These concentrations are effectively never reached; therefore, biodegradation generally does occur. Nevertheless, caution in this matter should be exercised.
The thickener system of Type II and IV fluids, approximately one percent of volume of the fluid, is totally neutral to the environment. It will not be degraded but has no negative effects to the environment; it may be compared to a pebble.
The additives and inhibitors can have an effect on the overall biodegradability.
In any case, the fluids have to meet local regulations concerning biodegradability and toxicity.
Toxicity
Although biodegradable, monoethylene-glycol should be considered as harmful if swallowed. The principal toxic effects of ethylene glycol are kidney damage, in most cases with fatal results.
Several reports concerning the toxicity of diethyleneglycol showed that it can be compared to glycerin in this matter; glyceride is considered to be non-toxic.
Propylene glycol is classified as non-toxic. A special pure quality is used in the pharmaceutical, cosmetic, tobacco and beverages industry. Propylene glycol is not irritating and the conversion in the human body occurs via intermediate products of the natural metabolism.
However, precautions generally usual in relation with chemicals should be considered also when handling glycols.
Protective clothes
Precautions include preventive skin protection by use of suitable skin ointment and thick protective clothes as well as waterproof gloves.
Because of the possibility of atomization, protective glasses should be worn. Soaked clothes should be changed and, after each de-icing / anti-icing activity, the face and hands should be washed with water.
Further details are available from the fluid manufacturers and the material data sheets for their products.
8.2.4.4.2.4. De-Anti/Anti-Icing Equipment

De-icing/anti-icing trucks
Most of the equipment used today are trucks consisting of a chassis on which the fluid tanks, pumps, heating and lifting components are installed.
Although in older equipment centrifugal pumps are installed, more modern equipment is fitted with cavity pumps or diaphragm pumps showing very low degradation of Type II and IV fluids.
Most of the trucks have an open basket from which the operator de-ices/anti-ices the aircraft.
Closed cabins are also available, offering more comfort to the operator in a severe environment.
Stationary equipment
Stationary de-icing/anti-icing facilities, currently available at a limited number of airports, consist of a gantry with spraying nozzles moving over the aircraft and similar in concept to a car-wash.
The advantage of such a system is a fast and thorough treatment of the surface of the aircraft.
As these systems can be operated by computers, working errors are practically excluded and consistent quality can be ensured.
The disadvantage, however, is the operational bottleneck. If only one system is available and de/anti-icing is necessary, the take-off capacity of the respective runway will be limited by the productivity of the gantry.

8.3 VFR/IFR Policy

8.3.1 General

1. VFR flights are not permitted. It is Nesma Airlines policy that all Commercial flights shall be conducted under IFR, in accordance with an IFR clearance and that full use of air traffic control services or advisory services shall be made. In special cases VFR Non-Commercial flights may be approved by Director of Operations on case by case basis (Refer to Jeppesen Text General A.T.C Chapter 4)
2. An IFR flight plan must be filed for all flights. It must not be cancelled at any time.
3. Clearances to maintain 'VMC on top' or '1000 ft on top' must not be accepted.
4. Clearances to maintain ’own separation in VMC’ in order to avoid undue fuel penalties or delays may be accepted by the Captain for limited portions of climb, descent or approach under the following conditions:
- Relevant traffic can be clearly identified and kept in sight
- It is assured that sufficient separation will exist at all times
- During hours of daylight
- VMC can be maintained
- Traffic information is provided by ATS.
5. Visual approaches are permitted

Caution: TCAS advisories may be triggered. TCAS RAs must be followed.

6. No person may operate an aircraft under IFR conditions unless it is equipped with the following instruments and equipment:
   - **a)** An airspeed-indicating system with heated Pitot tube or equivalent means for preventing malfunctioning due to icing;
   - **b)** Two sensitive altimeters; and
   - **c)** Instrument lights providing enough light to make each required instrument, switch, or similar instrument, easily readable and so installed that the direct rays are shielded from the flight crewmembers’ eyes and that no objectionable reflections are visible to them, and a means of controlling the intensity of illumination unless it is shown that non-dimming instrument lights are satisfactory.
7. Flights within class F airspace must comply with the provisions of 2 to 4 above and make full use of the advisory service.
8. Flights within class G airspace must comply with the provisions of 2 to 4 above and apply the following IFR procedures:
- Maintain communication with the appropriate ATS unit
- Make position reports at specified reporting points or time intervals
- Request traffic information prior to any level change
- Report changes to the filed flight plan and request traffic information in relation to such changes.

9. Flights taking off from VFR Airports expecting an IFR Clearance for the Enroute Portion of the Flight

No airplane shall take-off from a VFR airport unless able to maintain full VMC or national VFR- minima) until the IFR clearance becomes effective.

10. Flights which are planned to terminate at a VFR airport.

No airplane shall cancel IFR unless observed and reported Met-conditions permit the maintenance of full VMC from that point where IFR is cancelled until landing.

11. Pure VFR - Flights, VFR-Portions En-route

VFR flights shall not be commenced unless current meteorological reports or a combination of current reports and forecasts indicate that the conditions along the route or along that part of the route to be flown under VFR are, and will continue to be such as to make it possible for the flight to be conducted in accordance with VFR. (Refer to 8.1.4 for en-route operating minima).

12. Lookout

The flight crew has to maintain a constant lookout and avoid other traffic during all phases of flight. Flight crews are urged to maintain vigilance for conflicting visual traffic even when under radar maintaining a see and avoid policy. TCAS display and radar service may be helpful in detecting other traffic. Within an airspace deemed critical by the flight crew, any activity diverting attention (e.g. paper work, FMS insertions) must be reduced to a minimum. Particularly critical airspace is the vicinity of aerodromes, high density terminal areas and the airspaces below 10.000ft. It is the direct responsibility of the Captain to avoid collision in airspace where VFR flights are not subject to air traffic control service (class E, F, and G).

8.3.1.1. Change from IFR to VFR

An aircraft electing to change the conduct of its flight from compliance with the IFR to compliance with the VFR shall notify the appropriate ATS unit to specify that IFR flight is cancelled. No reply other than the acknowledgement "IFR flight cancelled at... (Time)" should normally be made by the ATC.

When an aircraft operating under IFR is flown in or encounters VMC, it shall not cancel its IFR flight unless it is anticipated, and intended, that the flight will be continued for a reasonable period of time in uninterrupted VMC.

8.3.1.2. Simulated Abnormal Situations in Flight

Simulation of abnormal or emergency situations requiring the application of part or all of abnormal or emergency procedures and simulation of IMC conditions by artificial means are forbidden during a revenue flight.

8.3.1.3. In-Flight Fuel Management

Procedure to ensure that in-flight fuel checks and fuel management are carried out are defined in 8.3.7.1.

A Pilot in Command shall ensure that the amount of usable fuel remaining in flight is not less than the fuel required to proceed to an aerodrome where a safe landing can be made, with final reserve fuel remaining.

8.3.1.4. Meteorological Conditions / Minima

On an IFR flight a Pilot in Command shall not:

- Commence take-off; nor continue beyond the point from which a revised flight plan applies in the event of in-flight re-planning, unless information is available indicating that the expected weather conditions at the destination and/or required alternate aerodrome(s) prescribed in 8.1.2.3 Selection of Aerodromes are at or above the planning minima, prescribed in 8.1.2.2 Planning Minima.
- Continue beyond:
  - The decision point when using the decision point procedure (refer to 8.1.7.1.3. Re-Dispatch (Preclearance)); or
  - The pre-determined point when using the pre-determined point procedure (refer to 8.1.7.1.4. Decision Point Procedure (Preclearance)), unless information is available indicating that the expected weather conditions at the destination and/or required alternate aerodrome(s) prescribed in 8.1.2.3 Selection of Aerodromes are at or above

the applicable aerodrome operating minima prescribed in 8.1.3.5.This will be achieved by monitoring weather information while Enroute to cover destination, destination alternate and/or Enroute alternate(s).

- Continue towards the planned destination aerodrome unless the latest information available indicates that, at the expected time of use, the weather conditions at the destination, or at least one destination alternate aerodrome, are at or above the applicable aerodrome operating minima.

On a VFR flight a Pilot in Command shall:
Not commence take-off unless current meteorological reports or a combination of current reports and forecasts indicate that the meteorological conditions along the route or that part of the route to be flown under VFR will, at the appropriate time, be such as to render compliance with these rules possible.
Inform ATC and follow ATC instruction If VMC cannot be maintained abort the VMC approach, if visual reference is lost.

8.3.1.5. Instrument Departure and Approach Procedures

Instrument departure and approach procedures established by the State in which the aerodrome is located have to be used (Jeppesen approach charts)
However, a Pilot in Command may accept an ATC clearance which deviates from above, provided obstacle clearance criteria are observed and full account is taken of the operating conditions. The final approach must be flown visually or in accordance with the established instrument approach procedure.
Different procedures (e.g. EOSID) may be implemented if approved by the Authority.
An aircraft shall not descend in IMC below the minimum (sector) safe altitude (MSA) as shown on the instrument approach chart until it is established in the approved approach or holding procedure.
In the vicinity of the airport, an approach may be conducted by visual maneuvering(circling) under IFR rules if this type of approach is cleared by the ATC and if weather conditions permit it (refer to 8.1.3.2. Aerodrome Operating Minima). If visual reference is lost, the circling approach must be aborted.
The minima for a specific type of approach and landing procedure are considered applicable if:

- The ground equipment shown on the respective chart required for the intended procedure is operative;
- The airplane systems required for the type of approach are operative;
- The required airplane performance criteria are met; and
- The crew is qualified accordingly.

8.3.1.5.1. Climb and Descent Speed Limit
It is the policy of Nesma Airlines to fly 250 KIAS below 10,000 ft. (FL100) unless otherwise required by ATC (faster or slower than 250 KIAS), IAS must be 250 KIAS below 5000ft (FL050), regardless of ATC restrictions.

8.3.1.5.2. Descent and Approach Procedures

ATC Clearances
An ATC clearance does not guarantee terrain or obstruction clearance, and does not constitute authority to descent below the relevant MSA.
IMC Descent below Minimum Safe/Sector Altitude (MSA)
Undue reliance must not be placed on any one radio navigation aid or navigation system when establishing position for the purpose of descent below MSA.

Descent to radar cleared altitude is permitted when under positive radar control.

The aircraft must be navigated in accordance with the Flight Plan, even when under the control of an approved radar unit, until identified by radar and instructed to deviate from the planned route. The term "radar contact" must not be misunderstood as an indication that the aircraft is under radar control. Pilots in Command are authorized to accept radar clearances, subject to the following conditions:

- The Pilot In Command retains the responsibility for ensuring adequate obstacle clearance
- The Pilot in Command must check the initial identification of the aircraft by the radar unit and confirm the aircraft position by independent navigational aids e.g. IRS, SSR, VOR/DME, and NDB.
- The Pilot in Command must check the aircraft position as frequently as necessary by independent navigational aids, as being within the area covered by the relevant MEA, before and during the period of radar control.
- The Pilot in Command may use his discretion when requested by the radar unit to descend to Radar Cleared Altitudes, and if in doubt about the standard of the radar control, must climb the aircraft to the relevant MSA.

Further descent is permitted using a published instrument approach or arrival procedure.

Visual Descent below Minimum Safe/Sector Altitude (MSA)

Visual Descent below MSA to the circuit altitude (1500 ft AGL) is permitted only by Day if the descent can be continued so as to ensure clearance from all obstacles on the intended track, provided that, on reaching the circuit altitude, sufficient visual reference is maintained to fix position continuously and accurately within the specified radius and any specified sector. If this condition cannot be satisfied, the aircraft must be climbed to MSA immediately.

Aerodrome and Runway Identification

Navigation procedures must not be considered complete until the aircraft has landed at the intended aerodrome on the correct runway. Positive identification can best be achieved by proper use of radio navigation facilities for cross-checking and establishing the aircraft position right down to the touch-down point. Radio facilities must be checked for frequency, identification and, whenever possible, location in relation to other known facilities or positions. At an aerodrome with no radio facilities, positive identification of the aerodrome and runway must be made visually.

Approach Briefing

Before starting an approach to land the Pilot in Command must satisfy himself that according to the information available to him, the weather at the aerodrome and the condition of the runway intended to be used should not prevent a safe approach, landing or missed approach. He will brief his Flight crew on his intentions, the type of approach, method to be used to identify the aerodrome and landing runway, and the go-around checklist, before an instrument approach, the briefing must include reference to all radio aids to be used and the relevant go around procedure. During the approach each Flight Crewmember must monitor that all heading and altitudes are consistent with the appropriate facilities and runway.

Stabilized Approach

All approaches must be planned to meet the stabilized criteria by 1000 formatter what the conditions at the airfield are.

During the approach the following criteria must be met.

- **In IMC, at 1000 AAL** the aircraft must be stabilized on the correct profile, speed brakes down in the planned landing configuration within the flight parameters, approach power set with the landing checklist completed.

- **In VMC, at 500 AAL** the aircraft must be stabilized on the correct profile, speed brakes down in the planned landing configuration within the flight parameters, approach power set with the landing checklist completed.
- **On final approach**, 360 degrees turns or any other maneuvers for profile adjustments are not permitted.

If the above criteria are not met either pilot must announce 'Go-around' then a Go-around must be carried out.
No disciplinary action what so ever will be taken against any crew that elects Togo Around for the above reasons?
8.3.1.6. Takeoff Conditions
Before commencing take-off, a Pilot in Command must satisfy himself that:

- The RVR or visibility in the take-off direction of the airplane is equal to or better than the applicable minimum and

The condition of the runway intended to be used should not prevent a safe takeoff and departure (refer to 8.1.2.4 Aerodrome Categories).

8.3.1.7. Commencement and Continuation of an Approach

Before commencing an approach to land, the Pilot In Command must satisfy himself that, according to the information available to him, the weather at the aerodrome, the condition of the runway intended to be used, ground equipment, on-board equipment, operating minima and crew qualification(s) should not prevent a safe approach, landing or missed approach, having regard to the performance information contained in the Operations Manual (refer to 8.1.2.4.3).
The in-flight determination of the landing distance should be based on the latest available report, preferably not more than 30 minutes before expected landing time.
The Pilot in Command or the pilot to whom conduct of the flight has been delegated may commence an instrument approach regardless of the reported RVR/visibility but the approach shall not be continued beyond the outer marker, or equivalent position, if the reported RVR/visibility is less than the applicable minima.
Where RVR is not available, RVR values may be derived by converting the reported visibility in accordance with table 5 of chapter 8.1.3.5. However, approach and landing operations are not authorized when the airport operating landing visibility minimum is below 800m unless RVR reporting is available for the runway of intended use.
If, after passing the outer marker or equivalent position in accordance with above, the reported RVR/visibility falls below the applicable minimum, the approach may be continued to DA/H or MDA/H.
Where no outer marker or equivalent position exists, the Pilot In Command or the pilot to whom conduct of the flight has been delegated shall make the decision to continue or abandon the approach before descending below 1000 ft above the aerodrome on the final approach segment.
The approach may be continued below DA/H or MDA/H and the landing may be completed provided that the required visual reference is established at the DA/H or MDA/H and is maintained.
The touch-down zone RVR is always controlling. If reported and relevant, the midpoint and stop end RVR are also controlling. The minimum RVR value for the midpoint is 125 m or the RVR required for the touch-down zone if less, and 75 m for the stop-end. For airplanes equipped with a roll-out guidance or control system, the minimum RVR value for the mid-point is 75 m.
Note1: “Relevant”, in this context, means that part of the runway used during the high-speed phase of the landing down to a speed of approximately 60 kt.

Note2: The equivalent position referred above can be established by means of a DME distance, a suitably located NDB or VOR, or any other fix that independently establishes the position of the aircraft, if published on the instrument approach chart.
8.3.1.8. Noise Abatement Procedure
Refer to –JEPPESEN- flight Procedure (DOC 8168) - Noise abatement Procedures.

8.3.2. Navigation Procedures

An aircraft shall not be operated unless the required navigation equipment is installed. The failure of a single navigation unit may not result in the inability to operate safely on the route to be flown. Detailed information about the required operational status of equipment is provided in the MEL.
Nesma Airlines ensure electronic navigation data products acquired from suppliers, prior to being used as a means for navigation in operations:

- **i.** Are assessed for a level of data integrity commensurate with the intended application; Are compatible with the intended function of equipment in which it is installed; are distributed in a manner to allow insertion of current and unaltered electronic navigation data into all aircraft that require it.

The specifications in items i) and ii) are satisfied, in accordance with State approved or State-accepted methods for assuring data integrity and compatibility, such as:

- Obtaining a letter of acceptance from an applicable authority stating the data supplier conforms to a recognized standard for data integrity and compatibility that provides an assurance level of navigation data integrity and quality sufficient to support the intended application.

Pilots are responsible for ensure the validation of the data base prior to the flight (ref. OM-A 1.4.4), the correct use of the navigation and communication equipment installed in the aircraft. Continuous monitoring of the equipment and its performance is mandatory during its use. Special attention must be paid to the engagement status of system used in order to avoid late recognition of mode or configuration changes which could result in abnormal situation (e.g. unscheduled disengagement).
Any degradation of on-board equipment which occurs must be taken into consideration for any in-flight planning/re-planning with regard to destination and alternate weather, and for fuel planning for en-route conditions.
Any downgrading of ground facilities which occurs must be assessed with regard to possible increased landing minima at destination and/or alternate airports.
The processes of downloading the data and distributing it in a manner to allow insertion of current and unaltered electronic navigation data into all aircraft that require it **(ref. GMM 4.22)**
8.3.2.1. In-Flight Procedures
Standard navigational procedures and system requirements including policy for carrying out independent cross checks of keyboard entries where these affect the flight path followed by the aircraft are detailed in FCOM-PRO-NOR-SRP-01 "FMGC PILOT'S GUIDE"

8.3.2.2. Routes and Areas of Operation

Operations shall only be conducted along such routes or within such areas, for which:

- Ground facilities and services, including meteorological services, are provided which are adequate for the planned operation;
- The performance of the airplane intended to be used is adequate to comply with minimum flight altitude requirements;

- The equipment of the airplane intended to be used meets the minimum requirements for the planned operation;
- Appropriate maps and charts are available (refer to 8.1.12. Onboard Library);
- If two-engine airplanes are used, adequate aerodromes are available within the time/distance limitations.

Operations shall be conducted in accordance with any restriction on the routes or the areas of operation, imposed by the Authority.

8.3.2.3. Required Navigation Performance - RNP

8.3.2.3.1. General Concept

Basic navigation procedures are based on the availability of satisfactory ground navigation aids, infrastructures (VOR, DME, NDB...), and aircraft navigation systems, which enable Nevoid to Nevoid navigation. Large safety margins mandated with respect to aircraft separation contribute to airspace saturation in certain areas.

This air navigation structure of airways, SIDs, STARs, etc. doesn't consider the availability of modern navigation systems, with enhanced performance, nor the availability of glass cockpits, which provide crews with improved awareness when flying such procedures.

The ICAO has recognized the need to benefit from available RNAV technology to improve existing air navigation systems, in the interest of increasing airspace capacity, and offering such advantages as fuel savings, direct tracks, etc. The introduction of RNP and RNAV will enable each country to design and plan routes that are not necessarily located over radio-nevoid installations.

8.3.2.3.2. Definitions

Required Navigation Performance (RNP)

RNP is a statement on navigation performance accuracy, essential to operations within a defined airspace.

RNP Airspace

Generic terms referring to airspace, route(s), procedures where minimum navigation performance requirements (RNP) have been established. Aircraft must meet or exceed these performance requirements in order to fly in that airspace.

RNP-X

A designator is used to indicate the minimum navigation system requirements needed to operate in an area, on a route, or on a procedure (e.g. RNP-1, RNP-4).

The designator invokes all of the navigation system requirements, specified for the considered RNP RNAV type, and is indicated by the value of X (in NM).

8.3.2.3.3. Performance Requirements

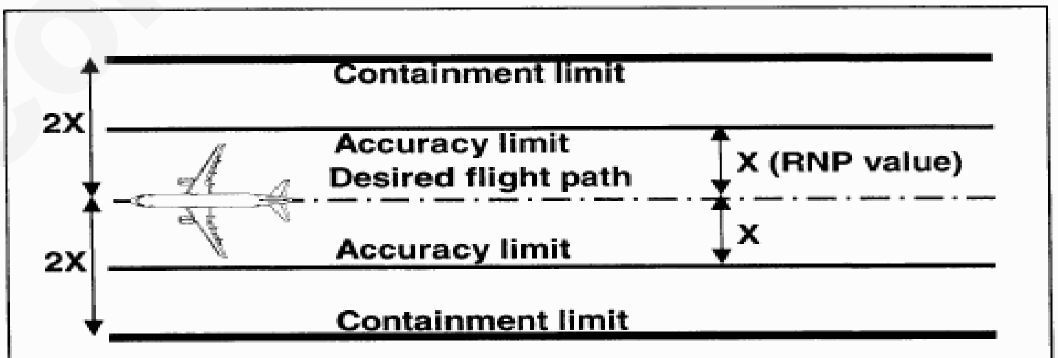


Fig. 1 RNP-X accuracy and containment limit

RNP – Cross track error accuracy and containment limit

Navigation accuracy
Each aircraft operating in RNP airspace shall have a total system navigation position error equal to, or less than, the RNP value for 95 % of the flight time. See Figure 1.
Containment integrity
The probability that the total system navigation position error in RNP airspace exceeds the specified cross-track containment limit without annunciation, should be less than 10-5 per flight hour. The cross-track containment limit is twice the RNP v value.
Containment continuity
The probability of an annunciated loss of RNP-X capability (true or false annunciation) shall be less than 10^{-5}per flight hour.
8.3.2.3.3.1. RNP Routes Supported by Radio Nevoid Coverage
Such airspace is mainly implemented, or will be implemented for en-route navigation over continental areas.
Typical RNP values are RNP-5 and RNP-4, but RNP-2 is considered for US domestic airspace.
In Europe, Basic RNAV (BRNAV) airspace (RNP-5) was implemented in April 1998. RNP-1 is progressively introduced for RNAV SIDs and STARs in Europe. (Nesma Airlines is approved for RNP-5
8.3.2.3.3.2. RNP Routes outside Radio NAVAID Coverage
This airspace is implemented, or will be implemented, for en-route oceanic navigation or for continental areas outside radio NAVAID coverage.
Typical RNP values are RNP-10 and RNP-12, but RNP-4 is also envisaged in the future.
In particular, the navigation system must be certified as the sole means of navigation with the adequate level of redundancy.

8.3.2.3.3.3. RNAV Non-Precision Approaches with RNP

RNAV approaches with RNP-0.3 have been published by some states, and these will undoubtedly become more frequent in the future.
8.3.2.3.4. RNP Operations
Prior to beginning operations within a RNP airspace, Nesma Airlines is responsible for addressing the following steps:

1. Verify aircraft certification status.
2. Establish MEL repercussions.
3. Implement adequate flight crew training and verify Operations Manual repercussions.
4. Collect adequate flight crew information.
5. Apply for operational approval, if required by national authorities.
6. Verify that the intended route is possible, if the navigation system is time limited.

Aircraft certification status:
For all Nesma Airlines aircraft, the AFM has appropriate reference to justify the type of RNP capability.
8.3.2.3.5. Aircraft Navigation Systems
8.3.2.3.5.1. Aircraft without GPS PRIMARY
For these aircraft, navigation performance depends on radio NAVAID updating and on the time since the last radio update or INS/IRS ground alignment. This assumes that the ground radio Nevoid infrastructure supports the level of accuracy.
Outside radio Nevoid coverage, navigation performance is determined by the INS/IRS drift rate, which implies a time limitation in direct relation to the RNP value to be achieved. Refer to FCOM-PRO-SPO-15
(2 hours for Basic RNAV in Europe).

8.3.2.3.5.2. Aircraft with GPS

When GPS is available in flight, on-board navigation performance exceeds the currently known requirements for any kind of route.
The availability of GPS, on any given route, is a function of the:

- Satellite constellation configuration
- Aircraft equipment
- Aircraft's geographical position
- Required navigation accuracy

Therefore, a temporary loss of GPS PRIMARY may be acceptable, depending on the RNP value desired.
Depending on which type of RNP value is envisaged, and which type of navigation mode is available, a pre-flight verification of 100% GPS PRIMARY availability may be required when part of the planned route is outside radio Navaid coverage.
For example,

- For Airbus models, IRS navigation is available as an ultimate means of navigation. Therefore, a temporary loss of GPS PRIMARY may be acceptable, depending on the RNP value desired.
- If GPS accuracy is needed for a Non Precision Approach, at destination or at alternate, then GPS availability at the ETA at this airport must be checked prior to departure.

8.3.2.3.5.3. Flight Crew Training and Operations Manual Complement
Use of the RNAV system (FMS, FMGS, and GPS) is integrated in the A320 flight crew type rating training course. No additional crew training is required on RNAV systems knowledge and procedures.
The FCOM provides the necessary RNAV system (FMS, INS, GPS) description and procedural information.
Nesma Airlines shall collect, in the appropriate AIP, the routes and airspace vertical and lateral limits where RNP capability and procedures are implemented.
Also refer to the ICAO Doc 7030 "Regional Supplementary Procedures", and to the information published by the CAA, administering the specific airspace where flights are intended.
Ex: Euro control Standard Document 03-93 for Basic RNAV in Europe.
Particular contingency procedures, in the event of a RNP-X capability loss, may also be published in the above documents.
In most cases, crew action will be to inform the ATC, which may require the aircraft to leave the RNP airspace or to use routes that are based on conventional radio navigation.
Nesma Airlines may have to complement their route manual or operations manual with the above information.

8.3.2.4. RNAV

8.3.2.4.1. RNAV Introduction
Area Navigation (RNAV) is a navigation method that enables aircraft operations on any desired flight path within station-referenced navigation aids or within capability limits self-contained aids, or a combination of both.
Aircraft position is determined by processing data from one or more sensors (VOR, DME, INS, GPS, etc.). Navigation parameters such as distance and bearing to away point are computed from the aircraft position and the location of waypoint.
An RNAV system may be used in the horizontal plane, which is known as lateral navigation (LNAV), but may also include functional capabilities for operations in the vertical plane, known as vertical navigation (VNAV).

In order to comply with the above requirement, the aircraft must be certified for BRNAV operations in order to file an IFR flight plan in the B-RNAV FIRs/UIRs. See MEL requirements and applicable aircraft procedures related to navigation accuracy.
When filing flight plan for an aircraft fitted with RNAV, having a navigation accuracy meeting RNP-5, insert the designator "R" in item 10 of the flight plan.
The navigation database installed in the aircraft must be checked for its validity before the flight.
It is the crew's responsibility to ensure that the navigation accuracy is maintained. In particular, the utmost care will be taken to avoid the following mistakes:

- **a)** Insertion errors: The pilot has the correct co-ordinates or way-points of his cleared route, but he inserts incorrect data into the system; particular care should be exercised in case of re-clearance.
- **b)** De-coupling: The pilot allows the Autopilot to become de-coupled from the equipment which he thinks is providing steering output.
- **c)** Using faulty equipment: The pilot might continue to use a navigation system which was becoming inaccurate.

8.3.2.4.2. RNAV system / FMS
For system description and procedures to be used with RNAV or any Flight Management System (FMS) refer to FCOM DSC-22-US-20-20-20 PAGE 01-6 (FMGS pilot's guide) for A320.

8.3.2.4.3. BRNAV (RNP-5) Based on Radio Nevoid

It is normally the responsibility of the airspace administration to support the required navigation performance by providing the adequate nevoid infrastructure. NOTAMs are expected to be published when a nevoid failure may affect the navigation performance on a given route.
8.3.2.4.3.1. Aircraft Equipment

Aircraft	Equipment
A320	IRS+FMS updated by - GPS - DME/DME - VOR/DME

8.3.2.4.3.2. MEL Repercussion
MEL requirements are based on the type of RNP airspace:

- For airspace within radio Nevoid coverage: one RNAV system is required, considering that conventional navigation from Nevoid to Nevoid and radar guidance remain available in case of system failure.
- For airspace outside radio Nevoid coverage: two RNAV systems are required to ensure the appropriate redundancy level

Specific MEL requirements for BRNAV (RNP-5) airspace are covered by Nesma Airlines MEL`s.
8.3.2.4.3.3. Loss of BRNAV Capability
Except for aircraft with GPS PRIMARY when GPS PRIMARY is available, the normal FMS position monitoring with Nevoid raw data as described in FCOM must be observed.
Any discrepancy, between Nevoid raw data and FMS position, with a magnitude of the order of the RNP-X value shall be considered as a loss of RNP capability.
For A320 the RNP-X capability should be considered as lost if the system stays in IRS ONLY navigation (without GPS available) for more than the approved time limit (2 hours for Basic RNAV in Europe).

A320 equipped with GPS PRIMARY fulfill all RNP requirements up to RNP-1 when GPS PRIMARY is available. When GPS PRIMARY LOST indication is displayed; the RNP capability is maintained in the conditions described above for aircraft without GPS.
MCDU Messages like FMS1/FMS2 POS DIFF or CHECK A/C POSITION, may also indicate a RNP capability loss except if the faulty system has been identified and the healthy system is used for navigation and is monitored.
If RNP-X capability is lost the crew must advise the ATC, which may require the aircraft to leave the RNP airspace.
As a result of a failure or degradation of the RNAV system below RNP 5, an aircraft shall not enter the B-RNAV airspace, nor continue operations in accordance with the current air traffic control clearance. ATC must be advised and a revised clearances hall, whenever possible, be obtained by the pilot. Subsequent air traffic control action in respect of that aircraft will be dependent upon nature of the reported failure and the overall traffic situation. Continued operation in accordance with the current ATC clearance may be possible.
When this cannot be achieved, a revised clearance may be required to revert to VOR/DME navigation. The crew will then, on each ATC frequency change, report the situation by announcing “NEGATIVE-RNAV” on initial contact.
For ad hoc in-flight re-planning, pilots must not only check if the fuel requirements for in-flight re-planning will be met, but also if the available navigational aids for their planned route and/or the re-planned destination, as well as the airborne equipment, will be sufficient for a safe conclusion of the flight.
8.3.2.4.3.4. Conditions to Enter the BRNAV Airspace
RNP airspace can be entered only if the required equipment is operative.
Only one RNAV system is required to enter RNP airspace within radio nevoid coverage, which means basically for A320 that the following equipment is operative:

- 1 FMGC
- 1 MCDU
- 1 VOR
- 1 DME
- ND with flight plan data
- 1 IRS

The expected RNP-X capability must be available. This is done by verifying that the conditions of RNP capability loss (see above) are not present.

8.3.2.5. Reduced Vertical Separation Minimum - RVSM

8.3.2.5.1. General Concept
RVSM airspace is defined as an airspace or route where aircraft are vertically separated by 1000 feet (rather than 2000 feet) between FL 290 and FL 410 inclusive.
The objective is to increase the route capacity of saturated airspace, while maintaining (at least) the same level of safety.
This can be achieved by imposing strict requirements on equipment and on the training of personnel, flight crews and ATC controllers. As part of the RVSM program, the aircraft “altitude-keeping performance” is monitored, overhead specific ground-based measurement units, to continuously verify that airspace users are effectively applying the approved criteria and that overall safety objectives are maintained.

ICAO NON-RVSM	
180^O-359^O	000^O-179^O

RVSM AIRSPACE	
180^O-359^O	000^O-179^O

FL430			FL430	
	FL410			FL410
			FL 400	
FL 390				FL 390
			FL 380	
	FL 370			FL 370
			FL 360	
FL 350				FL 350
			FL 340	
	FL 330			FL 330
			FL 320	
FL 310				FL 310
			FL 300	
	FL 290			FL 290
FL 280			FL 280	

8.3.2.5.2. Aircraft Certification Status

All Nesma Airlines aircraft have RVSM capability.

The minimum required equipment for RVSM is:

- Two independent altitude measurement systems
- One secondary surveillance radar transponder with altitude reporting
- One altitude alert system
- One automatic altitude control system.

8.3.2.5.3. MEL Requirements

The MEL for all Nesma Airlines aircraft has also been revised to refer to the list of required equipment published in the AFM.

8.3.2.5.4. RVSM Operations

8.3.2.5.4.1. Operational Approval

An operational approval has been given to Nesma Airlines for RVSM operations.

8.3.2.5.4.2. RVSM Procedures

General RVSM procedures valid in any RVSM airspace are published in FCOM-PRO-SPO-50, a generic summary of these procedures is provided below.

Use of RVSM airspace

Except for State Aircraft operating as Operational Air Traffic (military flights that are not conducted based on ICAO rules), only IFR flights are permitted in RVSM airspace.

Except for State Aircraft and except the FIR/ UIR within which transition from RVSM ton on-RVSM or from non-RVSM to RVSM airspace is carried out, climbing from below FL290 to above FL410 and descending from above FL410 to FL290 is not permitted for non-RVSM aircraft.

Flight Planning

The letter "W" is to be inserted in item 10 of the ICAO Flight Plan for RVSM approved aircraft regardless of the requested flight level.

During flight planning pay particular attention to conditions that may affect operation in RVSM airspace. These include:

- Verifying that the airframe is approved for RVSM.
- Reported and forecast weather.
- MEL requirements pertaining to height keeping and alerting systems.
- Any operating restrictions related to RVSM.

Pre-Flight Procedures

Review Technical Log to determine the condition of equipment required for RVSM.

During the external inspection of the aircraft particular attention must be paid to the condition of static sources, condition of the fuselage skin near each static source and any other component that affects altimetry accuracy.

Before take-off, the altimeters should be set to airfield QNH and should display the known altitude within the limits specified in the Aircraft Operations Manual.

Prior to entry into RVSM airspace

The required minimum equipment must be operative, otherwise a new clearance to avoid RVSM airspace must be obtained:

For A320

- Two ADRs, and two main altitude indications#
- One ATC transponder.
- One AP in ALT and OPEN CLB/DES (or LVL/CH) modes
- FCU altitude selection and OPEN CLB/DES (or LVL/CH) selection
- One FWC for altitude alert function.

At least two main altimeter indications on the STD setting must be within 200 feet.

If only two ADRs (or two ADCs) are operative, record significant main and standby altimeter indications for reference, in case of subsequent altimeter failure.

Within RVSM airspace

- Ensure compliance with any operating restrictions e.g. limits on indicated Mach number.
- All ATC clearances must be confirmed by both crewmembers to ensure prompt compliance.
- Ensure that the aircraft is flown in level cruise at the cleared flight level. The aircraft should not intentionally depart from a cleared flight level without clearance unless conducting emergency maneuvers.
- When changing levels, the aircraft should not be allowed to over or undershoot the cleared level by more than 150ft. The autopilot and automatic altitude capture should always be used. Caution should be exercised to ensure that autopilot failure, or mode reversion does not result in altitude deviation.
- The autopilot altitude control system should be engaged during level flight, except when circumstances such as the need to re-trim the aircraft or turbulence required is engagement. Flight management system inputs allowing variations of ± 130ft under non-turbulent, non-gust conditions ("Soft Altitude" mode) may be used.
- In normal operation, the altimetry system being used to control the aircraft (Autopilot 1 or 2) should be used for the input to the altitude reporting transponder. See the aircraft specific procedures in aircraft operating manual.
- At intervals of approximately 1 hour, cross checks between the primary altimeters should be made. The minimum of two will need to agree within ± 200ft. Failure to meet this condition will require that the altimetry system be reported as defective to ATC. A normal scan of flight instruments will suffice for most flights.
- If the aircrew is notified by ATC of an assigned altitude deviation which exceeds ±300ft then action must be taken to return to the cleared level as quickly as possible.

Aircraft separated by only 300m (1000ft) may appear to be at the same level. This is particularly true during darkness or during a turn. Whenever possible use TCAS to provide positive identification of aircraft separation and maintain visual contact with traffic. For opposite direction traffic use "constant bearing" method to determine possible conflict.

Transition procedures

Aircraft entering non-RVSM airspace from the EUR RVSM airspace or exiting the EURRVSM airspace to non-RVSM airspace shall be established with a minimum separation of 2000ft.

Post flight
Report any malfunction or deviation in relation to the altitude keeping capability, and any failure of the required RVSM equipment.
When making Technical Log entries against malfunctions that may affect RVSM operation, the Pilot in Command should provide sufficient detail to enable maintenance to effectively troubleshoot and repair the system. As a guide the following information should be recorded when appropriate:

- Primary and standby altimeter readings and subscale settings.
- Altitude selector setting.
- Autopilot used to control the aircraft and any differences when an alternative autopilot is used.
- Differences in altimeter readings if alternate static ports selected.
- Use of air data computer selector for fault diagnosis procedure.
- The transponder selected to provide altitude information to ATC and any difference noted when an alternative transponder was selected.

8.3.2.5.5. In-Flight Contingency Procedures
An in-flight contingency refers to unforeseen circumstances that may have a direct impact on the ability of one or more aircraft to operate in accordance with the RVSM performance requirements. Such situations may be equipment and/ or weather related.
The aircrew must immediately inform ATC if such a situation occurs and obtain, whenever possible, a revised clearance prior to initiating any deviation from the last clearance.
If due to equipment failure (e.g. failure of automatic altitude control, failure of altimetry system loss of thrust on an engine requiring descent) an aircraft cannot operate any longer in accordance with RVSM performance requirements. ATC will consider it as non-RVSM and will take immediate action to provide 2000ft separation and if possible clear it out of RVSM airspace.
When an aircraft operating in RVSM airspace encounters severe turbulence that is believed to impact the aircraft's ability to maintain its cleared flight level, the crew will inform ATC who will establish either the appropriate horizontal separation or an increased minimum vertical separation.
When a met forecast predicts severe turbulence within RVSM airspace, ATC will determine whether RVSM should be temporarily suspended in specific areas or flights.
The following contingency procedures should not be interpreted in any way that prejudice's the final authority and responsibility of the pilot in command for the safe operation of the aircraft.
If the pilot is unsure of the vertical or lateral position of the aircraft, or the aircraft deviates intentionally from its assigned track, without prior ATC clearance, then the pilot must act to mitigate the potential for collision with aircraft on adjacent routes or flight levels.
The pilot should notify ATC of contingencies (equipment failures, weather) which affect the ability to maintain the cleared flight level and co-ordinate an appropriate plan of action.
Examples of equipment failures which should be notified to ATC are:

- Failure of all automatic altitude control systems aboard the aircraft.
- Loss of redundancy of altimeter systems.
- Loss of thrust on an engine requiring descent.

- Any other equipment failure affecting the ability to maintain a cleared flight level.

Air Traffic Control shall take immediate action to provide a minimum of 2000ft vertical separation, or an appropriate horizontal separation from all other aircraft. An aircraft rendered non-RVSM shall normally be cleared out of RVSM airspace when it is possible to do so.

Pilots shall inform ATC as soon as possible of any restoration of the proper functioning of equipment required to meet RVSM specification.

The pilot should notify ATC when encountering greater than moderate turbulence.

If unable to contact ATC continue with standard ICAO radio failure procedure. Climb /Descend as required by the procedure to maintain flight planned levels.

There are no additional RVSM procedures following a TCAS Traffic alert "or" Resolution Advisory." Follow the normal procedures as laid down in the aircraft operating manual.

TCAS TA's may be experienced when passing opposite direction traffic with 1000ft separation.

TCAS RA's will not normally be generated but should be complied with unless positive visual separation is assured.

TCAS failure

- Continue flight in accordance with ATC RVSM clearance.
- Listen out for traffic on ATC frequency and 121.5 MHz
- Maintain an extra vigilant lookout.

Note:

NESAMA AIRLINES should report height-keeping deviations to the responsible Authority within 72 hours when the deviation exceeds:

- A total Vertical Error of 300 feet (for example, measured by an HMU).
- An Altimetry System Error of 245 feet.
- An Assigned Altitude Deviation of 300 feet.

These errors, caused by equipment failures or operational errors, may lead the responsible Authority to suspend or revoke the Airline's RVSM approval.
It is therefore important to report any poor height-keeping performance and to indicate which corrective actions have been taken.

8.3.2.6. FUTURE AIR NAVIGATION SYSTEM (FANS)

8.3.2.6.1 GENERAL

Fundamentals of the CNS/ATM (Communication, Navigation, Surveillance/Air Traffic Management) Concept:

- It is mainly built on satellite technology and digital communications;
- It aims at increasing the air space capacity;
- It aims on enhancing the operational flexibility and global safety of air traffic.

8.3.2.6.2 COMMUNICATION

The CNS/ATM Concept is a global end-to-end concept. Therefore, proper interoperability of all participants (e.g. Air Traffic Services organizations, communication service providers or ATC) is essential for the correct operation of the system.

CONTROLLER-PILOT DATA LINK COMMUNICATION (CPDLC)
Implementing this concept, Controller-Pilot Data Link Communication (CPDLC) will become the primary source of communication instead of the classical VHF and HF voice communication between Pilot and controllers.
Especially in oceanic and remote areas or in congested airspace, CPDLC is a powerful means for communication and for reducing congestion on VHF frequencies.
CPDLC messages will be displayed to the crew in-flight and can be stored and printed.
In addition to air-to-ground communication, ground-to-ground communication is also part of this concept. The purpose is, to link different ATC service organizations (or services of the same ATC) and AOC (Airline Operational Centre).
For more details refer to FCOM DSC-46-10.

8.3.2.6.3 NAVIGATION

Aircraft are required to fulfil a certain RNP level, to benefit from the CNS/ATM concept. This statement on the navigation performance accuracy is necessary for operation in the respective airspace and will be defined by the relevant ATS of the concerned area.
The combination of CPDLC, RNP and ADS-B (see 8.3.2.6.4)
enables the reduction of procedural separations (longitudinal and lateral) down to 30 NM, hereby increasing airspace capacity.

8.3.2.6.4 SURVEILLANCE

Common types of surveillance are: SSR modes A, C and S. All these types require radar coverage. In addition to the mentioned SSR modes, ATC can receive the aircraft position and other surveillance data via the Automatic Dependent Surveillance (ADS).

ADS-B (AUTOMATIC DEPENDENT SURVEILLANCE - BROADCAST)
ADS-B enables SSR like surveillance services, as ADS-B capable aircraft use an ordinary GNSS receiver to derive its precise position from the GNSS constellation.

The position and other aircraft parameters as speed, heading, altitude and flight number are then simultaneously broadcasted to other ADS-B capable aircraft and to ADS-B ground stations, or satellite communication transceivers which then relay the aircraft's position and additional information to Air Traffic Control centers in real time.
ADS-B ground stations can easily be installed and are cheaper in terms of installation and maintenance.

8.3.2.6.5 AIR TRAFFIC MANAGEMENT (ATM)

As Air Traffic Management becomes more and more important due to the increasing amount of air traffic, a close co-operation of ATS, crews and airline operational centers is required and expected to be reached through data communications and automated sharing of real-time information. CPDLC, ADS and AOC/ATC inter-facility link are some of the tools used to support new ATM methods such as Collaborative Decision Making (CDM).
The aim of CDM is to enable the corresponding actors (crews, controllers and airline operations) involved in ATM system, to improve mutual knowledge of the forecast/current situations, of each other constraints, preferences and capabilities, to resolve potential problems.

8.3.2.7 Minimum Navigation Performance Specification – MNPS

Nesma Airlines is not authorized for MNPS or AMU.

8.3.2.8 BRNAV Procedures

For BRNAV procedures ref. to FCOM PRO-SPO-51.

8.3.3. Altimeter Setting Procedures

8.3.3.1 General

Aircraft altimeter system is described in FCOM systems description volume -"Instruments" and associated procedures are given in FCOM Standard Operating Procedures (SOP) or Normal Procedures.
Altimeter tolerances are given in FCOM "Procedures and Techniques/Supplementary Techniques".
All altimeter misreading are to be treated as reportable incidents.

8.3.3.2 Type of Altimeter Settings

The three different types of altimeter settings are "Standard" (1013.25 hPa / 29.92inHg), QNH and QFE.
As indicated below, each setting will result in a altimeter indication which provide a measure of the vertical distance with regard to the ICAO Standard Atmosphere (ISA) above the particular reference datum shown.

Altimeter setting	Reference Datum	Altimeter indication
Standard (QNE)	1013.25 hPa / 29.92 in Hg	Flight Level
QNH	Local mean sea level pressure	Altitude
QFE	Aerodrome elevation	Height above aerodrome

8.3.3.3 Setting Procedure

All Nesma Airline Flight Crewmembers are required to use QNH for takeoff, approach and landing phases of flight.
When changing an altimeter setting, each pilot will call out the new setting and check altitudes. (Refer to FCOM Supplementary Techniques –PRO SUP)
Altimeter Serviceability Checks

1. During cockpit preparation the pressure scales of all altimeters shall be set to the actual QNH of the aerodrome, they must read to be within the type specific tolerances.

2. The altimeter indications thus obtained shall be observed and checked against the elevation of the aerodrome at the location of the aircraft.
3. When the altimeter does not indicate the reference elevation or height exactly, but is within the tolerance specified in the relevant FCOM, no adjustment of this indication shall be made at any stage of the flight. Furthermore, any error that is within tolerance noted during pre-flight check on the ground shall be ignored by the Pilot during flight.
4. After each setting of altimeters, the readings on the flight deck shall be compared. This shall include the standby altimeters.
5. If an altimeter indication is not within the specified tolerance follow the procedure outlined in the FCOM or MEL.

The required altimeters must be set to QNH at or below the transition altitude; QNH should be the sole reference for takeoff, approach and landing phases. The transition altitude specified for an aerodrome is shown on the relevant charts.

Take-off and climb

- All take-off will be performed with altimeters set on QNH.
- When passing the transition altitude, altimeters will be set to standard (1013.25hPa) and bare settings and altitude readings will be cross-checked

Cruise

- If cruising below or at transition altitude, both pilot altimeters will be on QNH of the nearest station available.
- If cruising above the transition altitude, both altimeters will be on Standard (1013.25 hPa)

Descent

- At transition level both pilots reset their altimeter on the appropriate QNH and check altitudes.

8.3.3.4. Temperature Correction

Temperature deviation from ISA results in erroneous readings on pressure altimeters.
When the temperature is lower than standard, the true altitude is less than indicated altitude.
Depending on the amount of temperature deviation (on the colder side) and amount of height to be corrected for, significant deviations between indicated and true altitude can occur in conditions of extreme cold weather where terrain clearance is a consideration, corrections should be calculated and a higher indicated altitude established and flown.
Values to be added to the published altitudes are given in 8.1.1.3.1

8.3.3.5. Altimeter Discrepancies in Flight

When a different altimeter reading occurs during the descent and approach phases, the lower reading altimeter will be used to determine safety heights and critical heights. However, the glide path height check at the outer markers will be used as a further check, bearing in mind that the glide slope itself may be inaccurate.

8.3.3.6. IFR Flight Level Tables - Semi Circular Rules

Not applicable for RVSM spaces (refer to 8.3.2.5. Reduced Vertical Separation Minimum - RVSM)

Table 1 - Flight levels ICAO rule

180º - 359º	360º - 179º
ft (x100)	ft (x100)
	10
20	30
40	50
60	70
80	90
100	110
120	130
140	150
160	170
180	190
200	210
220	230
240	250
260	270
280	290
310	330
350	370
390	410

8.3.3.7. Flying with Metric Altimetry Procedure:

When a flight is to be conducted in or through metric altimetry airspace, pilots are required to carry out the following preparation:

1. Review the specific State's Rules and Procedures and the differences to Standard ICAO procedures in the Jeppesen Supplementary Text Manual (Air Traffic Control section).
2. Conduct a thorough flight crew briefing before the commencement of a flight, or series of flights, into 'metric' airspace.

The briefing should cover the following: -

Any differences to the standard ICAO procedures FIR boundary crossing (entry/exit); ATC communication and obtaining early clearances, decompression descending level (meter), request (hPa) for altimeter pressure setting 'Approach Chart Briefing' with particular attention to the ALT/HEIGHT conversion table.

Note: Conversion tables for feet/meter are provided in Jeppesen – General – Tables and Codes.

8.3.3.7.1. Metric Altitude Indications Applicable To A320:

- Metric altitude indications can be directly obtained on the Lower ECAM by pressing the METRIC ALT PD to the left of the Altitude selector knobs on the FCU.
- When selected, the target altitude, i.e. the altitude selected in the Altitude window on the FCU, is displayed in meters on the bottom of the lower ECAM
- The actual aircraft altitude in Feet is displayed in (cyan/magenta) at the bottom/top of the altitude scale on the right side of the PFD during descent/climb.

8.3.3.7.2. Procedure

- Contact the appropriate ATC as early as possible and obtain the required cruising altitude in meters.

- Approaching the changeover point (FIR boundary), the PF will press the Metric ALT PD on the FCU, inform the PM that "All Altitude Calls will now be read in Meters" and adjust the aircraft cruising level to correspond to the metric FL obtained from ATC.
- Adjust the altitude in meters using the altitude selector knobs on the FCU and read the selected altitude in meters on the bottom of the lower ECAM.
- Initiate a climb or descent as required using CLB/OPEN, CLB/VS or DES/OPEN, DES/VS.
- When ALT CRZ is displayed on the FMA, confirm that the FL is correct with reference to the actual altitude indication at the bottom of ECAM.
- Make all calls to ATC giving the cruising FL in meters.
- When exiting the area (FIR boundary) and reverting to altitude reporting in feet as per ATC instruction, adjust the FL in feet. The PF can deselect the Metric ALT Pb on the FCU and inform the PM that "All Altitude calls are reverting back to feet".

8.3.3.7.3. Landing at an En-Route Alternate Airport in a Metric Altimeter-Setting Region

If a landing has to be made at an authorized Enroute alternate airport in a metric altimeter-setting region, adopt the following procedure:

- Descend using the metric altitude setting procedure described above. Transition level is displayed on the Jeppesen chart in both meters and feet. Changeover to QNH at the appropriate Transition Level.
- Set up the approach on the MCDU using standard procedures. If the approach is not in the database, ensure that at least the RWY in use is selected as guidance.
- Note that, even in a metric altimeter-setting region, the DH/MDA is still depicted in feet on the Jeppesen chart. A table giving ALT/HEIGHT Conversion in QNH and QFE is displayed on the chart. This table can be used in conjunction with the metric altitude indications on the lower ECAM for gross error checks of altitudes.
- In the event of QFE being passed, pilots are to request ATC for the actual QNH.
- Refer to the relevant Jeppesen approach plate, plan and brief the approach, paying particular attention to brief that, although the initial part of the approach may be flown with reference to the metric system, all the minima entered in the FMGCs are in feet, and all call-outs of "100 ABOVE" and "MINIMUM" are based on altitude indication in feet.
- If radar vectors are provided, and clearances are given in meters, use the metric indications of selected altitudes in meters from the Lower ECAM until established on final approach descent profile.
- Fly the approach down to the minimum as indicated in feet and land or go-around as appropriate.
- Go-around altitudes are given in feet on the Jeppesen approach charts. Later, if required by ATC, adjust the altitude to comply with clearances given in metric unit.

8.3.3.8. Flight Levels

Flight above the Transition Altitude is conducted at "Flight Levels" which are surfaces of constant atmospheric pressure based on the "Standard" altimeter setting of 1013.2hPa/29.92 in. The Flight Level is the altimeter reading divided by 100 (e.g.23000ft = FL230)

Note: In several Eastern Europe and a few Asian countries, Flight Levels are metric and the complete altimeter reading is used so that 5000 meters (16400ft) is stated as "Flight Level 5000 meters Standard.

8.3.4. Altitude Alerting System Procedures

Altitude Alert system operational functioning is described in FCOM systems description volume - "Instruments" chapter for A320.
The purpose of the altitude alerting system is to alert the flight crew by the automatic activation of a visual and/or an aural signal when the aircraft is about to reach or is leaving the pre-selected altitude / flight level. The system and its operation shall ensure an accurate altitude adherence during all phases of the flight.
The altitude alert system is to be used to record cleared altitudes and not as a reminder device for transition levels or reporting altitudes.
When climb / descent constraints are part of a departure / arrival clearance, constraint altitude(s) should be set in the altitude alert system (selected altitude window) even though such constraints are also entered in the FMS (as applicable).
When it is necessary to change the selected altitude, the PM will make the change cross-checked by the PF.
In the case of an instrument approach the missed approach altitude must be set in the altitude alert system once cleared for final or at the commencement of final approach.
The use of the altitude alerting system does not in any way release the flight crew from the responsibility of ensuring that the aircraft levels off or will be leveled off at the correct altitude or flight level.

8.3.5. Ground Proximity Warning System Procedures

The Ground Warning Proximity System (GPWS) is designed to alert pilots that the aircraft position in relation to the terrain is abnormal and, if not corrected, could result in a controlled flight into terrain (CFIT). Pilots must keep in mind that CFIT escape maneuver is an aggressive pitch up maneuver that maximizes the performance of the aircraft.
For A320 family, GPWS operational functioning is described in FCOM - systems description volume - "Navigation" chapter. Associated procedures are given in FCOM "Emergency procedures" and in the QRH.
It is the responsibility of the Pilot in Command to develop and implement a plan which employs all available resources to ensure adequate terrain clearance.
When undue proximity to the ground is detected by any flight crewmember or by a ground proximity warning system, the Pilot in Command or the pilot to whom conduct of the flight has been delegated shall ensure that corrective action is initiated immediately to establish safe flight conditions The GPWS must be "ON" from take-off until landing.
The GPWS may not be deactivated (by pulling the circuit breaker or use of the relevant switch) except when specified by approved procedures.
When a warning occurs during daylight VMC conditions, if positive visual verification is made that no hazard exists, the warning may be considered cautionary.
When a "Whoop Pull up"-"Terrain Terrain" warning occurs during the night or in IMC conditions a go-around shall be initiated in any case without delay .
Any GPWS activation must be reported in writing to the flight operations whether genuine or spurious.
Where such activation indicates a technical malfunction of the system an appropriate entry should also be made in the technical log.
Pilots shall be aware of the possibility that a nuisance warning may be generated by an aircraft flying below (up to 6500 ft.) e.g. during a holding.
Only Enhanced GPWS (EGPWS) also called TAWS (Terrain Avoidance and Warning System) have a forward-looking facility, therefore including a predictive terrain hazard warning

function so that some cautions and warnings may be given if the aircraft is approaching sharply rising terrain.

Basic or so-called advanced GPWS do not have this facility, so that the time between the receipt of a warning and contact with the ground if no corrective action is taken will be around 20 seconds. This will be lessened if the rate of descent is excessive or if there is rising terrain below the aircraft.

Nesma Airlines may require an update process for GPWS terrain and, if applicable, obstacle databases, for the purposes of reducing false warnings and ensuring actual hazards are properly identified.

Nesma Airlines ensure that terrain and, obstacle data acquired from an external vendor or supplier is distributed in a manner to allow the timely insertion of current and unaltered data into all aircraft for which it is required by the following process.

1. The Performance Engineer receives a release note for the EGPWS from the service provider (Honeywell).
2. The Performance Engineer revises the applicability of the released notification for Nesma Airlines operation, then to introduce it to the Operation Director for approval.
3. Technical department is responsible for the distribution of the TDB into all aircraft.

8.3.6. Policy and Procedures for the Use of TCAS/ACAS

Traffic and Collision Avoidance System (TCAS) / Airborne Collision Avoidance System (ACAS) description is given in FCOM DSC - "Navigation" chapter.

Associated procedures are given in FCOM "Emergency procedures" and in "Procedures and Techniques / Supplementary Techniques".

TCAS is designed to act as a back-up to the ATS system and to the "see and avoid" concept and is fitted to the Company's aircraft. It assists the Pilot in Command, who, with the aid of the ATS system has the primary responsibility for avoiding collision.

It generated both Resolution Advisories (RA) and Traffic Advisories (TA) in respect of aircraft predicted to enter the TCAS "collision area" only when these aircraft are fitted with transponders replying in Mode C and Mode S.

It can generate only Traffic Advisories against intruder aircraft whose transponders reply in Mode a (non-altitude reporting).

Operating Procedures

If a TA or an RA is received, the following action should be taken:

TA: a TA is intended to alert the crew that an RA, requiring a change in flight path, may follow. A visual search should immediately be concentrated on that part of the sky where the TA indicates the conflicting traffic to be. If the potential threat cannot be seen and gives cause for concern, air traffic control assistance should be requested in deciding whether a change of flight path is required. If the potential threat is seen, no action should be taken unless it is considered to pose a definite risk of collision. In this case the Pilot should maneuver his aircraft as necessary to avoid the threat, making sure that the area into which he is maneuvering is dear; or an RA is received.

Once clear of the potential threat, and any other subsequent conflicts, the Pilot should resume his previously cleared flight path and advise ATC of any deviation from his clearance. There is, however, a temptation in these circumstances for pilots to play air traffic controller and take avoiding action which is unnecessary. This temptation should be avoided, especially in areas of high traffic density, since it can jeopardize the traffic separation plan made by the air traffic controller on the ground.

RA an RA is intended to advise pilots on the maneuver they should carry out in order to achieve or maintain adequate separation from an established threat. The required maneuver should be

Initiated immediately, and crewmembers not involved in its execution should ensure that the sky ahead is clear of other traffic and continue the visual search for the established threat. Once the TCAS indicates that adequate separation has been achieved, or visual acquisition or ATC information shows that there is no longer a conflict, the aircraft should be promptly returned to its intended flight path, and ATC informed.

Note: To inform the ATC the following phraseology should be used “TCAS climb”, “TCAS descent” and “clear of conflict”.

Important Notes:

- An RA may be disregarded only when the pilots visually identify the potentially conflicting traffic and decide that no deviation from the current flight path is necessary.
- Do not maneuver in a direction opposite to that specified by an RA unless a visually acquired aircraft presents an immediate threat since TCAS to TCAS coordination may have occurred.
- If an instruction to maneuver is received simultaneously from an RA and from ATC, and the instructions conflict, the guidance given by the RA shall be followed without any delay.
- Maneuvers based on TA only are not advised - they may only increase collision threat.
- STALL, GPWS and Wind-shear warnings override all RAs.
- The majority of TCAS RAs that require a deviation in current flight path are usually resolved with vertical movements of 300 to 500 ft.
- TRAs do not require violent maneuvers. Promptly and smoothly adjust the aircraft's V/S to keep the V/S needle just outside the red zone on the VSI - this satisfies the TCAS advisory and minimizes ATS clearance deviation.
- Even if TAs and RAs are suspected of being nuisance or false advisories, they should be treated as genuine unless the intruder has been positively identified and shown visually to be no longer a threat.
- During approach to closely-spaced parallel runways or to converging or intersecting runways, use of TA Only mode is recommended once the aircraft is established on final approach course and glide path intercept has occurred. Continued operation in TA/RA mode may result in RAs for aircraft on approach for the adjacent runway, and may cause unnecessary go-around. Furthermore, RAs may be received for aircraft that may be on the airport surface, with their transponders operating, and thus may also cause unnecessary go-around.
- Pilots should limit vertical speed to 1500 ft/min in the last 2000 ft of climb or descent and 1000 ft/min in the last 1000 ft/min of climb or descent especially in the RVSM and busy airspace unless otherwise instructed by air traffic control.

Reporting Requirement

Whenever, as a result of a TCAS warning, an aircraft has been maneuvered such that it has departed from its air traffic control clearance, the appropriate ATC unit is to be informed as soon as possible of the departure, and of the return to the previously cleared flight conditions. Whenever an aircraft has departed from an air traffic control clearance to comply with an RA, the Pilot is to report the circumstances to the Flight Safety Office.

8.3.7. Policy and Procedures for the In-Flight Fuel Management

8.3.7.1. Fuel Quantity Checks

8.3.7.1.1. General

The fuel on board when starting the engines must not be less than the minimum fuel quantity defined by the fuel policy. Refer to 8.1.7.1.
The fuel on board must be periodically checked in flight to determine if the remaining fuel is not less than the minimum fuel required to continue the intended flight. This will help the Pilot in Command to detect possible fuel consumption higher than anticipated or a fuel leak.

8.3.7.1.2. In-Flight Fuel Checks

The remaining fuel must be recorded and evaluated to:

- Compare actual consumption with planned consumption;
- Check that the remaining fuel is sufficient to complete the flight; and
- Determine the expected fuel remaining on arrival at the destination.

In-flight fuel monitoring is made using the operational flight plan.
The crew must carry out regular fuel checks (at waypoints and at least every 30minutes) noting:

- Time of observation
- Fuel used (Burn Off)
- Remaining fuel on board (Actual FOB)

Subtract "Fuel used" from the block fuel (recorded before engine start) and compare this figure with the "Remaining fuel on board". If there is no major discrepancy, the figures read on the aircraft should be used.
This type of monitoring would detect fuel leaks and provide a more reliable basis of calculation in case of either Fuel Quantity Indicator (FQI) or Fuel Used (FU) failure during flight.
However, without any failure or fuel leak, some discrepancies, which may be considered large (more than 1000 kg on some aircraft), can be evidenced. There may be due to:

- APU consumption (up to 150 kg/h) which is not recorded by FU
- FQI errors on block fuel and on FOB
- FU indication tolerance
- Water freezing in the tanks may also affect the FQI indications.

8.3.7.1.3. In-Flight Fuel Management.

The Pilot in Command shall ensure that the amount of usable fuel remaining in flight is not less than the fuel required to proceed to an aerodrome where a safe landing can be made, with final reserve fuel remaining.
If, as a result of an in-flight fuel check, the expected fuel remaining on arrival at the destination is less than the required alternate fuel plus final reserve fuel, the Pilot In Command must take into account the traffic and the operational conditions prevailing at the destination aerodrome, along the diversion route to an alternate aerodrome and at the destination alternate aerodrome, when deciding whether to proceed to the destination aerodrome or to divert, so as to land with not less than final reserve fuel.
In particular, where an aerodrome has fewer than two separate and suitable runways available, a decision to continue to it must be carefully considered.
When the aircraft is holding for approach at destination, it is permissible to convert alternate fuel into holding fuel provided the following conditions are met:

- The maximum delay is known

- The landing at destination is assured
- At least FINAL RESERVE FUEL will remain at touchdown at destination.

Where an aerodrome has fewer than two separate and suitable runways available, a decision to convert alternate fuel into holding fuel at destination must be carefully considered.
Note: Landing is assured means weather at destination is at or above circling minima (if circling minima is not published Non-Precision approach minima) until 1 hour after ETA.
On a flight to an isolated aerodrome
The last possible point of diversion to any available en-route alternate aerodrome shall be determined.
Before reaching this point, the Pilot in Command shall assess the fuel expected to remain overhead the isolated aerodrome, the weather conditions, and the traffic and operational conditions prevailing at the isolated aerodrome and at any of the en-route aerodromes before deciding whether to proceed to the isolated aerodrome or to divert to an en-route aerodrome.
When approaching the last possible point of diversion to an available en-route aerodrome, unless the fuel expected to remain overhead the isolated aerodrome is at least equal to the additional fuel calculated as being required for the flight, or unless two separate runways are available at the isolated aerodrome and the expected weather conditions at that aerodrome comply with those specified for planning minima for isolated destination aerodromes (refer to 8.1.2.2.3), the Pilot In Command should not proceed to the isolated aerodrome.
In such circumstances, the Pilot In Command should instead proceed to the en-route alternate unless according to information he has at that time, such a diversion appears inadvisable.
Required minimum remaining fuel
The minimum fuel expected to be available on arrival at the destination aerodrome is the sum of the alternate fuel and the final reserve fuel as defined in chapter 8.1.7.1.1.
If it appears en route that the fuel remaining is such that the fuel at destination will be less than expected above, the Pilot in Command should consider the following: -

- Decrease aircraft speed (down to Max Range Speed / Cost Index minimum)
- Obtain a more direct route
- Fly closer to the optimum FL (taking the wind into account)
- Select a closer alternate aerodrome
- Land and refuel

8.3.7.1.4. Re-Planning in Flight

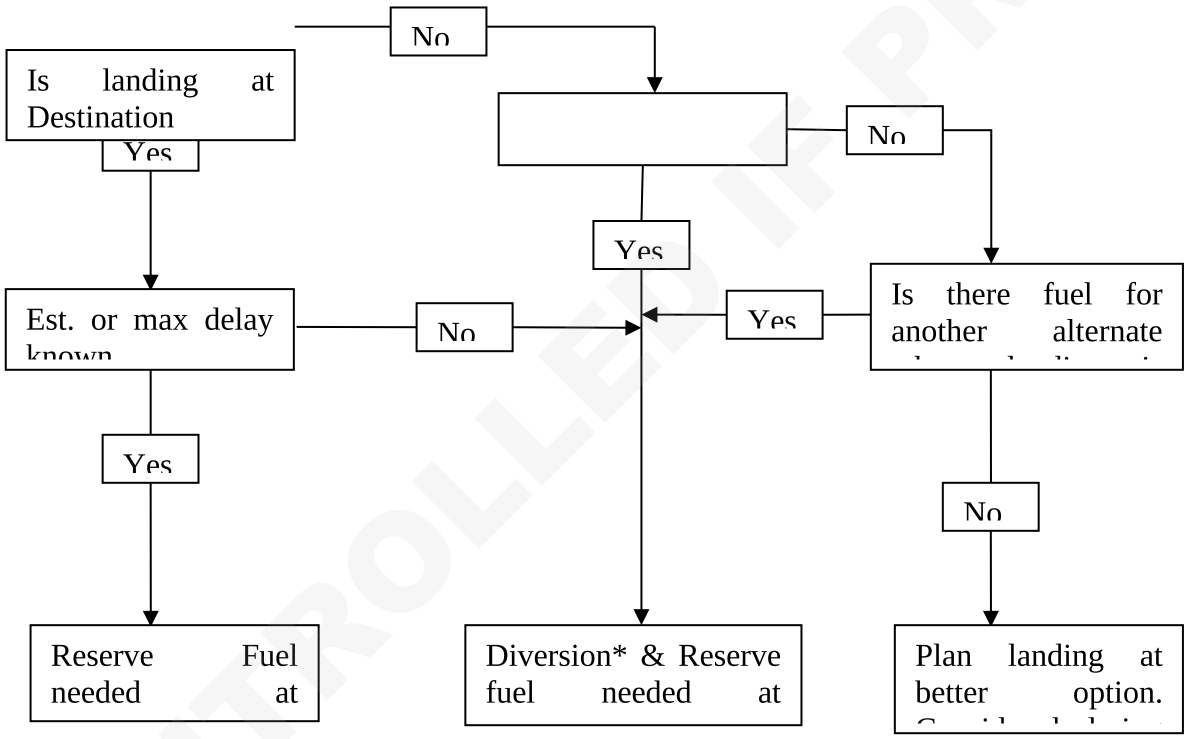
Re-planning in flight may be done when planned operating conditions have change or other reasons make further adherence to the original flight plan unacceptable or impractical, for example:

- Bad weather conditions or runway condition at the planned destination and alternate.
- Fuel penalties due to ATC constraints or unfavorable wind.
- Degraded aircraft performance.

If fuel is consumed during a flight for purposes other than originally intended during pre-flight planning, such flight is not continued without a re-analysis and, if applicable, adjustment of the planned operation to ensure sufficient fuel remains to complete the flight safely
Approaching Destination
Pre-flight, the best estimate of fuel required is Diversion fuel added to the Reserve Fuel. However, when in flight and approaching destination, it is necessary to review the fuel requirements according to the following: -
Within one hour of planned flying time to destination, check weather at destination and alternate as well as anticipated delays, If:

1. No significant ATC delays are likely until 1 hour after ETA, or EAT or maximum delay is known, and
2. The landing at destination is assured (see note below), and
3. At least Final Reserve Fuel will remain at touchdown at destination and
4. Two independent runways are available.

Then it is permissible to continue to destination without an alternate being available. An adjacent airfield may be counted as an additional runway, e.g. TIP may be counted as an additional runway for MTG or SHJ as an additional runway for DXB.
Otherwise, Diversion and Reserve Fuel is required on arrival at destination.
When the aircraft is holding, it is permissible to continue to hold, without an alternate being available provided conditions 1, 2, 3, and 4 above can be satisfied. See flow chart below.
Note: Landing assured means weather at destination is at or above circling minima (if circling minima is not published, Non-precision approach minima).



* At this point, Diversion fuel is that estimated by the Captain to be required to complete a diversion from the destination considering the likely diversion route and cruise flight level which may be achieved, following a go-around from the runway in use.

8.3.7.1.5 Minimum Fuel Operation

1) The pilot-in-command shall continually ensure that the amount of usable fuel remaining on board is not less than the fuel required to proceed to an aerodrome where a safe landing can be made with the planned final reserve fuel remaining upon landing.

Final Reserve Fuel is the amount of fuel calculated using the estimated mass on arrival at destination alternate aerodrome or destination aerodrome, when no destination alternate aerodrome is required.
For a turbine engine aeroplane: the amount of fuel required to fly for 30 minutes at holding speed at 450 m (1500 ft.) above aerodrome elevation in standard conditions.

2) The pilot-in-command shall request delay information from ATC when unanticipated circumstances may result in landing at the destination aerodrome with less than the final reserve fuel plus any fuel required to proceed to an alternate aerodrome
3) The pilot-in-command shall advise ATC of a minimum fuel state by declaring MINIMUM FUEL when, having committed to land at a specific aerodrome, the pilot calculates that any change to the existing clearance to that aerodrome may result in landing with less than planned final reserve fuel.

Note — The declaration of MINIMUM FUEL informs ATC that all planned aerodrome options have been reduced to a specific aerodrome of intended landing and any change to the existing clearance may result in landing with less than planned final reserve fuel. This is not an emergency situation but an indication that an emergency situation is possible should any additional delay occur.

It should be noted that Pilots should not expect any form of priority handling as a result of a “MINIMUM FUEL” declaration. ATC will, however, advise the flight crew of any additional expected delays as well as coordinate when transferring control of the aeroplane to ensure other ATC units are aware of the flight’s fuel state.

4) The pilot-in-command shall declare a situation of fuel emergency by broadcasting MAYDAY, MAYDAY, MAYDAY, FUEL, when the calculated usable fuel predicted to be available upon landing at the nearest aerodrome where a safe landing can be made is less than the planned final reserve fuel.

Note 1. — The planned final reserve fuel refers to the value calculated in 8.1.7.1 and is the minimum amount of fuel required upon landing at any aerodrome.

Note 2. — The words **“MAYDAY FUEL”** describe the nature of the distress conditions as required in Annex 10, Volume II,

If the aircraft has landed with less than final Reserves Fuel remaining, an incident report must be made to the Director of Operations and Flight Safety Manager.

8.3.7.2. Fuel Freezing Limitations

The minimum fuel temperature, published in the operational documentation, may be more restrictive than the certified aircraft environmental envelope. It includes two different limitations both linked to engine operation: Fuel freezing point limitation and fuel heat management system limitation.

(a) Fuel freezing point limitation

This limitation provides an operating margin to prohibit operations under fuel temperature conditions that could result in the precipitation of waxy products in the fuel. The resulting limitation varies with the freezing point of the fuel being used.

Aside from this, engines have a fuel warming (oil cooling) system at their inlet.

Because of the architecture of this system and the fact that the fuel inlet hardware varies from one engine type to another, the specification of what fuel temperature is acceptable at the inlet of the engine varies from one engine type to the other.

Therefore, engine manufacturers sometime require a temperature margin to fuel freezing point to guarantee correct operation.

The engine manufacturer’s margins relative to the fuel freezing point are as follows:

- CFM (A320) : 4°C
- V2500 (A320): x °C

(b) Fuel heat management system limitation

This limitation reflects the engine capability to warm-up a given water-saturated fuel flow to such a point that no accumulation of ice crystals may clog the fuel filter.

Such a limitation does not appear in the documentation for some engine types when outside the environmental envelope.
When applicable (refer to FCOM Fuel limitations) the resulting limitation is a fixed temperature below which, flight (or takeoff only, if high fuel flows only cannot be warmed-up enough) is not permitted.
The most restrictive of the two limitations above (a) and (b) should be considered.
Note: The fuel anti-icing additives authorized by engine manufacturers decrease the freezing temperature of the water contained in the fuel (decrease the fuel heat management system temperature limitation), but have no effect on the fuel freezing temperature itself.
Therefore, the minimum fuel temperature should be:

FUEL FREEZING POINT
+ ENGINE MANUFACTURER MARGIN

The fuel freezing point to be considered is the actual fuel freezing point. (Refer to 8.2.1.3.2. - Fuel freezing point determination).
If the actual freezing point of the fuel being used is unknown, the minimum fuel specification values as indicated below should be used as authorized by the AFM/FCOM.

JET A	JP5	JET A1/JP8	RT/TS-1	JET B	TH	JP4
-40°C	-46°C	-47°C	-50°C	-50°C	-53°C	-58°C

The procedures dealing with low fuel temperature vary with the aircraft type. Refer to FCOM.
Whenever necessary the TAT has to be increased. This is achieved by an aircraft speed increase and/or an altitude decrease.
Increasing the aircraft speed provides a marginal TAT increase (in the order of 0.5 to1°C for 0.01 M increase) and thus a small fuel temperature increase, at the expense of a significant increase in fuel consumption.
Decreasing the altitude generally provides a SAT increase (about 2°C per 1000ft).
Nevertheless, whenever the tropopause is substantially low, decreasing the altitude may not provide the corresponding expected SAT and, thus, TAT increase.

8.3.8 Adverse and Potentially Hazardous Atmospheric Conditions

8.3.8.1. Thunderstorms
8.3.8.1.1. General
There is no useful correlation between the external visual appearance of thunderstorms and their severity.
Knowledge and weather radar have modified attitudes toward thunderstorms, but one rule continues to be true:
"Any thunderstorm should be considered hazardous"
8.3.8.1.2. Weather Information
Meteorological observations/forecasts messages or charts contain thunderstorm and associated hazards information.
But, when thunderstorms are, or are expected to be, sufficiently widespread to make their avoidance by aircraft difficult, e.g. a line of thunderstorms associated with a front or squall line or extensive high-level thunderstorms, the Meteorological Office issues warnings, in the form of SIGMET messages, of "active thunderstorm area".
In addition, pilots are required to send a special air report when conditions are encountered which are likely to affect the safety of aircraft. Such a report would be the basis of a SIGMET warning.

The Meteorological Office does not issue SIGMET messages in relation to isolated thunderstorm activity and the absence of SIGMET warnings does not therefore necessarily indicate the absence of thunderstorms.
Refer to 8.1.6 and Jeppesen- Meteorological information - for description of weather messages and for the meaning of the associated codes.

8.3.8.1.3. Thunderstorm Hazards

Thunderstorms concentrate every weather hazard to aviation into one vicious package. The most important hazards are:

8.3.8.1.3.1. Turbulence

Potentially hazardous turbulence is present in all thunderstorms. Strongest turbulence within the cloud occurs with shear between updrafts and downdrafts.
Outside the cloud, shear turbulence has been encountered several thousand feet above and 20 NM laterally from a severe storm. A low-level turbulent area is the shear zone associated with the gust front. Often, a "roll cloud" on the leading edge of storm marks the top of the eddies in this shear and it signifies an extremely turbulent zone. Gust fronts often move far ahead (up to 15 NM) of associated precipitation. The gust front causes a rapid and sometimes drastic change in surface wind ahead of an approaching storm.
It is almost impossible to hold a constant altitude in a thunderstorm, and maneuvering in an attempt to do so produces greatly increased stress on the aircraft. It is understandable that the speed of the aircraft determines the rate of turbulence encounters. Stresses are least if the aircraft is held in a constant attitude and allowed to "ride the waves". (Refer to FCOM "Flight in severe turbulence")
Turbulence Drill

A. Cabin crew procedures in the case of turbulence

LIGHT TURBULENCE	MODERATE TURBULENCE	SEVERE TURBULENCE
- Visually check that all passengers are seated with their seat belts fastened and hand baggage is stowed. - Infants must be removed from bassinets and secured with an infant seat belt (if applicable) on the guardians lap, or secured in an approved car seat. - Give the "cabin secure" to the Purser. - Purser informs the flight crew that the cabin is secure.(via Interphone)	- When the cabin crew are returning to their crew seats, check that all passengers are seated with their seat belts securely fastened and hand baggage is stowed. - Infants must be removed from Bassinets (if applicable) and secured with an infant seat belt on the guardians lap, or secured in an approved car seat. - Give the "cabin secure" to the Purser.	- The cabin crew must not attempt to visually check passenger compliance. - If trolleys are in the cabin, set the brakes on all trolleys that are in use in the current location. - Place jugs/pots of hot beverages on the floor. - The cabin crew must immediately sit down, Take the nearest seat (including passenger seat) and fasten seatbelt/harness.

<table>
<tr><td></td><td>- Purser informs the flight crew that the cabin is secure. (via Interphone)</td><td></td></tr>
<tr><td colspan="3">GALLEY AREAS</td></tr>
<tr><td>- Ensure that trolleys and galley equipment that is not in use are correctly stowed and secured.</td><td>- Ensure that trolleys and galley equipment that is not in use are correctly stowed and secured.

- If the turbulence is expected for a long duration, stow and secure galley items.

- Cabin crewmembers working in the galley areas must take their seats when the galley is secured.</td><td>- Set the brakes on all trolleys that are in use in their current location.

- Place jugs/pots of hot beverages on the floor.

- The cabin crew must immediately sit down. Fasten seat belt/harness.

<table><tr><td>WARNING</td><td>Cabin crew Shall not risk personal injury by continuing service during turbulent conditions. The personal safety of the cabin crew is the priority.</td></tr></table></td></tr>
</table>

B. Communication and coordination for anticipated turbulence

If flight into forecast turbulence is unavoidable, timely notification to the cabin crew is crucial.

Event	Expected Turbulence	
Flight Crew	Purser	Cabin Crew
- Inform Purser on the expected turbulence level and its duration. - Clearly articulate expectations from Cabin Crew (as defined in Cabin Crew duties) and confirmation of completed actions. Switch on Seat Belt sign. - Make a PA to passenger: "We are entering an area of turbulence please fasten your seatbelt". - If above light: "Cabin Crew stow all applicable service items and take your seats" Note: PA may be delegated to cabin Purser.	- Read-back information and inform Cabin Crew according to fight deck brief. - If PA is delegated: Make a PA: "We are entering an area of turbulence, please be seated with seatbelt fastened". - On receiving cabin secured by Cabin Crew, report back to flight deck: Cabin Secured	- Receive information from Purser. - Perform visual check as defined in seatbelt compliance and confirm to Purser "Cabin secured". - On hearing the PA, Cabin Crew will perform cabin, galley and seatbelt compliance checks as defined in Cabin Crew Procedures.

C. Communication and coordination for unanticipated moderate turbulence

Event	Unexpected Light to Moderate Turbulence	
Flight Deck	Purser	Cabin Crew
- Switch on FSB sign. - Make a PA: "Please be seated with seatbelt fastened" Please fasten your seatbelt. - If turbulence above light: "Cabin Crew please take your Seats"	- Receive "Cabin secure" from Cabin Crew and report back to flight deck: Via Interphone: "Cabin secured".	- Confirm Purser "Cabin secured".

D. Communication and coordination for unanticipated severe turbulence

Event	Unexpected Severe Turbulence	
Flight Deck	Purser	Cabin Crew
- Switch on the Fasten Seatbelt signs and make a PA to passengers and cabin crew to "Fasten Seatbelts Immediately" Or Recycle the Seat Belt Sign OFF/ON (2 chimes)	- On hearing the PA, cease all duties, sit down immediately fasten seatbelt and fit full harness. - If no PA from PIC, the Purser must immediately make a PA for passengers and crew to be seated and fasten seatbelt - Remain seated until advised by the flight crew or the "fasten seatbelt" sign is switched off.	- On hearing the PA, cease all duties; set brakes on all carts and wedge between seats. - Place hot liquids, water jug/pots on the floor. - Take the nearest available seat, fit full harness or fasten seatbelt. - Sit down immediately. - Remain seated until advised by the flight crew or the "fasten seatbelt" sign is switched off.

Note: Cabin Crew may carry on with normal Cabin Services only on PIC's advice

E. . Post Turbulence Duties

FLIGHT CREW	PURSER	CABIN CREW
- Advice cabin crew when it is safe to resume duties.	- Resume duties. - Report any passenger injuries and/or cabin damage to the flight crew.	- Check for passenger injuries, give first aid if necessary - Calm and reassure passengers - Check for cabin damage - Report to Purser any passenger injuries and/or cabin damage.

8.3.8.1.3.2. Icing

Super cooled water freezes on impact with an aircraft. Clear icing can occur at any altitude above the freezing level; but at high levels, icing from smaller droplets maybe rime or mixed rime and clear. The abundance super cooled water droplets make clear icing very rapid between 0°C and -15°C.

8.3.8.1.3.3. Hail

Hail competes with turbulence as the greatest thunderstorm hazard to aircraft.
Super cooled drops above the freezing level begin to freeze. Once a drop has frozen, other drops latch on and freeze to it, so the hailstone grows. Large hail occurs with severe thunderstorms with strong updrafts that have built to great heights. Eventually, the hailstones fall, possibly some distance from the storm core. Hail may be encountered in clear air several miles from dark thunderstorm clouds. 8.3.8.1.3.4. Low ceiling and visibility
Generally, visibility is near zero within a thunderstorm cloud. The hazards and restrictions created by low ceiling and visibility are increased many fold when associated with the other thunderstorm hazards.

8.3.8.1.3.4. Effect on Altimeters

Pressure usually falls rapidly with the approach of a thunderstorm, then rises sharply with the onset of the first gust and arrival of the cold downdraft and heavy rain showers, failing back to normal as the storm moves on. This cycle of pressure change may occur in 15 minutes. If the pilot does not receive a corrected altimeter setting, the altimeter may be more than 1000 feet in error.

8.3.8.1.3.5. Lightning

A lightning strike can puncture the skin of an aircraft. Lightning has been suspected of igniting fuel vapors causing explosion; however, serious accidents due to lightning strikes are extremely rare.
Nearby lightning can blind the pilot rendering him momentarily unable to navigate either by instrument or by visual reference.
Lightning can also induce permanent errors in the magnetic compass and lightning discharges, even distant ones, can disrupt radio communications on low and medium frequencies.

- In the event of lightning strike conduct the following procedure:
- In flight, check of all radio communication and navigational equipment and the weather radar.
- Record the lighting strike in the technical logbook
- On ground, check
  - compensation of the (standby) compass
  - signs of damage on fuselage, wings, Radom, empennage
  - antennas, Pitot heads
  - all control trailing edges and static dischargers
  - Radio and navigation equipment.

Lightning intensity and frequency have no simple relationship to other storm parameters. But, as a rule, severe storms have a high frequency of lightning.

8.3.8.1.3.6. Engine Water Ingestion

Jet engines have a limit on the amount of water they can ingest. Updrafts are present in many thunderstorms, particularly those in the development stages. If the updraft velocity in the thunderstorms approaches or exceeds the terminal velocity of the falling raindrops, very high concentrations of water may occur. It is possible that these concentrations can be excess of the quantity of water engines are designed to ingest. Therefore, severe thunderstorms may contain areas of high water concentration which could result in flameout and/or structural failure of one or more engines. (Refer to FCOM "operation in or near to heavy rain, hail or sleet").
8.3.8.1.4. Avoiding Thunderstorms
8.3.8.1.4.1. General Rule
Never regard a thunderstorm lightly. Avoiding thunderstorms is the best policy

- Don't land or takeoff in the face of an approaching thunderstorm. Turbulence wind reversal or wind shear could cause loss of control.
- Don't attempt to fly under a thunderstorm even if you can see through to the other side. Turbulence and wind shear under the storm could be disastrous.
- Don't fly without airborne radar into a cloud mass containing scattered embedded thunderstorms. Scattered thunderstorms not embedded usually can be visually circumnavigated.
- Don't trust the visual appearance to be a reliable indicator of the turbulence inside a thunderstorm
- Do avoid by at least 20 NM any thunderstorm identified as severe or giving an intense radar echo. This is especially true under the anvil of large cumulonimbus.
- Do circumnavigate the entire area if the area has 6/10 thunderstorm coverage.
- Do remember that vivid and frequent lightning indicates the probability of a severe thunderstorm.
- Do regard as extremely hazardous any thunderstorm with tops 35,000 feet or higher whether the top is visually sighted or determined by radar.

8.3.8.1.4.2. Departure and arrival

When significant thunderstorm activity is approaching within 15 NM of the airport, the Pilot in Command should consider conducting the departure or arrival from different direction or delaying the take-off or landing. Use all available information for this judgment, including PIREPs, ground radar, aircraft radar, tower-reported winds, and visual observations. In the terminal area thunderstorms should be avoided by no less than 3 NM. Many ATC radars are specifically designed to reduce or exclude returns from "weather" and in these cases little or no assistance can be given by ATC.
It is recommended that any guidance given by ATC should be used in conjunction with the aircraft own weather radar, in order to guard against possible inaccuracies in the ground radars interpretation of the relative severity of different parts of a storm area. Any discrepancies should be reported to ATC.
Gust fronts in advance of a thunderstorm frequently contain high winds and strong vertical and horizontal wind shears, capable of causing an upset near the ground. A gust front can affect an approach corridor or runway without affecting other areas of the airport. Under such conditions, tower-reported winds and the altimeter setting could be misleading.
Microburst may also accompany thunderstorms. 2 NM or less in diameter, microburst are violent short-lived descending columns of air capable of producing horizontal winds sometimes exceeding 60 kt within 150 ft of the ground. Microburst commonly last one to five minutes and

may emanate from high-based cumulus clouds accompanied by little or no precipitation, or may be associated with large cumulonimbus build-ups and be accompanied by heavy rainfall. Because of their relatively small diameter, airport anemometers and low-level wind shear alert systems may not sense this phenomenon in time to provide an adequate warning of nearby microburst activity.

8.3.8.1.4.3. En-Route

A. Weather Radar Principle

A knowledge of the radar principle is essential in order to accurately interpret the weather radar display.

Weather Radar Detection Capability

The weather radar only detects precipitation droplets. How much it detects depends upon the size, composition and number of droplets. Water particles are five times more reflective than ice particles of the same size.

The radar does detect:

- Rainfall
- Wet hail and wet turbulence
- Ice crystals, dry hail and dry snow. However, these three elements give small reflections, as explained below.

The radar does not detect:

- Clouds, fog or wind (droplets are too small, or no precipitation at all)
- Clear air turbulence (no precipitation)
- Wind shear (no precipitation except in microburst)
- Sandstorms (solid particles are almost transparent to the radar beam)
- Lightning.

B. Refer to FCOM "Weather avoidance - Optimum use of weather radar"

8.3.8.1.4.3.1. Over Flight

Avoid overlying thunderstorms unless a minimum of 5000 ft clearance above the storm top is ensured. When possible, detour between the storm cells of a squall line rather than directly above them. Keep the radar antenna tilted down during over flight to properly assess the most severe cells, which may be masked by clouds formations.

8.3.8.1.4.3.2. Lateral Avoidance

At altitudes above the freezing level, super cooled rain and hail may indicate as only weak radar echoes, which can mask extreme thunderstorm intensity. Avoid weak radar echoes associated with thunderstorms by the following minimum distances:

Altitude	Lateral avoidance
20 000 ft	10 NM
25 000 ft	15 NM
30 000 ft	20 NM

8.3.8.1.4.3.3. Flight near Thunderstorms

If flight closer than the minimum recommended distances is unavoidable, observe the following precaution:

- When it is necessary to fly parallel to a line of cells, the safest path is on the upwind side (the side away from the direction of storm travel). Although severe turbulence and hail can be encountered in any direction outside a thunderstorm, strong drafts and hail are more often encountered outside the body of the cell on

- The downwind side.
- Avoid flight under the anvil. The greatest possibility of encountering hail is downwind of the cell, where hail falls from the anvil or is tossed out from the side of the storm. Hail has been encountered as much as 20 NM downwind from large thunderstorms.
- Avoid Cirrus and Cirrostratus layers downwind from the storm tops. Such layer may be formed by cumulonimbus tops and may contain hail, even though the radar scope shows little or no return echoes.
- If ATC requirements make flight into unsafe conditions imminent, the Pilot In Command should request a change of routing and if necessary use his emergency authority to avoid the severe weather conditions.
- Any flight in the vicinity of thunderstorms carries the risk of a sudden onset of moderate or severe turbulence.

8.3.8.1.4.3.4. Thunderstorm Penetration

If thunderstorm penetration is unavoidable, the following guidelines will reduce the possibility of entering the worst areas of turbulence and hail:

- Use the radar to determine the areas of least precipitation. Select a course affording a relatively straight path through the storm. Echoes appearing hooked, finger-like, or scalloped indicate areas of extreme turbulence, hail and possibly tornadoes, and must be avoided.
- Penetrate perpendicular to the thunderstorm line, if not possible maintain the original heading. Once inside the cell, continue ahead, a straight course through the storm most likely get the aircraft out of the hazards most quickly. The likelihood of an upset is greatly increased when a turn is attempted in severe turbulence and turning maneuvers increase the stress on the aircraft.
- Pressure changes may be encountered in strong drafts and may conduct to an altitude error of 1000 ft.
- Gyro-stabilized instruments supply the only accurate flight instrument indications.
- Avoid level near the 0°C isotherm. The greatest probability of severe turbulence and lightning strikes exist near the freezing level.
- Generally, the altitudes between 10 000 ft. and 20 000 ft. encompass the more severe turbulence, hail, and icing conditions, although violent weather may be encountered at all level inside and outside an active thunderstorm.
- Due to very high concentration of water, massive water ingestion can occur which could result in engine flameout and/or structural failure of one or more engines. Changes in thrust should be minimized.

8.3.8.1.5. Operational Procedures

In general, Pilot in Command or his delegate, shall report all hazardous flight conditions to the appropriate ATC without delay.

If is not possible to avoid flying through or near to a thunderstorm, the following procedures and techniques are recommended:

- Approaching the thunderstorm area ensures that crewmembers' safety belts are firmly fastened and secure any loose articles.
- Switch on the Seat Belt signs and make sure that all passengers are securely strapped in and that loose equipment (e.g. cabin trolleys and galley containers) are firmly

secured. Pilots (particularly of long bodied aircraft) should remember that the effect of turbulence is normally worse in the rear of the aircraft that on the flight deck.

- One pilot should fly the aircraft and control aircraft attitude regardless of all else and the other monitor the flight instruments continuously.
- Height for penetration must be selected bearing in mind the importance of insuring adequate terrain clearance. Due to turbulence, wind shear, local pressure variations the maintenance of a safe flight path can be difficult.
- The recommended speed for flight in turbulence must be observed (see FCOM chapter: "Flight in severe turbulence") and the position of the adjusted trim must be noted.
- As indicated in FCOM procedure "Flight in severe turbulence" the autopilot should be engaged. The autopilot is likely to produce lower structural loads and smaller oscillations than would result from manual flight. The auto-thrust should be disconnected to avoid unnecessary and frequent thrust variations.
- Check the operation of all anti-icing equipment and operate all these systems in accordance with FCOM instructions: "Operation in icing conditions". Icing can be very rapid at any altitude.
- Flight crew must apply or be prepared to apply the FCOM procedures:
- "Operations in or near to heavy rain, hail or sleet", and "Operation in wind shear/downburst conditions".
- Turn the cockpit lighting fully on to minimize the blinding effect of lightning.
- Continue monitoring the weather radar in order to pick out the safest path. Tilt the antenna up and down occasionally to detect thunderstorm activity at altitudes other than that being flown. See FCOM instructions: "Use of weather radar"

8.3.8.2. Icing Conditions

Icing conditions occur when low temperatures are accompanied by precipitation.
Icing of the aircraft is one of the most dangerous flight hazards.
Procedures for “operating in icing conditions” are developed in FCOM - "PRO SUP / Supplementary Techniques".

8.3.8.3. Turbulence

Turbulence is defined as a disturbed, irregular flow of air with embedded irregular whirls or eddies and waves. An aircraft in turbulent flow is subjected to irregular and random motions while, more or less, maintaining the intended flight path.
Procedures for “Flight in severe turbulence” are developed in FCOM - "Procedures and Techniques / Supplementary Techniques".
If the weather conditions and route forecast indicate that turbulence is likely, the cabin crew should be pre-warned, and passenger advised to return to, and/or remain seated and to ensure that their seat belts are securely fastened. Catering and other loose equipment should be stowed and secured until it is evident that the risk of further turbulence has passed. When encountering turbulence, pilots are urgently requested to report such conditions to ATC as soon as practicable
Classification of intensity may be defined as follows:

INTENSITY	AIRCRAFT REACTION	REACTION INSIDE AIRCRAFT

LIGHT	Turbulence that momentarily causes slight, erratic changes in altitude And/or attitude.	Occupants may feel a slight strain against seat belts or shoulder straps. Unsecured objects may be displaced slightly. Food service may be conducted and little or no difficulty is encountered in walking.
MODERATE	Similar to light turbulence but of greater intensity. Changes in altitude and/or attitude occur but the aircraft Remains in positive control at all times. It usually causes variations in indicated airspeed.	Occupants feel definite strains against seat belts or shoulder straps. Unsecured objects are dislodged. Food service and walking are difficult.
SEVERE	Turbulence that causes large, abrupt changes in altitude and/or attitude. It usually causes large variation in indicated airspeed. Aircraft may be momentarily out of control.	Occupants are forced violently against seat belts or shoulder straps. Unsecured objects are Tossed about. Food service and walking is impossible.
EXTREME	Turbulence in which the aircraft is violently tossed about and is practically impossible to control. It may cause structural damage.	Occupants forced violently against seat belts. Unsecured objects tossed about or lifted from the floor. Walking is impossible as is standing without holding on to something for support

8.3.8.4. wind shear

wind shear is a rapid variation in wind velocity and/or direction along the flight path of the aircraft.
Procedures for “operation in wind shear / downburst conditions” are developed in FCTM-NP-SP-10(10-2) Operational Recommendations & FCOM PRO-ABN-SURV (MEM)
When encountering wind shear conditions, pilots are urgently requested to report such conditions to ATC as soon as practicable in stating the loss or gain of speed and the altitude at which it was encountered.

8.3.8.5. Jetstream

Jet streams are narrow bands with extreme high wind speeds up to 300 kt. They can extend up to several thousand miles, the width can be several miles.
Avoid flying along the edge of jet streams due to possible associated turbulence.
Pilots should also be aware of the effect of increased fuel consumption due to unexpected significant head wind components that can be encountered.

8.3.8.6. Volcanic Ash Clouds

Flying through an ash cloud should be avoided by all means due to the extreme hazard for the aircraft. Volcanic ash can cause extreme abrasion to all forward-facing parts of the aircraft, to the extent that visibility through the windshields may be totally impaired, airfoil and control surface leading edges may be severely damaged, airspeed indication may be completely unreliable through blocking of the Pitot heads and engines may even shut down.
Procedures for “Operation in areas contaminated by volcanic ash” are developed in FCOM - "Procedures and Techniques / Supplementary Techniques".

8.3.8.7. Heavy Precipitation

Heavy precipitation may occur as rain showers, snow showers and hail. The greatest impairment to flight is the reduced visibility and the risk of in combination with low temperature. Heavy precipitation can be associated with significant downdrafts and wind shear.
Effect from water ingested by jet engines
Under given weather conditions, the water / air ratio absorbed by jet engines is directly related to its performance and aircraft speed.
This ratio is considerably increased at a high aircraft speed and engines at flight idle (typical descent conditions).
This means that during descent, under heavy rainfall conditions, or hail, significant ingestion of water may cause surging or extinction of jet engines.
Procedures for “Operation in or near to heavy rain, hail or sleet” are developed in FCOM - "Procedures and Techniques / Supplementary Techniques".
Heavy precipitation can quickly lead to high levels of runway contamination so runway clearance / drainage rate must be closely monitored in order to assess if a diversion is necessary.

8.3.8.8. Sandstorms

Avoid flying in active sandstorms whenever possible. When on ground, aircraft should ideally be kept under cover if dust storms are forecast or in progress.
Alternatively, all engine blanks and cockpit cover should be fitted, as well as the blanks for the various system and instrument intakes and probes. They should be carefully removed before flight to ensure that accumulation of dust is not deposited in the orifices which the covers are designed to protect.
Procedures for “operation from / to airports contaminated with loose (abrasive) particles” are developed in FCOM - "Procedures and Techniques / Supplementary Techniques".
8.3.8.9. Mountain Waves
Mountain waves are caused by a significant airflow crossing a mountain range.
On some airports, relief or obstacles may cause special wind conditions with severe turbulence and wind shear on approach or during take-off.
Special procedures or recommendations are indicated on airport charts when appropriate. They must be considered by the flight crews for the choice of the landing or take off runway.

8.3.8.10. Significant Temperature Inversion

8.3.8.10.1. Temperature Inversion, the Weather Phenomenon

8.3.8.10.1.1. General

In meteorology, air temperature at the earth’s surface is normally measured at a height of about 1.20 meter (4ft) above the ground. From that temperature, which is reported by Air Traffic Control, takeoff performance will be defined.
All along the takeoff flight path, aircraft performance is computed considering the altitude gained, the speed increase, but also implicitly considering a standard evolution of temperature, i.e. temperature is considered to decrease by 2°C for each1000 ft.
However, although most of the time, temperature will decrease with altitude in quite a standard manner, specific meteorological conditions may lead the temperature evolution to deviate from this standard rule. With altitude increasing, marked variations of the air temperature from the standard figure may be encountered. In that way, air temperature may decrease in a lower way than the standard rule or may be

Constant or may even increase with altitude. In this last case, the phenomenon is called a temperature inversion.
As described below, this may particularly affect the very lower layer of the atmosphere near the earth's surface.
There are many parameters, which influence air temperature and may lead to a temperature inversion. Close to the ground, air temperature variations mainly result from the effects of:

- seasonal variations
- diurnal / nocturnal temperature variations
- weather conditions (effect of clouds and wind)
- humidity of the air
- geographical environment such as:
  - mountainous environment
  - water surface (sea)
  - nature of the ground (arid, humid)
  - latitude
  - local specificity

As a general rule, valid for everywhere, low wind conditions and clear skies at night, will lead to rapid cooling of the earth and a morning temperature inversion at ground level.

8.3.8.10.1.2. Morning Temperature Inversion

In the absence of wind or if the wind is very low, the air, which is in contact with a "cold" earth surface will cool down by heating transfer from the "warm" air to the "cold" ground surface. This transfer of heat occurs by conduction only and consequently leads to a temperature inversion which is limited in altitude. This process needs stable weather conditions to develop.
Schematically, during the day, the air is very little heated by solar radiation and the earth is very much. But the lower layer of the atmosphere is also heated by contact with the ground, which is more reactive to solar radiation than the air, and by conduction between earth and atmosphere.
At night, in the absence of disturbing influences, ground surface cools down due to the absence of solar radiation and will cool the air near the ground surface. In quiet conditions, air cooling is confined to the lowest levels. Typically, this effect is the biggest at the early hours of the day and sunshine subsequently destroys the inversion during the morning. Similarly, wind will mix the air and destroy the inversion.
Magnitude of temperature inversion
This kind of inversion usually affects the very lowest levels of the atmosphere. The surface inversion may exceed 500 ft but should not exceed 1000 to 2000 ft. The magnitude of the temperature inversion cannot be precisely quantified. However, a temperature inversion of about +10°C is considered as quite an important one.
Usually, within a temperature inversion, temperature regularly increases with altitude until it reaches a point where the conduction has no longer any effect.
Where can they be encountered?
This kind of inversion may be encountered world-wide. However, some areas are more exposed to this phenomenon such as arid and desert regions. It may be also encountered in temperate climate particularly during winter season (presence of fog).
Tropical regions are less sensitive due to less stable weather conditions.
In some northern and continental areas (Canada, Siberia) during winter in anti-cyclonic conditions, the low duration of sunshine during the day could prevent the inversion from destruction. Thus, the temperature of the ground may considerably reduce and amplify the

inversion phenomenon. In a lower extent, this may also occur in temperate climate during winter, if associated with cold anti-cyclonic conditions.
Another important aspect of an inversion is wind change. The air-mass in the inversion layer is so stable that winds below and above, tends to diverge rapidly.
Therefore, the wind change, in force and direction, at the upper inversion surface may be quite high. This may add to the difficulty of flying through the inversion surface. In some conditions, the wind change may be so high as to generate a small layer of very marked turbulence.

8.3.8.10.1.3. Other Types of Temperature Inversion

The Morning temperature inversion process is considered as the most frequent and the most sensitive. However, as also mentioned above, other meteorological conditions, of a less frequent occurrence and magnitude, may lead to temperature inversions.
For instance, the displacement of a cold air mass over a cold ground surface may lead to turbulence resulting in a transfer of heat to the lower levels of this mass, thus, also creating a temperature inversion in the lower levels of the atmosphere below this air mass. Usually, this kind of inversion has lower magnitude than the previous case described above.
In any case, pilot experience, weather reports or pilot reports will be the best way in identifying such weather conditions.

8.3.8.10.2 The Effect on Aircraft Performance and Recommendations

A temperature inversion will result in a reduction of the thrust only when performing a maximum takeoff thrust during hot days, i.e., the actual ambient temperature is above T.REF (Flat rating temperature).

8.3.8.10.2.1 Effect on Aircraft Performance

In the event of temperature inversion, the climb performance will be affected in the cases where the thrust is affected.
However, to affect the aircraft performance, a temperature inversion must be combined with other factors.
During a normal takeoff with all engines operative, the inversion will have no effect since the actual aircraft performance is already far beyond the minimum required performance.
Then, the actual aircraft performance could be affected only in the event of an engine failure at takeoff.
However, conservatism in the aircraft certified performance is introduced by the FAR/JAR Part 25 rules, to take account for inaccuracy of the data that are used for performance calculations. Although not specifically mentioned, temperature inversions can be considered as part of this inaccuracy.
Therefore, a temperature inversion could become a concern during the takeoff only in the following worst case with all of these conditions met together:

- The engine failure occurs at V1, and
- Takeoff is performed at maximum takeoff thrust, and
- OAT is close to or above T.REF, and
- The takeoff weight is limited by obstacles, and
- The temperature inversion is such that it results in the regulatory net flight path margin cancellation and leads to fly below the regulatory net flight path.

In all other cases, even if the performance is affected (inversion above T.REF), the only detrimental effect will be the climb performance to be lower than the nominal one

8.3.8.11. Operations on Slippery Surfaces

8.3.8.11.1. Runway Friction Characteristics

The stopping performance of aircraft is to a greater degree dependent on the available friction between the aircraft tires and the runway surface, their landing and take-off speeds. In some conditions the runway length required for landing or take-off could be critical in relation to the runway length available.
Adequate runway friction characteristics / braking action is mainly needed for three distinct purposes:

- deceleration of the aircraft after landing or a rejected take-off;- directional control during the ground roll on take-off or landing, in particular in the presence of cross-wind, asymmetric engine power or technical malfunctions;
- Wheel spin-up at touchdown.

To compensate for the reduced stopping and directional control capability for adverse runway conditions (such as wet or slippery conditions) performance corrections are applied in the form of:

- runway length increment;
- reduction in allowable take-off or landing weight;
- Reduction of allowable cross-wind component.

8.3.8.11.2 Measuring and Expressing Friction Characteristics

The friction coefficient is defined as the ratio of the maximum available tire friction force and the vertical load acting on the tire. This coefficient is named "Mu" or "µ".
Various systems are used to measure the runway friction coefficient /conditions:

- Skidoo meter High pressure tire (SKH)
- Skidoo meter Low pressure tire (SKL)
- Surface Friction Tester (SFT)
- Mu-meter (MUM)
- Diagonal braked vehicle (DBV)
- Talley meter (TAP)
- James Brake Decelerometer (JBD)

The results of the friction measuring equipment do not generally correlate with each other for all surface conditions and no correlation has been established between these results and the stopping performance of an aircraft.
The only perfect way of measuring the friction coefficient "Mu" for a specific aircraft is by using that specific aircraft braking system on the surface concerned.
When friction measurement are not available but can be only estimated, the pilot is informed only of the estimated braking action reported as "good" - "medium" - "poor"- "unreliable (nil)" or a combination of these terms.
Pilots should treat **reported braking action measurements with caution** and interpret them conservatively.
Practically the following correlation may be used as a guideline:

Estimated braking action	Mu values
good	0.40 and above
medium/good	0.36 to 0.39
medium	0.30 to 0.35
medium/poor	0.26 to 0.29
poor	0.25 and below

unreliable	-

8.3.8.11.3 Braking Action Reporting

Friction measurements or braking action estimation may be reported:

- in plain language by the tower
- by the routine weather broadcast
- by snow tam

When necessary, ATC issues the latest braking action report for the runway in use to each arriving and departing aircraft. Pilots should also be prepared to provide a descriptive runway condition report to ATC after landing.

8.3.8.11.4 Meteorological Observations

Meteorological observations in connection with knowledge of previous runway conditions will, in many cases, permit a fair estimate to be made of braking action.
On snow- or ice-covered runways not treated with, e.g. sand, the coefficient of friction varies from as low as 0.05 to 0.30. It is very difficult to state exactly how and why the runway conditions vary. The braking action is very much dependent upon the temperature especially near the freezing point. However, when it is freezing, the braking action could be fairly good, it will so remain if the temperature decreases but if the temperature rises to the freezing point or above, the braking action will decrease rapidly. Sometimes very low friction coefficient values occur when humid air is drifting in over an icy runway even though the temperature may be well below the freezing point.
Some of the various conditions which are expected to influence the braking action are given below:

8.3.8.11.4.1 Friction Coefficient between 0.10 And 0.30 (Poor-Medium/Poor)

- slush or rain on snow- or ice-covered runway;
- runway covered with wet snow or standing water;
- change from frost to temperature above freezing point;
- change mild to frost (not always);
- the type of ice which is formed after long periods of cold;
- a thin layer of ice formed:
- by frozen ground having been exposed to humidity or rain at 0°C or above;
- When due to radiation, e.g. when the sky clears, the runway surface temperature drops below freezing point and below the dew point (this ice formation can take place very suddenly and occur while the reported air temperature may still be quite a few degrees above the freezing point.)

8.3.8.11.4.2 Friction Coefficient between 0.25 And 0.35 (Medium/Poor-Medium)

snow conditions at temperature just below freezing point;

- snow-covered runways at temperatures below freezing point, exposed to sun;
- Slush-covered runway.

8.3.8.11.4.3 Friction Coefficient between 0.35 And 0.45 (Medium/Good-Good)

- Snow-covered runways which have not been exposed to temperatures higher than about -2°C to -4°C.
- damp or wet runway without risk of hydroplaning (less than 3 mm water depth)

8.3.8.11.5 Aircraft Performance on Wet or Contaminated Runways

Take-off performance from wet or contaminated runways (refer to 0.1.3 - Definitions) are given in FCOM "Special Operations - Fluid contaminated runway" chapter.
Landing distances on wet or contaminated runways are given in FCOM "Landing "chapter.
As no accurate correlation can be made between the aircraft friction coefficient on a given runway and the reported friction coefficient or braking action, these performances given in the FCOM have been established for given depths of water or contaminant (slush, snow).
Therefore, the only way to determine the applicable take-off and landing performance is to obtain the depth and type of contaminant.
It is not recommended to land or take off on a runway for which the braking action is reported as "POOR" or the friction coefficient is 0.25 or less.
Take off runway covered with more than 5 cm (2 inches) of dry snow or 2.5 cm (1inch) of wet snow is not recommended.

8.3.8.11.6. Guidelines for Operations on Slippery Surfaces

8.3.8.11.6.1. General Consideration

The use of thrust reversers is mandatory on contaminated runways.
The two most important variables confronting the pilot when runway coefficient of friction is low and/or conditions for hydroplaning exist are length of runway and crosswind magnitude.
The total friction force of the tires is available for two functions - braking and cornering. If there is a crosswind, some friction force (cornering) is necessary to keep the aircraft on the centerline. Tire cornering capability is reduced during braking or when wheels are not fully spun up. Locked wheels eliminate cornering. Therefore in crosswind conditions, a longer distance will be required to stop the aircraft.
According to the runway conditions the following cross wind values indicated in FCOM should not be exceeded for take-off and landing.

Reported braking action	Reported friction coefficient	Maximum crosswind (kt)
Good	0.40 and above	Maximum (*)
medium/good	0.36 to 0.39	30
medium	0.30 to 0.35	25
medium/poor	0.26 to 0.29	20
poor	0.25 and below	15
unreliable	-	5

(*) maximum cross wind value indicated in individual FCOM

8.3.8.11.6.2 Taxiing

Aircraft may be taxed at the Pilot in Command discretion on ramps and taxiways not cleared of snow and slush. More power than normal may be required to commence and continue taxi so care should be taken to avoid jet blast damage to buildings, equipment and other aircraft. Be aware of the possibility of ridges or ruts of frozen snow that might cause difficulties. The boundaries/edges of maneuvering areas and taxiway should be clearly discernible. If in doubt, request "Follow me" guidance.
When executing sharp turns while taxiing or parking at the ramp, remember that braking and steering capabilities are greatly reduced with icy airport conditions; reduce taxi speed accordingly.
Slat/flap selection should be delayed until immediately before line up to minimize contamination.

8.3.8.11.6.3. Take-Off

Severe retardation may occur in slush or wet snow.
In most cases, lack of acceleration will be evident early on the take-off run. Maximum permissible power must be used from the start.
Large quantities of snow or slush, usually containing sand or other anti-skid substances may be thrown into the engines, static ports and onto the airframe. Pod and engine clearance must be watched when the runway is cleared and snow is banked at the sides of runways or taxiway.

8.3.8.11.6.4. Landing

Pilots should be aware that where rain, hail, sleet or snow showers are encountered on the approach or have been reported as having recently crossed the airfield, there is a high probability of the runway being contaminated. The runway state should be checked with ATC before commencing or continuing the approach. Very often a short delay is sufficient to allow the runway to drain or the contaminant to melt.
Use of reverse thrust on landing on dry snow in very low temperatures will blow the dry snow forward especially at low speed. The increase in temperature may melt this snow and form clear ice on re-freezing on static ports.
The required landing field length for dry runways is defined as 1.67 times the demonstrated dry landing distance. For wet runways, this landing distance requirement is increased by 15%. The required landing field length for contaminated runways is defined as 1.15 times the demonstrated contaminated landing distance.
The shortest stopping distances on wet runways occur when the brakes are fully applied as soon as possible after main wheel spin up with maximum and immediate use of reverse thrust. Landing on contaminated runways without antiskid should be avoided. It is strongly recommended to use the auto-brake (if available) provided that the contaminant is evenly distributed.
The factors and considerations involved in landing on a slippery surface are quite complex and depending on the circumstances, the pilot may have to make critical decisions almost instinctively. The following list of items summarizes the key points to be borne in mind. Several may have to be acted upon simultaneously.

- Do not land where appreciable areas of the runway are flooded or covered with1/2 inch or more of water or slush.
- Limit crosswind components when runway conditions are poor and runway length short.
- Establish and maintain a stabilized approach.
- Consider the many variables involved before landing on a slippery runway.
  - Landing weather forecast
  - Aircraft weight and approach speed
  - Landing distance required
  - Hydroplaning (aquaplaning) speed
  - Condition of tires
  - Brake characteristics (anti-skid, auto-brake mode)
  - Wind effects on the directional control of the aircraft on the runway
  - Runway length and slope
  - Glide path angle
- Do not exceed VAPP at the threshold. An extended flare is more likely to occur if excess approach speed is present.
- Be prepared to go-around.

- Flare the aircraft firmly at the 1000 ft. aiming point. Avoid buildup of drift in the flare and runway consuming float. A firm landing, by facilitating a prompt wheel spin up, also ensures efficient antiskid braking.
- Select reverse thrust as soon as possible.
- Get the nose of the aircraft down quickly. Do not attempt to hold the nose off aerodynamic braking. Aim to have the nose wheel on the ground by the time reverse thrust reaches the target level.
- If the auto-brake is not available, and if remaining runway length permits, allow the aircraft to decelerate to less than dynamic hydroplaning speed before applying wheel brakes. If however maximum braking is required apply and hold full brake pedal deflection. Continue to apply rudder and aileron inputs while braking. The brakes are the primary means for stopping the aircraft but if necessary the full reverse thrust may be maintained until the aircraft is fully stopped.
- Excessive braking in crosswinds will lead to the aircraft drifting away from the centerline. Do not apply completely as the aircraft will yaw on the slippery runway due to its weather cock stability.
- Keep the aircraft aligned with the runway centerline. Use rudder and aileron inputs. As rudder effectiveness decreases, reduce aileron deflection proportionately.

Caution: Do not allow large deviations from the runway heading to develop as recovery can become very difficult. Use of the nose wheel steering is not recommended. Under slippery conditions, the nose wheels must be closely aligned with the aircraft track or they will scrub.

- If directional or lateral control difficulties are experienced, disconnect the auto-brake, if necessary, reduce reverse thrust levels symmetrically, and regain directional control with rudder, aileron and differential braking. Once under control, reapply manual braking and increase symmetrical reverse levels as required while easing the aircraft back towards the runway centerline.
- After landing in heavy slush do not retract the slats and flaps. Allow ground personnel to clear ice and slush from slats and flaps before full retraction. Taxi with caution to parking area as flaps extended provides a much-reduced ground clearance.

8.3.8.11.6.5. Wind Limitations

Refer to FCOM procedure limitation -LIM -12 page 2/2.

8.3.9. Wake Turbulence

Every aircraft in flight generates wake turbulence caused primarily by a pair of counter rotating vortices trailing from the wing tips.
Wake turbulence generated from heavy aircraft, even from those fitted with wing tip fences, can create potentially serious hazards to following aircraft.
For instance, vortices generated in the wake of large aircraft can impose rolling movements exceeding the counter-roll capability of small aircraft.

8.3.9.1. Takeoff and Landing

Turbulence encountered during approach or take off may be due to wake turbulence.
Aircraft turbulence categorization and wake turbulence separation minima are defined as follows:
(H) Heavy: MTOW ≥ 136000 kg
(M) Medium: 7000 kg < MTOW < 136000 kg
(L) Light: MTOW ≤ 7000 kg
8.3.9.1.1. Separation by Time (Non Radar)

Wake turbulence separation minima given below define a minimum separation time between two aircraft during take-off and landing to cope with wake turbulence:
Arriving aircraft
- Medium behind Heavy aircraft: 2 minutes
- Light behind Medium or Heavy aircraft: 3 minutes

Departing aircraft
The minimum separation time is 2 minutes (or 3 minutes if take off is from an intermediate part of the runway) for a Light or Medium aircraft behind a Heavy aircraft or for a Light aircraft behind a Medium aircraft.
Two parallel runways have no influence each other's if they are separated by more than 760 m (2500 ft) and if the flight path of the second aircraft does not cross the flight path of the preceding aircraft by less than 300 m (1000 ft).
Departing and landing in opposite direction
The minimum separation time is 2 minutes.

8.3.9.1.2. Radar Separation

Leading aircraft category	Following aircraft category	Separation minimum
Heavy	Heavy	4 NM
Heavy	Medium	5 NM
Heavy	Light	6 NM
Medium	Heavy	3 NM
Medium	Medium	3 NM
Medium	Light	4 NM
Light	Heavy	3 NM
Light	Medium	3 NM
Light	Light	3 NM

8.3.9.2. In Cruise

Wake turbulence may be encountered in cruise, especially where the aircraft flying in the same direction are vertically separated by 1000ft.
Avoidance of Vortices
The most important characteristic to remember at all times is that all wake formations are subject to a strong, downward vertical displacement. This displacement continues until the wake either dissipates or reaches the ground.
This downward displacement gives rise to the following general rules for avoidance of vortex turbulence:
- In crossing the flight path of a preceding aircraft, it is preferable to cross at a slightly higher, rather than a slightly lower altitude. This avoids crosswise penetration of the wake.
- In following a large aircraft on approach, it is desirable to fly the same, or a slightly higher path, never a lower path. For this reason, the use of a common ILS or VASI glide slope by all aircraft is a desirable practice.
- Flight directly under, and parallel to, the wake of another aircraft should be avoided, because of the inherent sinking characteristic of the wake.
- Parallel flight directly under and close on either side of the flight-path of another aircraft should be avoided because of the possibility of partial penetration of the wake.

- Certain noise abatement and emergency turn procedures require a sharp turn immediately after takeoff. When heavy aircraft are operating, the maximum practical separation time should be allowed between takeoffs to permit dissipation of the high intensity vortices which develop in such circumstances. It can be appreciated how hazardous it could be for an aircraft to penetrate such a vortex while banked at such a relatively low altitude.

8.3.9.3 Super-heavy Wake Turbulence

Non-Radar Wake Turbulence Longitudinal Separation Minima.
Arriving Aircraft
The following non-radar separation minima should be applied to aircraft landing behind an A380-800 aircraft :

- MEDIUM aircraft behind an A380-800 aircraft — 3 minutes ;
- LIGHT aircraft behind an A380-800 aircraft — 4 minutes .

Departing Aircraft
A minimum separation of 3 minutes should be applied for a LIGHT or MEDIUM aircraft and 2 minutes for a non-A380-800 HEAVY aircraft taking off behind an A380-800 aircraft when the aircraft are using :

1. the same runway ;
2. Parallel runways separated by less than 760 m (2500 ft.)
3. crossing runways if the projected flight path of the second aircraft will cross the projected flight path of the first aircraft at the same altitude or less than 300 m (1000 ft.) below ;
4. Parallel runways separated by 760 m (2500 ft.) or more, if the projected flight path of the second aircraft will cross the projected flight path of the first aircraft at the same altitude or less than 300 m (1000 ft.) below .

A separation minimum of 4 minutes should be applied for a LIGHT or MEDIUM aircraft when taking off behind an A380-800 aircraft from :

1. an intermediate part of the same runway; or
2. An intermediate part of a parallel runway separated by less than 760 m (2500 ft.)
3. Radar Wake Turbulence Separation Minima

The following wake turbulence radar separation minima should be applied to aircraft in the approach and departure phases of flight.

Preceeding aircraft	Succeeding aircraft	Wake turbulence radar separation minima
A380-800/ non-A380-800 HEAVY	A380-800	Not required*
A380-800	Non-A380-800 HEAVY	11.1 km (6.0 NM)
A380-800	MEDIUM	13 km (7.0 NM)
A380-800	LIGHT	14.8 km (8.0 NM)
*When a wake turbulence restriction is not required then separation reverts to radar separation minimum as prescribed by the appropriate ATS authority. The recommendation of the ad hoc group (safety case) indicated that no wake constraint exists for the A380-800 either following another A380-800 or a non-A380-800 HEAVY aircraft.		

A380 Wake Vortex Turbulence Chart

The minima should be applied when :

- an aircraft is operating directly behind an A380-800 aircraft at the same altitude or less than 300 m (1000 ft.) below; or
- both aircraft are using the same runway, or parallel runways separated by less than 760 m; or
- An aircraft is crossing behind an A380-800 aircraft, at the same altitude or less than 300 m (1000 ft.) below.

8.3.10. Crewmembers at Their Stations

8.3.10.1. Flight Crew

During take-off and landing each flight, crewmember required to be on flight deck duty shall be at his station.
During all other phases of flight, each flight crewmember required to be on flight deck duty shall remain at his station unless his absence is necessary for the performance of his duties in connection with the operation, or for physiological needs provided at least, one suitably qualified pilot must be announced clearly to him you have control and acknowledge, and continuously maintains:

1. unobstructed access to the flight controls;
2. Alertness and situational awareness.

Except for crew entry/exit, the cockpit door should remain closed and locked during the whole flight.
The task of each flight crewmember is defined in the FCOM for all flight phases.
Non-essential activities should be avoided during phases of flight where workload is high. At any other time, if these activities are being performed, the Pilot In Command should ensure that only one flight crewmember is so occupied at any one time and that careful attention is being paid to normal operational duties by other crewmember(s).

One pilot should always be in a position to maintain a lookout. Meals, tea or coffee etc, should normally be partaken separately, so that one pilot can keep watch until the other is ready, thus maintaining an adequate lookout.
Pilot Flight crew members should not vacated an aircraft control seat below 10,000 feet (AFE/AAL) for the purpose of transferring duties to another plot flight crew member.

8.3.10.2 Cabin Crew

During take-off and landing, and whenever deemed necessary by the Pilot In Command in the interest of safety, the minimum legal number of cabin crew must be positioned in seats designated for the purpose. Any additional cabin staff that cannot be accommodated in seats provided for the purpose will normally occupy passenger seats, or at Pilot in Command's discretion, any spare seat in the cockpit.

8.3.11. Use of Shoulder Harness and Safety Belts for Crew and Passengers

Any occupant should fasten his seat belt during takeoff and landing and en-route in case of turbulence and as a general rule each time the SEAT BELT sign is illuminated. Unless otherwise briefed by the Pilot in Command, the SEAT BELT sign does not indicate a requirement for flight attendants to be seated.
Pilots in Command must ensure that all crewmembers are strapped in for take-off and landing with all safety belts and harnesses provided. Flight crewmembers must keep their seat belt and shoulder harness during climb phase, from take-off till 10,000 ft. AAL and during descent phase, from top of descent till landing. During other phases of the flight, each flight crewmember in the flight deck should keep his safety belt fastened while at his station. Other flight crewmembers to keep their safety harness fastened during the take-off and landing phases of flight, unless the shoulder straps interfere with the performance of duties, in which case the shoulder straps may be unfastened but the seat belt shall remain fastened.
As long as the SEAT BELT signs are illuminated, cabin crew should make frequent checks that passenger seat belts remain fastened.
Seat belt and shoulder harness must be worn by all crewmembers and passengers under the following conditions:

- during take-off and landing
- during an instrument approach
- when the aircraft is flying at an altitude of less than 1000 ft. above terrain
- in turbulent conditions
- at the Pilot In Command's discretion or as required by abnormal or emergency procedures

When the seat belts must be fasten, each infant must be kept in the supplementary loop belt of the accompanying person or strapped in a dedicated restraining device.
The SEAT BELT switch is to be selected to the "ON" position:

- During the cockpit preparation. Once airborne the SEAT BELT switch should be selected to the "OFF" position. An announcement should be made noting that although the seat belt sign has been turned off, passengers should keep their seat belts fastened whenever they are in their seats.
- When turbulence is anticipated or encountered. In addition, a flight crew must make an appropriate PA announcement requiring the passengers to fasten their seat belts.
- For descent and no later than FL100.

Refer also to 8.03.15 "Cabin Safety Requirement".

8.3.12. Admission to Flight Deck

Admission to the flight deck is under the authority of the Pilot in Command.
No person, other than the flight crewmembers assigned to a flight, should be admitted to, or carried in, the flight deck unless this person is an operating crewmember or a representative of the authority responsible for certification, licensing or inspection, or if this person is required for performance of his official duties.
The final decision regarding the admission to the flight deck of any person, rest s with the Pilot in Command who shall request identification of such persons before granting such admission.
Persons duly authorized by the Authority, entitled to enter and remain on the flight deck in order to be able to perform their duties, and shall only be denied access by the Pilot in Command if he deems this necessary in the interest of safety.
A person shall only be carried on the flight deck provided that a seat with safety belt / safety harness is available and that requirements concerning supplemental oxygen are met.
The person shall be instructed to:

- not distract and / or interfere with the operation of the flight
- not touch any controls, switches, instruments, circuit breakers
- not smoking
- not talking unless invited to do so by the Pilot In Command

The person must be briefed about the use of all flight deck relevant emergency equipment and all relevant emergency procedures to:

- keep the safety belt / safety harness fastened at all times
- use emergency exits, life jacket and oxygen

The flight deck door must be kept closed from engine start to engine shutdown.
Sterile Cockpit Policy
During Critical Phases of flight, the Captain shall enforce a Sterile Cockpit Policy. Nesma Airlines declares Critical Phases of flight to be:

- All taxi operations;
- The take-off run;
- The take-off flight path;
- The final approach;
- The landing roll;
- The last 2,000 ft prior to level off at an assigned altitude;
- All flight below 10000ft AGL;
- When accomplishing any normal or abnormal checklists;
- When anticipating/copying pre-flight and in-flight ATC clearances; and
- Any other phases of flight, at the discretion of the Captain.
- The Sterile Cockpit Policy comprises the following:
- Cockpit door closed and locked;
- The mandatory use of headsets and boom microphones for communication with ATC;
- Seatbelt ON, distracting non-operational activities or visits to the flight deck are not permitted; and conversation about non-flight related matters,
- Flight Attendant in the flight deck shall address active flight crewmembers 'PF or PM' only when necessary for the safe conduct of the flight.

Sterile Flight Deck Procedure
The Sterile Flight Deck is a time when communications between flight crew and Cabin Crew is kept to a minimum and shall be related directly with the operation of the aircraft (Safety).
Apart from the phases of flight involving take-off, landing and taxi, it is impossible for crewmembers outside the flight deck to know for certain when the sterile flight deck policy is

being enforced. Therefore, the following requirements shall be adopted by Cabin Crew prior to contact the flight crew over the interphone:

- Take off: From the closing of last cabin door until seatbelt sign off or (recycled seatbelt sign)
- Landing: From the call chime (recycled seatbelt sign) at 10,000 ft. until engine shutdown and seat belt sign off

No calls except when required by the flight Secure Procedure.

- During these periods, Cabin Crew shall initially try to contact the Flight Crew via interphone for emergency matters and shall not enter the Flight Deck unless called to do so by the PIC.
- During Take Off after the call chime (recycle seatbelt sign) at 10,000 ft., it is permitted for cabin crew to release seatbelts and to move from their assigned seats.

Cabin Crew to Flight Crew communication during critical stages of flight:
During the critical phases of flight, the Sterile Flight Deck Procedures is applied. Therefore, calls from the Cabin Crew or entry into the Flight deck are restricted to safety and security related matters.
The following are some examples of safety-related situations:
– Fire or smoke in the cabin.
– Abnormal noises or vibrations.
– Observation of fuel or other fluid leaks.
Note: In normal operations the Purser communicates with the Flight Crew on behalf of the Cabin Crew. In the case of an abnormal or emergency situation being discovered, the first Cabin Crewmember to discover a safety related situation shall report it to the Flight Crew.
No contact Periods: Cabin crew shall not contact flight deck by any means even in case of safety-related situations as in these periods flight deck crew shall not be distracted:

1) From the start of the take-off run (aircraft is accelerating) on the runway until the air crafts airborne with landing gear retract.
2) From gears down until aircraft is exiting the runway.

8.3.12.1 Leaving Flight Deck during Flight

Based on ECAA Safety & Security instructions regarding flight crewmembers leaving the flight deck due to operational or physiological needs during non-critical phases.
The cockpit crewmember who intends to leave the cockpit has to assign one of the crewmembers to enter the flight deck and remain inside until the cockpit crewmember returns and is seated;
Cabin crew should be briefed on the use of flight deck O_2 masks and use of the manual and electric flight deck controls for door locking
This is to ensure that during unforeseen situations (e.g. cockpit door lock failure, pilot incapacitation…etc.) the absent cockpit crewmember can easily gain access to the flight deck.
Note: During the flight, at least one qualified cockpit crewmember must be in the flight deck at all times of the flight.

8.3.13. Use of Vacant Crew Seats

The carriage of revenue passengers on vacant crew seats (“jump-seats”) is not permitted.
The use and occupancy by staff of vacant flight crew seats is entirely at the discretion of the Pilot in Command, except in the case of training or of a duly authorized State inspector. Such an Operations inspector traveling on duty has authority to occupy any spare flight deck seat and has precedence over any other person requesting "jump seal" facilities.

The Pilot in Command may decline such a request only if in his considered opinion the inspector's presence on the flight deck would be prejudicial to the safety of the flight.
Any person allowed to occupy a vacant crew seat must be informed about the use of safety equipment associated with this crew seat.
All staff members carried on a Company aircraft must be in possession of a valid ticket unless they have been properly assigned to duty on the flight as part of the operating crew or in a training capacity.
The occupancy of a vacant crew seat on the flight deck or crew seat in the cabin by a person who is not member of the operating flight or cabin crew is permitted provided:

- Any relevant FCOM limitation is observed
- The person is part of the ECAA authorized personnel to access flight deck
- The person has the authorization of the Captain
- The Captain is satisfied that the person is properly briefed on safety procedures and equipment and relevant operating procedures prior to any departure and approach.
- The person is assessed as having enough strength and dexterity to operate and open emergency exit, to exit expeditiously, and to assist others in getting off an escape slide (if any)
- The following persons may travel in the flight deck, when on duty or in possession of a valid extra crew authorization or licensed pilots with tickets and/or boarding pass with prior approval.

8.3.13.1. Jump Seat

Flight Deck Jump Seat

- The Captain has the authority to approve one jump seat for flight deck crew as long as the flight is not designated as training flight and a prior approval from Director of Operations is obtained
- (In special circumstances only) If training is being conducted, an approval from the Director of Operations must be obtained.

Cabin Crew Jump seat
The Captain may authorize the cabin jump seat with the Director of Operations prior approval as follows:

- Positioning crew, extra crew, crew with duty ticket and/or boarding pass, any Nesma Airlines staff or relative with 100% free ticket.
- The Director of Operations prior approval is required when the cabin crew rest seat is involved for T/O and landing only and in extreme necessary situations.

The Captain has the final authority as to the approval and the allocation of any jump seat for operational reasons.

8.3.14. Incapacitation of Crewmembers

8.3.14.1. General

Incapacitation of a crewmember is defined as any condition which affects the health of a crewmember during the performance of duties which renders him incapable of performing the assigned duties.
Incapacitation is a real air safety hazard which occurs more frequently than many of the other emergencies which are the subject of routing training. Incapacitation can occur in many forms varying from obvious sudden death to subtle, partial loss of function. It occurs in all age groups and during all phases of flight and may not be preceded by any warning.

8.3.14.2. Detection

In order to help with the early detection of flight crew incapacitation, the Crew Resource Management (CRM) principles should be applied:
- Correct crew coordination that involves routine monitoring and aural crosschecks. The absence of standard callouts at the appropriate time may indicate incapacitation of one flight crewmember.

The critical operational problem is early recognition of the incapacitation. The keys to early recognition of incapacitation are:

- Routine monitoring and crosschecking of flight instruments, particularly during critical phases of flight, such as takeoff, climb out, descent, approach, and landing and go around.
  - flight crewmembers should have a very high index of suspicion of a "subtle incapacitation":
- if a crewmember does not respond appropriately to two verbal communications, or
- If a crewmember does not respond to a verbal communication associated with a significant deviation from a standard flight profile.
- If one flight crewmember does not feel well, he must inform the other flight crewmember.

Other symptoms of the beginning of an incapacitation are:

- incoherent speech
- strange behavior
- irregular breathing
- pale fixed facial expression
- jerky motions that are either delayed or too rapid.

8.3.14.3. Action

In the case of flight crew incapacitation, the fit flight crewmember should apply the following Actions:

First Step

Take over and ensure a safe flight path:

- Announce ″I have control″
- If the incapacitated flight crewmember causes interference with the handling of the aircraft, press the sides tick pushbutton for 40 seconds
- Keep or engage the onside AP, as required
- Perform callouts (challenge and response included) and checklists aloud.

Second Step

- Take any steps possible to contain the incapacitated flight crewmember. These steps may involve cabin attendants.
- The simplest and most effective way to summon help is via the PA system:
  (ATTENTION, PURSER TO COCKPIT PLEASE)
- The nearest cabin crewmember, must immediately proceed to the cockpit.
- Inform the ATC of the emergency

Third Step

In order to reduce the workload, consider:

- Early approach preparation and checklists reading
- Automatic Landing
- Use of radar vectoring and long approach.
- Land at the nearest suitable airport after consideration of all pertinent factors

- Arrange medical assistance onboard and after landing, providing as many details as possible about the condition of the affected flight crewmember
- Request assistance from any medically qualified passenger, except for flight with only two flight crewmembers onboard (i.e. freighter or ferry flight).

8.3.15. Cabin Safety Requirements

Flight Deck/Cabin Crew joint briefing
Before the flight, a cabin crew briefing shall be conducted by the Captain or the F/O if the Captain not yet available; the following guidelines are recommended to summarize the briefing preparations and briefing points:

1. The purser is responsible to avail three seats at the head of the briefing table for himself, the Captain and the F/O along with rest of the crew around the table.
2. The purser should handover the Captain, a copy of the cabin crew names and assigned emergency positions.
3. The purser shall introduce the Captain, the F/O and himself, then ask the cabin crew to introduce themselves and their emergency position. The Captain will introduce any new unfamiliar pilot to the cabin crew.
4. The Captain briefing should include, but is not limited, to the following:-

a. Confirm that all crew is legal to perform the flight to the best of their knowledge.
b. Flight duration and altitude.
c. En-route and destination forecasted weather, anticipated turbulence.
d. Coordination service time and cabin crew rest time in case of augmented or double operation.
e. Confirm if all crewmembers are conversant with the location of all safety equipment and emergency exits.
f. Discuss sterile cockpit and cockpit door procedures; security matters and emphasize on vigilance.
g. Any defects affecting the cabin (i.e. APU INOP)
h. Emphasize the importance of open line communication between flight deck and cabin crew
i. Confirm if training is being conducted on this flight and if there are any questions.
j. Any special instructions related to the flight; e.g. Security, Safety issues, new procedure.
k. The Captain is not limited to the items above, he is free to add any information that may deem fit for the situation
l. any useful information such as deficiency of cabin/safety equipment, special passengers/load, special procedures e.g. de-icing

The briefing must be short and to the point, not exceeding 5-10 minutes, except in exceptional circumstances. Every effort must be made to put all the team members at ease and emphasize teamwork and cooperation to ensure safe Flight Operations.
Time of Departure Minus:

- 75 minutes (1:15) reporting time for all flight deck
- 70 to 60 minutes (1:10 - 1:00) to conduct joint briefing
- 60 minutes cockpit and cabin crew should proceed to the aircraft

Note:

1. If neither the Captain nor the F/O show up in the briefing room sixty five minutes prior to STD, purser or his representative should proceed to Dispatch and introduce himself to the Captain or any available operating crew; and inform that cabin briefing has been completed and they ready to proceed to the aircraft.

2. In the absence of the cockpit crew, dispatcher of the flight should be informed; and then cabin crew should proceed to the aircraft
3. Crewmembers shall be onboard the aircraft not later than 45 minutes prior to the departure time. Aircraft preparation shall be carried out and the preflight checklist (including Safety-critical items such as: oxygen, medical and emergency equipment) shall be completed 30 minutes before departure. If the aircraft is ready, allow passenger boarding not later than 25 minutes prior to scheduled departure time.

8.3.15.1. Cabin Preparation and Passengers Seating

The PURSER or senior cabin crewmember is responsible to the Pilot in Command for cabin safety from the time the aircraft is accepted for flight, until all the passengers have been offloaded at the end of the flight. The senior cabin crewmember must also ensure that relevant emergency equipment remains easily accessible for immediate use.

Unless the weight and balance for the flight and passenger category will be such that the random occupation of seats is permissible, passengers will be shown or conducted to their allocated seats.

Before take-off and landing the cabin, preparation must be completed as follows:

- All passengers have correctly fastened their seat belts.
- All reclining seats are in an upright position and folding tables stowed.
- All hand baggage secured
- All trolleys are stowed and galleys closed
- Exits and escape paths are unobstructed
- Exit doors armed
- Passenger briefing completed
- Cabin lights dimmed at night in order to improve the night vision of cabin crew and passengers

Cabin preparation completion should be reported to the Pilot in Command.

Before takeoff and before landing a recycle of seat belt sign or a public address (PA) announcement should be made to request cabin crewmembers to be seated at their station.

When turbulence conditions are likely to be encountered, the Pilot in Command should Endeavour to give early warning by switching "ON" the "Seat Belt" signs and making a PA announcement.

The paramount requirements are to have the passengers strapped in good time and to ensure they remain strapped in. Both objectives can be met by making a suitable public address announcement at the same time as the "Seat Belt" signs are illuminated.

The senior cabin crew must ensure that all passengers have conformed to the Pilot in Command's instructions on fastening of seat belts.

The Pilot in Command must instruct him whether catering and bar service may continue or whether cabin staff must fasten their own belts.

As long as the "Seat Belt" signs are illuminated, cabin crew should make frequent checks that passenger's seat belts remain fastened and that baggage is well stowed to not cause injury by moving. When a passenger is seen to unfasten his seat belt or attempts to leave his seat, the passenger should be asked to remain seated and strapped in.

As a matter of policy, if passenger insists on moving, he should not be prevented, but should be warned by cabin crew to take particular care.

8.3.15.2. Smoking Onboard

Smoking is not permitted onboard Nesma Airlines flights.

8.3.15.3. Fueling with Passengers on Board, Embarking or Disembarking

Refer also to 8.2.1.1 Refueling and Defueling When Passengers Are Embarking, On Board or Disembarking.

At stops where passengers remain on board, 100% of cabin crewmembers must remain on board and they must be spaced throughout the cabin to provide the most effective assistance for the evacuation in case of an emergency.

When fueling is made with passengers on board, embarking or disembarking, passengers should be notified that fueling is to take place and that if they are remaining in the aircraft they must not smoke, operate electrical switches, or otherwise produce sources of ignition.

The "No Smoking" and "Exit" signs must be illuminated. "Fasten seat belts" sign must be "OFF"

The ground area beneath the exits intended for emergency evacuation and slide deployment must be kept clear.

Ground servicing activities and work inside the airplane, such as catering and cleaning should be conducted in such a manner that they do not create hazard and the aisles and emergency doors are unobstructed.

When it is desired to move passengers to or from the aircraft during fueling, it must be ensure that the passengers are moved through the fueling zone under the supervision of a responsible person and are not allowed to stay near the aircraft.

Rigidly enforce the "No Smoking" rules during all such movements.

8.3.15.4. Electronic Devices

Electronic devices may cause Electro Magnetic Interferences (EMI) with navigation or communication system of the aircraft on which they are used.

To avoid any risk of interference, the operation of the following electronic devices is prohibited on board:

- cellular telephones
- portable televisions
- portable videotape recording and playback devices
- radio receivers
- radio transmitters
- toys with remotely controlled units
- Any electronic devices that have not been determined as not causing interferences with aircraft systems.

Operation of the following electronic devices is permitted:

- electronic shavers
- electronic calculators/computers
- electronic games without remote control
- hearing aids
- heart pacemakers
- portable personal listening devices (compact disc, cassette players)
- Portable voice recorders.

However portable computers, calculators, electronic games and as a general rule any electronic device should not be used during take-off and landing. They should be properly stowed similar to other carry-on baggage.

8.3.15.5. Medical Kits

8.3.15.5.1. First-Aid Kits

The following number of first-aid kits, should be readily accessible for use in the aircraft.

Number of passenger seats installed	Number of First-Aid Kits required
0 to 50	1
51 to 150	2
151 to 250	3
250 and more	4

The first-aid kits must be inspected periodically to confirm, to the extent possible, that contents are maintained in the condition necessary for their intended use; and replenished at regular intervals, in accordance with instructions contained on their labels, or as circumstances warrant.

The following should be included in the first-aid kits:

Medicine	Usage	Quit.
1. Bandages 1 inch …..	رباط ضاغط	1
2. Bandages 3 INC…..	رباط ضاغط	1
3. Triangular Compresses 40 inch…	رباط للكسور (جبيرة)	1
4. Antiseptic swabs ………….	مظهر	20
5. Burn compound (jelonet dressing)	للحروق	2
6. Arm splint ……….	جبيرة لليد	1
7. Leg splint ……….	جبيرة للرجل	1
8. Roller bandage 4 inch….	شاش	4
9. Scissor	مقص	1
10. 1Ophthalmic ointment (funcithalmic / termaycian)…	مطهر للعين للحالات القوية	1
11. 1Nasal decongestant (otrivin/ a frin) …….	لأحتقان الأنف	1
12. 1Artificial plastic air way	جهاز للتنفس الصناعي	1
13. 1Insect repellent	طارد للحشرات	1
14. 1Emollient eye drops (Brizaliene)	مطهر للعين	1
15. 1Sunburn cream (Dermazin)	كريم للحروق السطحية	1
16. 1Antiseptic wound cleaner (detol/ savlon)	مطهر سائل للجروح	1
17. Adhesive Tape, safety pins	لاصق للجرو ح	1
18. 1For air sickness (Dreamenes)	لدوار الجو	10
19. 1Anti-diarrhoeal medication (Imodium)	لحالات الإسهال	20
20. 2Simple analgesic (abimol)	لتخفيض الحرارة ومسكن للألم	20
21. 2First Aid handbook	كتاب الإسعافات الأولية	1
22. 2Cotton	قطن	1
23. 2Ear drops (optician)	نقط للأذن	1

Bandages (unspecified)

A list of contents in at least 2 languages (English and Arabic). This should include information on the effects and side effects of drugs carried

8.3.15.5.2. Emergency Medical Kit

An emergency medical kit must be carried by any airplane with a maximum approved passenger seating configuration of more than 30 seats if any point on the planned route is more than 60 minutes flying time (at normal cruising speed) from an aerodrome at which qualified medical assistance could be expected to be available.

The Pilot in Command shall ensure that drugs are not administered except by qualified doctors, nurses or similarly qualified personnel.

The emergency medical kit must be dust and moisture proof and shall be carried under security conditions, where practicable, on the flight deck.

The emergency medical kit must be inspected periodically to confirm, to the extent possible, that the contents are maintained in the condition necessary for their intended use; and replenished at regular intervals, in accordance with instructions contained on their labels, or as circumstances warrant.

The following should be included in the emergency medical kit carried in the airplane:

Equipment	Usage	Quit.
1- Mercurial Sphygmomanometer	جهاز قياس الضغط	1
2- Stethoscope	سماعة	1
3- Surgical Gloves	قفاز طبى	10
4- Sterile Scissors	مقص شرياني	1
5- Hemostatic Forceps	جفت شرياني لإيقاف النزيف	1
6- Hemostatic Bandages (or tourniquet)	جهاز لإيقاف النزيف	1
7- Sterile equipment's for suturing wounds	عدة خياطة الجرو	1
8- Disposable Syringes and needles	سرنجات مقاسين	10
9- Disposable Scaled Handle and Blade	مشرط جراحة	1
10- Airway arophary neal	أنبوبة حنجرية 3 مقاسات	3
11- Tracial Tube	أنبوب التنفس الصناعي	1

Usage	Medicine Name	Qty.	Exp. date
1- 50% Dextrose injection	جلوكوز	1	
2- Nitroglycerin tablet (for heart attack.) للذبحة الصدرية	Dinitra	20	
3- Coronary vasodilator مقوى لعضلة القلب	Cardixin	20	
4- Analgesics مسكن للألم	Abimol extra	20	
5- Diuretics مدر للبول (لعلاج الضغط العالى)	Lasix	20	
6- Anti spasmodic للمغص الشديد و التقلصات	Bus Copan	20	
7- Anti allergies للحساسية	Avil	20	
8- Central nervous system stimulant للإغماء	Ammonia	1	
9- Atropine لحالات هبوط القلب		1	
10- Ventolin inhaler لأزمات الربو		1	
11- Epinephrine 1:1000 singel dose ample.	Adrenaline (effedrein)	1	
12- For low blood pressure الضغط المنخفض	Effortil drops	1	

A list of contents in at least 2 languages (English and Arabic). This should include information on the effects and side effects of drugs carried.

8.3.15.6. Procedures and Checklist System

Procedures and checklist system for use of cabin crew must at least consider the following items:

ITEM	PRE TAKE-OFF	IN FLIGHT	PRE LANDING	POST LANDING
1. Brief of cabin crew by the senior cabin crewmember prior to commencement of a flight or series of flight	x			

2. Check of safety equipment in accordance with operators' policies and procedures	X			
3. Security checks: searching for concealed weapon, explosives or other dangerous devices	X			x
4. Supervision of passenger embarkation and disembarkation	X			X
5. Securing of passenger cabin (e.g. seatbelt, cabin cargo/baggage)	X		x	
6. Securing of galleys and stowage of equipment	X		X	
7. Arming of door slides	X			
8. Safety information to passengers	X	X	X	x
9. "Cabin secure" report to flight crew	X	If required	X	
10. Operation of cabin lights	X	If required	X	
11. Cabin crew at crew stations for take-off and landing	X		x	x
12. Surveillance of passenger cabin	X	X	x	x
13. Prevention and detection of fire in the cabin, galley, crew rest areas and toilet and instructions for action to be taken	X	X	x	x
14. Action to be taken when turbulence is encountered or in-flight incidents (pressurization failure, medical emergency etc.)		X		
15. Disarming of door slides				x
16. Reporting of any deficiency and/or un-serviceability of equipment and/or any incident	x	X	x	x

8.3.15.7. Emergency Locator Transmitter – ELT 96

Description:
Nesma Airlines aircraft are equipped with a signaling device (1) ELT 96 (Ref. 3.17), for areas in which search and rescue would be rather difficult.
The ELT 96 equipment is an emergency locator transmitter which is automatically or manually activated at impact using standard means through emergency frequencies 121.5 MHz, 243 MHz, and 406 MHz and which can be identified by the system of COSPAS-SARSAT satellites allowing to localize it more precisely for approximately 48 hours.
The ELT 96 radio beacon consists of an orange sealed case.
It is fitted with a flexible antenna located around the case to which it is linked by a cord. It comprises the following elements on the front face:

- a three-position switch "MAN/RESET-OFF-AUTO",
- a red warning light,
- an "ANT' plug to connect rigid or flexible antenna feeder,
- 26-pin connector (J1).

The shock crash sensor "g-switch" located in the upper part of the case, starts automatically ELT transmission when deceleration, undergone by the ELT,
A flexible antenna, supplied with the ELT, allows a portable mode use.
The transmission range of the signal depends on the type of terrain the beacon is operating from, and then height of the search aircraft. The signal from a beacon on high and open ground will be transmitted more directly than from the one placed in land depression or densely wooded area.

At 5,000 ft (1.542 m)	80 NM
At 10,000 ft (3,048 m)	120 NM
At 20,000 ft (6,096 m)	170 NM
At 40,000 ft (12,192 m)	245 NM

A. Operation in fixed mode

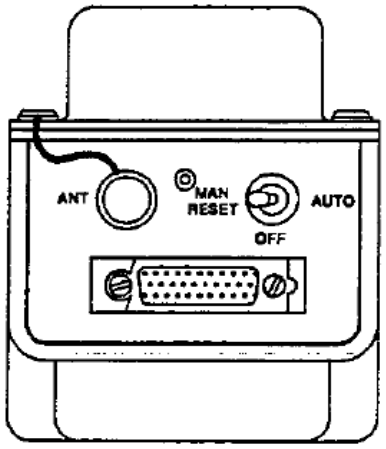
Automatic operation of the ELT 96 does not require any manual action after preliminary setting into service operations.

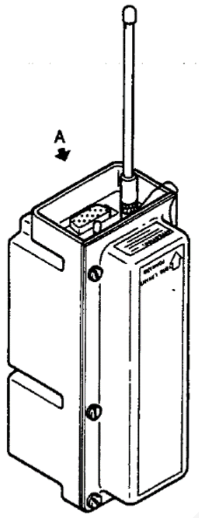
B. Operation in portable mode

Perform the following operations:

1) Release the quick-opening fireproof straps to remove the ELT from its compartment and from its optional fireproof protecting box (if installed).
2) Disconnect the fixed antenna coaxial plug from the ELT "ANT' connector.
3) Connect the flexible antenna to the ELT "ANT" connector.
4) Set the switch to "MAN/RESET".

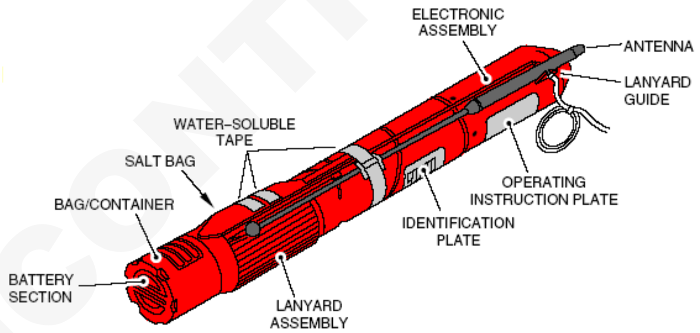
Note: Any flight that will be operated by Nesma Airlines over areas where it is known that search and rescue would be especially difficult, Nesma OCC shall check with Nesma Airlines maintenance department that the aircraft is equipped with signaling devices and life-saving equipment that ensure a mean of sustaining life.
In such case both cockpit & cabin crew operating this flight shall be briefed accordingly prior the flight is conducted





8.3.15.8 Emergency Locator Transmitter (ELT – RESCU 406)

Nesma Airlines aircraft is equipped with a fixed Emergency Locator Transmitter**.**
Pre-flight check:
1) Correct stowage and quantity. 2) Check validity.
Description:
This beacon is powered by a water-activated battery and will operate automatically as soon as the antenna is erected and salt water (or other suitable liquid) enters the intake holes. The antenna will erect automatically when placed in the sea. A plastic bag, attached to the beacon is used to hold liquid in the standing beacon when operating on land. When activated the beacon transmits a signal in all directions on International Civil (121.5 MHz), Military (243 MHz) and Satellite (406.025 MHz) distress frequencies. The beacon will transmit for approx. **24 hours** minimum for 406.025 MHz and **50 Hrs.** minimum with 121.5 MHz and 243 MHz transmissions.



To Operate: -
In Water: -

- **a.** Unroll Lanyard.
- **b.** Tie the lanyard to the slide raft or lifejacket.
- **c.** Place the ELT in sea-water allow it to drift away.
- **d.** The water-soluble tapes will dissolve releasing the antenna. The water will enter the water intake holes and the beacon will operate after a few seconds.

On Land: -

a. To erect the antenna, break or cut the water-soluble tapes – Care should be taken, as the antenna is spring loaded.
b. Unroll plastic bag. Put salt in the plastic bag and fill the plastic bag with 1 liter of water or any non-alcoholic liquid. Aircraft fuel and alcohol are unsuitable.
c. Stand the beacon upright in the bag with the mixed salt solution. Ensure the solution covers the two vent holes at all times.
d. Tie the lanyard / mooring line round the neck of the bag.
e. Place the ELT on high ground to improve the range of the transmission. Support the beacon and check the fluid level regularly.

To Turn Unit OFF: -
a. Remove the unit from the bag containing the liquid.
Re-stow the antenna and place the ELT inverted

8.3.16. Passengers Briefing Procedures

8.3.16.1. General

Nesma Airlines is required to provide all passengers, supernumeraries with appropriate briefing, or equipment demonstration, for the various stages of the flight, in particular:

- Passengers must be given a verbal briefing about safety matters. Parts or all of the briefing may be provided by an audio-visual presentation.
- Passengers must be provided with a safety briefing card on which picture type instructions indicate the operation of emergency equipment and exits likely to be used by passengers.

Prior to embarkation, passengers must be briefed on which articles are prohibited to be carried on board (on their person, in hand baggage or in checked baggage).
For Dangerous goods, refer to Chapter 9 Dangerous Goods and Weapons.
The permissible size and weight of their hand baggage must be indicated to passengers (Refer to 8.2.2.8. Hand Baggage).
Prior to boarding passengers must be briefed on the "No smoking" requirement and on all provisions relevant to their safety before and during their embarkation (Refer to 8.2.2. Aircraft, Passengers and Baggage Handling Procedures Related To Safety).
8.3.16.2. Before Takeoff
Prior to take-off, cabin crew must brief all passengers and/or supernumeraries on applicable safety rules and procedures. The briefing is not required before every take-off on a multi-stop flight with no additional passenger. It is necessary only for a change of aircraft and/or applicability of information (e.g. first segment overland, second segment over water, change of seat location).
Passengers must be briefed on the following items:

- Smoking regulations: observation of "NO SMOKING" signs on the ground, prohibition of smoking during flight in non-smoker section, in lavatories and aisles and during the whole flight on non-smoking flights.
- Back of the seat to be in the upright position and tray table stowed
- Location of emergency exits
- Location and use of floor proximity escape path markings
- Stowage of hand baggage
- Restrictions on the use of portable electronic devices (refer to 8.3.15.4. Electronic Devices)
- The location and the contents of the safety briefing card

Passengers must also receive a demonstration of the following:

- The use of safety belts and/or safety harnesses, including how to fasten and unfasten the safety belts and/or safety harnesses
- The location and use of oxygen equipment if required. Passengers must also be briefed to extinguish all smoking materials when oxygen is being used
- The location and use of life jackets (rafts) if flight over water is anticipated.

8.3.16.3. After Takeoff

Passengers must be reminded of:

- Smoking regulations: observation of "NO SMOKING" signs, prohibition of smoking during flight in non-smoker section, in lavatories and aisles and during the whole flight on non-smoking flights.
- Fastening their safety belts and/or safety harnesses, when the "FASTENSEAT BELT" sign is ON. Furthermore, it must be recommended to passengers to keep their seat belt fasten at all time during the flight.

8.3.16.4. During Descent / Before Landing

Passengers must be reminded of:

- Smoking ban
- The requirement to keep or refasten safety belts and/or safety harnesses
- Backing their seat in the upright position and stowing their tray table
- Re-stowing their hand baggage
- Restrictions on the use of portable electronic devices (refer to 8.3.15.4. Electronic Devices).

8.3.16.5. After Landing

Passengers must be reminded:

- Smoking ban
- To keep their safety belt fastened until the aircraft has come to a full stop and the engines have been shut down.

8.3.16.6. Emergency Situations

If an emergency occurs during flight, the passengers shall be instructed in such emergency action as may be appropriate to the circumstances (Refer to FCOM and CCM).

8.3.16.7. Public Address (PA) Announcements

Although the Pilot in Command may delegate the use of the PA system to any other crewmember, he remains responsible for its proper use.
The Pilot in Command should discuss his plan for routine announcements with the purser.
The following should be considered before each announcement:

- plan the content of the announcement
- speak clearly in simple language to encourage a friendly and formal mood
- Keep it short. Avoid exploiting a captive audience with lengthy or too-frequent announcements
- avoid the use of aviation jargon

When the take-off is imminent, the passengers are to be advised by making an announcement over the PA.
After take-off, immediately after turning the seat belt sign off, an announcement is required recommending that the passengers keep their seat belts fastened while seated, even though the seat belt sign is off.
When noticeable turbulence is anticipated or encountered, advise the cabin occupants of the duration and intensity expected.
If deemed appropriate request all flight attendants to be seated with their seat belts fastened.
Advise passengers of any delays (take-off, landing) or diversions and the reasons.

8.3.17. Cosmic or Solar Radiation Detection Procedures

An operator shall ensure that aircraft intended to be operated above 15 000 m (49 000 ft) are equipped with an instrument to measure and indicate continuously the dose rate of total cosmic radiation being received and the cumulative dose on each flight.
Not applicable on Nesma Airlines aircraft as maximum operating altitude is below 49 000 ft.
Refer also 6.2. Cosmic Radiation.

8.4 All Weather Operations

Nesma Airlines is authorized for CAT I and CAT II but not authorized for CAT III Operations. Therefore all references CAT III operations are considered pending until Nesma Airlines and Crew are approved for such operation.

8.4.1 Concepts

All Weather Operations (AWO) consist in operating an aircraft in low visibility conditions. The term AWO includes Low Visibility Take-Off (LVTO), landing Category II (Cat II), landing Category III (Cat III) and Low Visibility Taxi (LV TAXI).
Weather limitations (visibility) applied for AWO are called minima.
For each airport procedure, approved minima are indicated in the associated Jeppesen charts.
A Take-off or a Landing cannot be operated with minima below which the aircraft is certified, the crew is rated and the usable runway aids are certified.
The limits of the aircraft are indicated in the FCOM.
The limit of usable landing aids is the value of the DH/DA for the approach landing category.
These limits or operating minima must not be less than those imposed by the country concerned and the Operations Manual according to the type of flight.

8.4.1.1 CAT II

A category II approach is a precision instrument approach and landing with:

- A decision height lower than 200ft (60m) but not lower than 100ft (30m), and
- A runway visual range not less than 300m (1000ft).

The main objective of CAT II operations is to provide a level of safety equivalent to other operations, but in more adverse weather conditions and lower visibility.
CAT II weather minima have been established to provide sufficient visual references at DH to permit a manual landing (or a missed approach) to be executed (this does not mean that the landing must be made manually).

8.4.1.2 CAT III

Nesma Airlines is not authorized for CAT III operations.

CAT II / CAT III definitions according to ICAO, JAA

		ICAO		JAA	
		DH	**RVR**	**DH**	**RVR**
CAT II		100ft ≤DH < 120ft 121ft ≤DH < 140ft 141ft ≤DH	300m 400m 450m	100ft ≤DH < 120ft 121ft ≤DH < 140ft 141ft ≤DH	300m 400m 450m
CAT III A	**DH**	No DH or DH < 100ft (1)		DH < 100ft (1)	
	RVR	200m ≤RVR 700ft ≤RVR		200m ≤RVR 700ft ≤RVR	
CAT III B	**DH**	No DH or DH < 50ft		No DH or DH < 50ft	
	RVR	50m ≤RVR < 200m 150ft ≤RVR < 700ft		75m ≤RVR < 200m 250ft ≤RVR < 700ft	
CAT III C	**DH**	No DH			
	RVR	No RVR limitation			

(1) DH ≥50ft if fail passive

Acceptable operational correspondence meter/feet (according to ICAO)

15m	= 50ft	30m = 100ft	50m = 150ft	5m = 250ft
100m	= 300ft	150m = 500ft	175m = 600ft	200m = 700ft
300m	= 1000ft	350m = 1200ft	500m = 1600ft	550m = 1800ft
600m	= 2000ft	800m = 2400ft	1000m = 3000ft	1200m = 4000ft

1600m = 5000f

8.4.1.3 Decision Height (DH) and Alert Height (Ah)

In CAT II / CAT III regulations, two different heights are defined:
- The Decision Height (DH),
- The Alert Height (AH).

8.4.1.3.1 Decision Height Definition

A specified height in a 3D instrument approach operation at which a missed approach must be initiated if the required visual reference to continue the approach has not been established. (ECAR Part 1)
Decision height is the wheel height above the runway elevation by which a go-around must be initiated unless adequate visual reference has been established and the aircraft position and approach path have been assessed as satisfactory to continue the approach and landing in safety. In this definition, runway elevation means the elevation of the highest point in the touchdown zone. According to the regulation, the DH recognition must be by means of height measured by radio-altimeter.

Visual references at DH

Because the term of adequate visual reference could be differently interpreted, the regulation has defined criteria for CAT II and CAT III for visual reference at DH which are now commonly accepted.
For CAT II and CAT III A, a pilot may not continue the approach below DH unless a visual reference containing not less than a 3 light segments of the centre line of the approach lights or runway center line or touchdown zone lights or runway edge lights is obtained. For CAT III B the visual reference must contain at least one centerline light.

8.4.1.3.2 Alert Height Definition

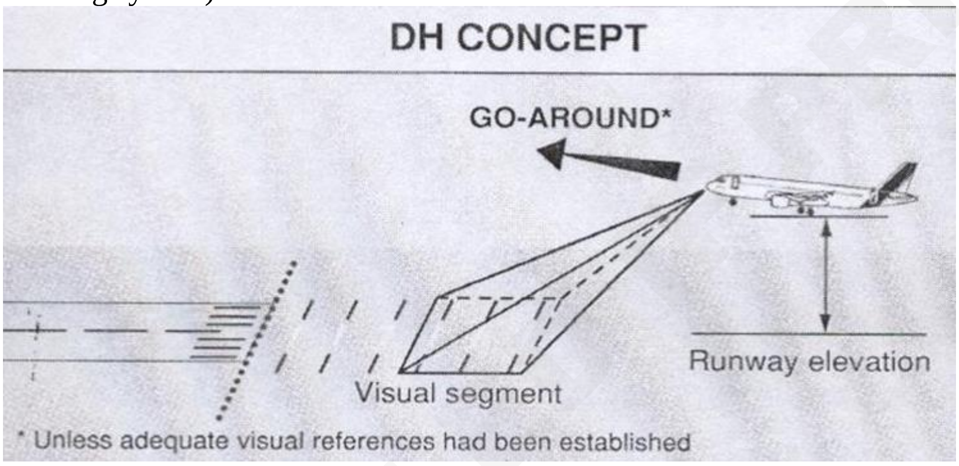
An Alert Height is a height above the runway, based on the characteristics of the aeroplane and its fail-operational automatic landing system, above which a Category III approach would be discontinued and a missed approach initiated if a failure occurred in one of the redundant parts of the automatic landing system, or in the relevant ground equipment (ICAO).
In other AH definitions, it is generally stated that if a failure occurred below the Alert Height, it would be ignored and the approach continued.

8.4.1.3.3 Decision Height and Alert Height Concept Decision Height concept

Decision height is a specified point in space at which a pilot must make an operational decision. The pilot must decide if the visual references adequate to safely continue the approach have been established.

- If the visual references have not been established, a go-around must be executed.
- If the visual references have been established, the approach can be continued. However, the pilot may always decide to execute a go-around if sudden degradations in the visual references or a sudden flight path deviation occur.

In Category II operations, DH is always limited to 100ft or Obstacle Clearance Height (OCH), whichever is higher. In Category III operations with DH, the DH is lower than 100ft (typically equal to 50ft for a fail-passive automatic landing system and 15-20ft for a fail-operational automatic landing system).

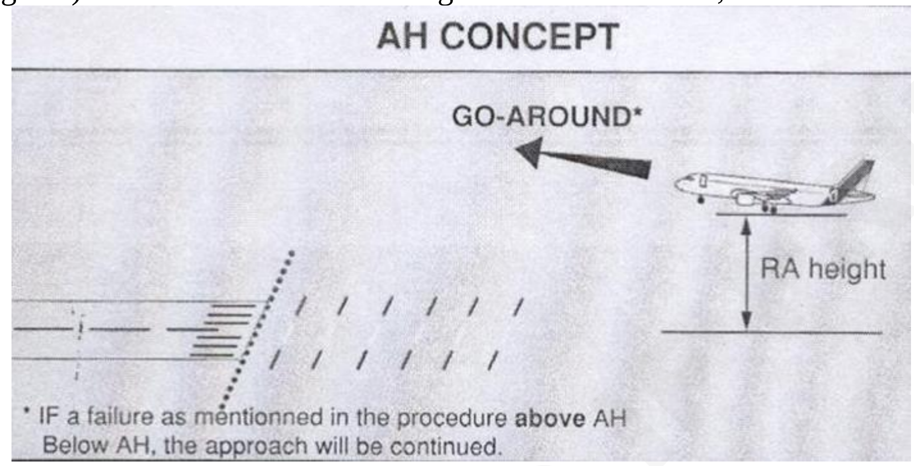


The DH is measured by means of radio-altimeter. When necessary, the published DH takes into account the terrain profile before runway threshold.

Alert Height concept

Alert height is a height defined for Category III operations with a fail-operational landing system.

- Above AH, a go-around must be initiated if a failure (*) affects the fail-operational landing system.
  (*) The list of these failures is mentioned in the AFM.
- Below AH, the approach will be continued (except if AUTOLAND warning is triggered). The AH is evaluated during aircraft certification; it is set at 100ft for A320.



The AH is only linked to the probability of failure(s) of the automatic landing system.

Operators are free to select an AH lower than the AH indicated in the AFM but not a higher value. Airbus procedures include both AH and DH concepts for all Fail-operational Category III operations.

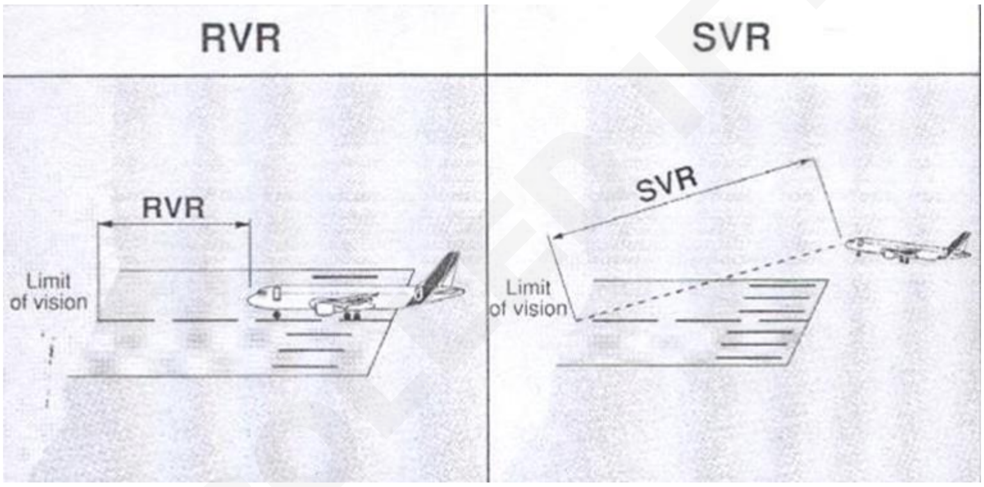
8.4.1.4 Runway Visual Range

8.4.1.4.1 RVR Definition

Runway Visual Range (RVR) is the range over which a pilot of an aircraft on the centre line of the runway can see the runway surface markings or the lights delineating the runway or identifying its centre line.

8.4.1.4.2 RVR Concept

Categories II and III operations require rapidly updated and reliable reports of the visibility conditions which a pilot may expect to encounter in the touchdown zone and along the runway. RVR measurements replace the use of Reported Visibility Values (RVV) which is not appropriate for conditions encountered during the final approach and landing in low visibility, because the visibility observations are often several miles away from the touchdown zone of the runway.
Note: RVR is not the Slant Visual Range (SVR). SVR is the range over which a pilot of an aircraft in the final stages of approach or landing can see the markings or the lights as described in RVR definition.



Note: A too low seat position will reduce the SVR considerably.

8.4.1.4.3 Runway Visual Range Measurements

For Category II and Category III operations, the RVR measurements are provided by a system of calibrated Transmissometers and account for the effects of ambient background light and the intensity of runway lights.
Transmissometers systems are strategically located to provide RVR measurements associated with three basic portions of a runway:

- the touchdown zone (TDZ),
- the mid-runway portion (MID), and
- The rollout portion or stop end.

For Category II operations the TDZ measurement is required, and for Category III operations the TDZ and MID measurements are mandatory. For CAT III without DH regulation requires only one RVR measuring point on the runway.

8.4.1.5 Minimum Approach Break-Off Height (MABH)

The Minimum Approach Break-off Height (MABH) is the lowest height above the ground, measured by radio altimeter, such that if a missed approach is initiated without external references:

- in normal operation, the aircraft does not touch the ground during the procedure
- With an engine failure during a missed approach, it can be demonstrated that taking this failure probability, an accident is extremely improbable.

8.4.1.6 Operating Minima

8.4.1.6.1 Cat II

- Refer to 8.1.3.5.4. Precision Approach Cat II.

8.4.1.6.2 Cat III

- Refer to 8.1.3.5.5. Precision approach CAT III

8.4.2 Flight Crew Procedures

8.4.2.1 Flight Preparation

In addition to normal flight preparation, the following planning and preparation must be performed when CAT II or CAT III approaches are envisaged.

Review NOTAMS to make sure that the destination airport still meets visual or non-visual CAT II or CAT III requirements:

- Runway and approach lighting,
- Radio Nevoid availability,
- RVR equipment availability, etc.

Aircraft status: check that required equipment for CAT II or CAT III approach is operative. The required equipment list is given in the FCOM and in the QRH.

Although CAT II / CAT III required equipment is not listed in the MMEL, in case of failure Nesma Airlines MEL indicates whenever the required equipment list shall be checked.

When the aircraft log book is available, confirm that no write-up during previous flights affects equipment required for CAT II / CAT III.

Crew Qualification: Crew qualification and currency must be reviewed (both CAPT and F/O must be qualified and current).

Weather information: check that the weather forecast at destination is within Nesma Airlines and crew operating minima. If the forecast is below CAT I minima, verify that alternate weather forecasts are appropriate to the available approach means and at least equal to or better than CAT I minima.

Fuel planning: additional extra fuel should be considered for possible approach delays.

- **Taxiing**: Additional fuel of 30 minutes of taxiing should be carried, whenever the forecast weather for the departure airport is below 400m
- **Holding**: Addition of 30 minutes of holding fuel or the expected delays should be carried, whenever forecast weather for destination is below CAT I

Cabin Crew Briefing: Brief cabin crew not to enter the Flight Deck, or call on the intercom during taxi or approach unless safety dictates for such calls.

8.4.2.2 Approach Preparation

8.4.2.2.1 Aircraft Status

Check on ECAM STATUS page that the required landing capability is available.
Although it is not required to check equipment which is not monitored by the system, if any of these equipment's is seen inoperative (flag), the landing capability will be reduced.

8.4.2.2.2 Weather

Check weather conditions at destination and at alternates. Required RVR values must be available for CAT II/III approaches. The selected alternate must have weather conditions equal to or better than CAT I.

8.4.2.2.3 Approach Ban

Policy regarding an approach ban may differ from country to country (Refer to Jeppesen Manual, Chapter "AIR TRAFFIC CONTROL"). Usually the final approach segment may not be continued beyond the OM or equivalent DME distance if the reported RVR is below the published minima for the required Transmissometers. After OM or equivalent, if RVR becomes lower than the minima, the approach may be continued.

8.4.2.2.4 ATC Calls

Unless LVP are reported active by ATIS, clearance to carry out a CAT II or CAT III approach must be requested from ATC, who will check the status of the ILS and lighting and protect the sensitive areas from incursion by aircraft or vehicles. Such an approach may not be undertaken until the clearance has been received.
Before the outer marker, the required RVR values should be transmitted.

8.4.2.2.5 Seat Position

The pilots must realize the importance of eye position during low visibility approaches and landing. A too-low seat adjustment may greatly reduce the visual segment. When the eye reference position is lower than intended, the already short visual segment is further reduced by the cut-off angle of the glare shield or nose.
The seat is correctly adjusted when the pilot's eyes are in line with the red and white balls located above the glare shield.

8.4.2.2.6 Use of Landing Lights

At night in low visibility conditions, landing lights can be detrimental to the acquisition of visual references.
Reflected light from water droplets or snow may actually reduce visibility.
Landing lights would therefore not normally be used in CAT II or CAT III weather conditions.

8.4.2.2.7 Cat II or Cat III Crew Briefing

The briefing should include the normal items as for any IFR arrival and in addition the following subjects should be covered prior to the first approach:

- destination and alternate weather,
- Airfield and runway operational status CAT II / CAT III, etc.
- aircraft systems status and capacity,
- brief review of task sharing,
- review approach procedure (stabilized approach),

- review applicable landing minima -performance page- (RA value in DH Field)
- review go-around procedure, ATC calls,
- brief review of procedure in case of malfunction below 1000ft,
- optimum seat position and reminder to set cockpit lights when appropriate

8.4.2.3 Approach Procedures

8.4.2.3.1 Task Sharing

The procedures given in FCOM for CAT II and CAT III approaches make the best use of the automatic system of the aircraft.
The task sharing for a CAT II / CAT III approach is that **CM1 is PF** and **CM2 is PM**.
The workload is distributed in such a way that the CM1 primary tasks are supervising and decision making, and the CM2 primary task is monitoring operation of the automatic system.
In summary the tasks are shared as follows:
CM1:

All CAT II and CAT III operations

- has hands on controls and thrust levers throughout the approach, landing or go-around ;
- makes FCU selections (if any) ;
- takes manual control in the event of AP disconnection ;
- Monitors flight instruments.

Approaching DH:

- Starts to look for visual references, progressively increasing external scanning as DH is approached. If no DH procedures are used, the CM1 will nevertheless look for visual references.

At or before DH (if his decision is to continue):

- calls "LANDING" ;
- scans mostly head-up to monitor the flight path and flare (in CAT II or
- CAT III A) or the track (in CAT III B) by visual references ;
- monitors thrust reduction and for A320, at "RETARD" call-out, sets thrust levers to idle ;
- selects and controls reverse thrust ;
- Disengages autopilot when taxi speed is reached.

CM2:

- monitors flight instruments head-down throughout approach, go-around
- or landing until roll-out is completed ;
- calls any deviation or failure warning ;
- calls barometric heights as required, and monitors auto call-out or calls radio heights including "100 above";
- Monitors FMA and calls mode changes as required.

At DH (identified by aural and visual warning):

- if decision is not announced by CM1, calls "MINIMUM";
- If no response from CM1, initiates a go-around.

CAT III operations without DH

CM1:

- if no failure by AH, calls "LANDING";
- monitors flare by flight instruments;
- monitors lateral guidance during flare by yaw bar on PFD;
- monitors automatic ground roll by scanning alternately instruments and external references

IF DECISION IS TO GO AROUND (All CAT II and CAT III operations) CM1

- calls "GO AROUND - FLAPS";
- initiates go-around by setting thrust levers to TOGA;
- monitors rotation on PFD;
- checks positive climb (V/S and RA);
- Commands configuration changes.

CM2

- Standard Operating Procedures

8.4.2.3.2 Visual References

8.4.2.3.2.1. Operations with DH

It should be stressed that the DH is the lower limit of the decision zone during which, in limiting conditions, the CM1 will be assessing the visual references. CM1 should come to this zone prepared for a go around but with no pre-established judgment.
CM1 should make a decision according to the quality of the approach and the way the visual references develop as DH is approached.

CAT II Operations

In CAT II operations the conditions required at DH to continue the approach are that the visual references should be adequate to monitor the continued approach and landing, and that the flight path should be acceptable. If both these conditions are not satisfied, it is mandatory to initiate a go around.
The visual references required at DH in CAT II operations to continue the approach may be any of the following:

- a segment of the approach light system,
- the runway threshold,
- The touchdown zone.

CAT III Operations

In CAT III operations with DH, the condition required at DH is that there should be visual references which confirm that the aircraft is over the touchdown zone. Go-around is mandatory if the visual references do not confirm this.

8.4.2.3.2.2. CAT III without DH

For this category of operation, the decision to continue does not depend on visual references, even though a minimum RVR is specified.
It is nevertheless good airmanship to confirm aircraft position with available visual references. However, the decision depends only on the operational status of the aircraft and ground equipment. If a failure occurs prior to reaching the AH, a go-around will be made. A go-around must nevertheless be performed if the auto-land warning is triggered below AH.

8.4.2.3.3 Loss of Visual References

8.4.2.3.3.1 Operations with DH - Before Touchdown

If the decision to continue has been made and the visual references subsequently become insufficient (for the appropriate category), or the flight path deviates unacceptably, a go-around must be initiated (a go-around initiated below the MABH, whether auto or manual, may result in ground contact).
Note: If the touchdown occurs after GA is engaged the AP remains engaged in that mode, and ATHR remains in TOGA. Ground spoilers and auto brake are inhibited.

8.4.2.3.3.2 Operations With and Without DH - After Touchdown

If the visual references are lost after touchdown, a go-around should not be attempted. The roll-out should be continued with AP in ROLL-OUT mode down to taxi speed.

8.4.2.3.4 Flight Parameters Deviation Calls

The following calls would normally be made by the PM and acknowledged by the PF.
However, any crewmember who sees a deviation outside the following limits should make the appropriate call.
If any of these limits are exceeded approaching DH, a go-around should be considered.

<table>
<tr><th>PARAMETERS</th><th colspan="2">IF DEVIATION EXCEEDS</th><th>CALL REQUIRED</th></tr>
<tr><td>IAS</td><td colspan="2">+ 10 kt
- 5 kt</td><td>"SPEED"</td></tr>
<tr><td>Rate of descent</td><td colspan="2">- 1000 ft/min</td><td>"SINK RATE"</td></tr>
<tr><td>Pitch attitude</td><td colspan="2">10° nose up
- 2.5° nose down (A320)</td><td>"PITCH"</td></tr>
<tr><td>Bank angle</td><td colspan="2">7°</td><td>"BANK"</td></tr>
<tr><td>Localizer</td><td rowspan="2">Excess deviation warning</td><td>1/4 DOT (PFD)</td><td>"LOCALIZER"</td></tr>
<tr><td>Glide slope</td><td>1 DOT (PFD)</td><td>"GLIDESLOPE"</td></tr>
</table>

8.4.2.4 Failures and Associated Actions

8.4.2.4.1 General

In general there are three possible responses to the failure of any system, instrument or element during the approach.

- CONTINUE the approach to the planned minima.
- REVERT to higher minima and proceed to a new DH (above 1000ft).
- GO AROUND and reassess the capability.

The nature of the failure and the point of its occurrence will determine which response is appropriate.
As a general rule, if a failure occurs above 1000ft AGL the approach may be continued reverting to a higher DH, providing the appropriate conditions are met (refer to "downgrading condition" here after).
Below 1000ft (and down to AH when in CAT III DUAL) the occurrence of any failure implies a go-around, and a reassessment of the system capability.
Another approach may then be undertaken to the appropriate minima for the given aircraft status. It has been considered that below 1000ft, not enough time is available for the crew to perform the necessary switching, to check system configuration and limitations and brief for minima.
In CAT III DUAL, in general, a single failure (for example one AP failure or one engine failure) below AH does not necessitate a go-around. But a go-around is required if the auto-land warning is triggered.

8.4.2.4.2 Abnormal Procedures

The required procedures following failures during CAT II or CAT III approaches are provided in the FCOM. These procedures have been established and approved during the aircraft CAT II / CAT III certification.
The abnormal procedures can be classified into two groups:

1) Failures leading to a downgrading of capability as displayed on FMA and ECAM with an associated specific audio warning (triple click).
2) Failures that do not trigger a downgrading of capability but are signaled by other effects (Flag, ECAM warning, amber caution and associated audio warnings).

It should be noted that some failures might trigger ECAM warnings, cautions and a downgrading of capability.
The FCOM describes what should be the crew responses to failures in function to the height:

Above 1000ft: Downgrading conditions

(a) Downgrading from CAT III to CAT II is permitted only if :
- ECAM (check-list) actions are completed,
- RVR is at least equal to CAT II minima,
- Briefing is amended to include CAT II procedure and DH.
- decision to downgrade is completed above 1000ft AGL,

(b) Downgrading from CAT II to CAT I permitted only if:
- ECAM (check-list) actions are completed,
- at least one FD is available,
- RVR is at least equal to CAT I minima,

- briefing is amended to include CAT I procedure and DH,
- the decision to downgrade is completed above 1000ft AGL

Note: switching from one AP to another before 1000ft AGL is permitted.

Below 1000ft and above DH (for CAT II or CAT III SINGLE) or above AH (for CAT III DUAL) A go-around must be performed in case of:

- ALPHA FLOOR activation,
- loss of AP (cavalry charge),
- downgrading of capability (triple click),
- amber caution (single chime),
- Engine failure.

At 350ft RA (✝)

LAND must be displayed on FMA and runway course must be checked.

If runway course is incorrect or LAND does not appear, a go-around must be performed. If conditions permit, a CAT II approach with AP disconnection no later than 80ft may be continued.

LAND is displayed if LOC and GS track modes are active and at least one RA is available. These conditions need to be obtained no later than 350ft AGL to allow a satisfactory automatic landing.

(✝) Depending on terrain profile before the runway LAND mode may appear at lower height. This can be acceptable provided it has been demonstrated that automatic landing is satisfactory.

At 200ft RA and below

Any AUTOLAND warning requires an immediate go-around.

If visual references are sufficient and a manual landing is possible, the PF (CM1) may decide to land manually.

At flare height

If FLARE does not come up on FMA, a go-around must be performed.

If visual references are sufficient and a manual landing is possible, the PF (CM1) may decide to complete the landing.

After touchdown

- In case of anti-skid or nose wheel steering failure, disconnect AP and take manual control.
- If automatic roll-out control is not satisfactory, disconnect the AP immediately.

8.4.3 ATC Procedures

CAT II and CAT III operations require special procedures for the ATC and all services on the aerodrome (maintenance, security). They are often referred to under the generic name of Low Visibility Procedures. Each aerodrome authority develops its own procedures with the ICAO All Weather Document or ECAC n 17 as a possible aid.

Main procedures to be established are:

- procedures for ATC to be quickly informed of all degradations in ILS performance and to inform the pilot if necessary,
- procedures for ATC to be quickly informed of all degradations in visual aids and to inform the pilot if necessary,
- procedures for the protection of the obstacle free zone (OFZ) by the control of ground movements,
- procedures for the protection of the ILS critical area and the ILS sensitive area by control of ground movements and adequate separation between two aircraft on approach or one aircraft on approach and another taking-off,
- procedures for meteorological services,
- procedures for maintenance,
- Procedures for security.

ATC clearance

Clearance to carry out a CAT II or III approach must be requested from ATC, who will activate the Low Visibility Procedures, i.e. prepare the airfield and assure appropriate aircraft separation. Such an approach may not be undertaken until the clearance has been received. It is also recommended that ATC be informed when an automatic landing is intended to be performed, to ensure, whenever possible, the same protection even in CAT I or better conditions.

8.4.4 Continuous Monitoring

After obtaining the authorization, Nesma Airlines must continue to provide reports of in-line service.

The Flight Safety Officer, the Director of Operations and the Maintenance Director will be in charge to collect the following information:

- The total number of approaches, by aircraft type, where the airborne CAT II or III equipment was utilized to make satisfactory, actual or practice, approaches to the applicable CAT II or III minima.
- The total number of unsatisfactory approaches by airfield and aircraft registration in the following categories.
  (a) Airborne equipment faults
  (b) Ground facility difficulties
  (c) Missed approaches because of ATC instructions
  (d) Other reasons

The continuous monitoring should permit the detection of any decrease in the level of safety before it becomes hazardous.

The Flight Safety Officer, the Director of Operations and the Maintenance Director must continue to check these results and to take adequate actions by modifying the operating or maintenance procedures if necessary.

The monitoring may also permit problems to be detected on a specified airfield (ILS, ATC procedures, etc.).

The data must be retained for a period of 12 months.

8.4.5 Low Visibility Take-off (LVTO)

8.4.5.1 LVTO Approval

The ECAA approval is required to conduct LVTO with RVR below 150 m. Nesma Airlines has been approved by the ECAA to conduct LVTO with RVR 150 m and this approval is shown in the OPS SPEC of the AOC.
To conduct LVTO, crewmembers shall be qualified. Takeoff with RVR less than 400m is considered as LVTO.
No operational approval is required to perform LVTO with RVR between 400m and 150m.
The takeoff minima is mainly determined by the airport installation (runway lighting system, RVR measurement system,).
When weather conditions are more severe than the landing minima, a takeoff alternate is required within one hour for twin-engine aircraft. This time is determined at the one engine inoperative speed.
Refer to 8.1.2.3.2 Takeoff alternate aerodrome.

8.4.5.2 Low Visibility Takeoff Briefing

Takeoff briefings should preferably be completed prior to engine start. During Low Visibility Takeoff briefing, the Pilot in command shall satisfy himself that:

- The status of the visual and non-visual facilities is sufficient;
- LVPs are in force;
- Flight crewmembers are qualified;
- Minimum required RVR for take-off is obtained;
- Takeoff alternate weather, if required, is obtained;
- Use of aircraft anti-icing procedures are reviewed; and
- Taxi route and the runway CAT II / III holding points are reviewed.

8.4.5.3 Low Visibility Taxi - LV Taxi

The following guidelines shall be used during Low Visibility Taxi:

- Before taxiing for take-off in low visibility, check that the crew are familiar with CAT II / CAT III holding points for the take-off runway, and with any taxiway routing that should be used.
- The centerline taxiway lighting with its reduced spacing, coded space into indicate curves, and facilitate taxing in low visibility;
- Close attention should be paid to taxi speed **(max 10 kts)** and taxi routes. The CM2 should make full use of taxi charts and ground speeds and headings to feed the required information to CM1. Both pilots should give their undivided attention to taxi phase;
- Any checklist, clearance or action (i.e. F/CTL check) must only be done while the aircraft is stationary **with the parking brake ON**;
- Remember that ground equipment, aircraft wingtips, and tails may not be as readily seen as the taxiway lights, therefore taxi with utmost caution;
- Make full use of all aircraft lights, i.e. Taxi and turnoff etc., unless they cause restricted visibility due to glare;
- Make certain that correct CAT II / CAT III holding points, runways and sensitive areas are not violated; and
- On entering the runway and lining up for take-off, double check runway heading reference and ensure that the aircraft is on the runway centerline. This could be verified by ILS localizer and markings on runway centerline.

8.4.5.4 General

Normally the lowest RVR authorized for takeoff is 400 m, below 400 m takeoff requires Low Visibility Procedures (LVP) to be in force; the Commander shall ensure that LVP are in force. Table 8.4.5.5 which defines the lowest takeoff minima authorized.
Line up on the runway centerline. Use the centerline lights or marking for directional control guidance during takeoff roll. As speed increases the streaming effect of the lights and markings improve tracking. In addition, the noise of the nose wheel running over the centerline lights is further confirmation that takeoff run is straight.

8.4.5.5 LVTO with RVR between 400m and 150m

The minimum RVR in this range of value is a function of the aircraft category and of the runway equipment.
A320 are in category C.
No operational approval is required to perform LVTO with these minima.
Table 8.4.5.5 – RVR minima

Facilities	RVR/Visibility (m) (Note 1,2)
Takeoff Without Approval for Low Visibility Takeoff (LVTO)	
Day only: Nil **(Note 2)**	500R/500V (1600 ft.)
Day: REDL or RCLM or RCLL Night: (REDL or RCLL) and RENL	400R/400V (1300 ft.)
Takeoff With Approval for Low Visibility Takeoff (LVTO) (Note 4)	
Day: REDL and (RCLM or RCLL) and LVP Night:(REDL or RCLL) and RENL and LVP	300R/300V (1000 ft.)
REDL and RCLL and LVP	200R/200V (700 ft.)
REDL and RCLL and LVP and multiple RVR	150R (500 ft.) **(Note 3)**
HI RCLL spaced 15m or less and HI REDL spaced 60m or less and LVP and multiple RVR	125R (400 ft.) **(Note 3 & 5)**

Note 1: The reported RVR/VIS value representative of the initial part of the takeoff run can be replaced by pilot assessment.
Note 2: The pilot is able to continuously identify the take-off surface and maintain directional control.
Note 3: The required RVR value to be achieved for all relevant RVRs - TDZ, MID, Rollout – TDZ equivalent to the initial part of the TKOF run.

Note 4: Low Visibility Procedures (LVP) must be in force for Low Visibility Takeoff (LVTO).
REDL Runway Edge Lighting RCLM Runway Center Line Marking RCLL Runway Center Line Lighting RENL Runway End Lighting
HI REDL High Intensity Runway Edge Lighting
HI RCLL High Intensity Runway Center Line Lighting
LVP Low Visibility Procedure
Note 5: ECAA has granted Nesma Airlines approval to reduce the take-off minima to 150m provided the requirements below be fulfilled:

- Low Visibility Procedures are in force,
- High intensity CL spaced 15m or less and HIRL spaced 60m or less are in operation,
- Crew must have satisfactorily completed initial and recurrent training in an approved simulator,
- A 90 meters visual segment must be available from the cockpit at the start of the takeoff run,
- The required RVR value has been achieved for all of the relevant RVR reporting points.

8.5 ETOPS

Nesma Airlines is not approved for such operations

8.6 Use of the Minimum Equipment List (Mel) and Configuration Deviation List (CDL)

The Minimum Equipment List (MEL) is a document established by Nesma Airlines and approved by Egyptian ECAA. Nesma Airlines MEL is developed on the base of Airbus Master MEL (MMEL) and customized as a function of its own operational policies and national operational requirements.

The Configuration Deviation List (CDL) is a document approved by the Airworthiness Authority having certified the aircraft. The CDL is included in the Airplane Flight Manual.

These documents allow operations with certain items, systems, equipment, instruments or components inoperative or missing as it has been demonstrated that an acceptable level of safety is maintained by appropriate operating limitations, by the transfer of the function to another operating component(s) or by reference to other instruments or components providing the required information. Accordingly, all defects shall be processed in accordance with MEL / CDL reference(s).

In the MEL, an equipment is declared inoperative when:

- It does not work.
- It does not ensure all functions for which it was designed.
- It does not work within its operational limits.

Whilst operating within the limits of the MEL / CDL, the aircraft is deemed to be airworthy and capable of operating within the specified environment. However, Pilot Command has the authority to reject an aircraft if, prior to each flight, he is dissatisfied with any aspect of airworthiness and maintenance.

The MEL is not intended to provide for continued operation of an aircraft for an unlimited period of time. Repairs should be made as soon as possible within the time limit imposed by Rectification Intervals.

Rectification Intervals (A, B, C, and D) have been introduced in accordance with definitions of DGAC approved MEL.

Dispatch of the aircraft is not allowed after expiry of the Rectification Interval specified in the MEL unless the Rectification Interval is extended in accordance with the following:

A one-time extension of the applicable Rectification Interval B, C, or D, may be permitted for the same duration as that specified in the MEL provided:

- Only one hold item is open
- Or two hold items are open, provided the second item has no relationship with the primary item and this will not result in a degradation in the level of safety and/or an undue increase in crew workload

Any extension will be subject to prior approval of the ECAA

Although the concept of Rectification Interval does not exist for the CDL, all CDL items are not allowed to be left un-rectified for an unlimited period of time as stated in the Flight Manual. However, a specific time limit is required in the dispatch condition itself for some items. Decision for repair is under Nesma Airlines responsibility.

It is Nesma Airlines policy that every effort should be made to maintain 100 % serviceability with rectification being initiated at the first practical opportunity.

An aircraft must not be dispatched with multiple MEL / CDL items inoperative without the Pilot in Command having first determined that any interface or interrelationship between inoperative systems or components will not result in degradation in the level of safety and/or undue increase in crew workload.

The exposure to additional failures during continued operation with inoperative systems or components must also be considered in determining that an acceptable level of safety is maintained.

In case of defect, engineering personnel will certify in the Technical Log adjacent to the appropriate defect the MEL / CDL subject title, system and item number together with any operational limitations (RVSM, etc...).

At the completion of any engineering tasks associated with the particular MEL item, engineering personnel will placard the inoperative instrument, switch, light, etc.

When applicable, operational flights plan, take-off and landing performance and fuel requirement penalties must be taken into account due to inoperative equipment or component.

When a MEL / CDL item is rectified, engineering personnel should make an entry in the Technical Log identifying the item and details of the rectification, including a statement that the MEL / CDL item has been removed. Appropriate MEL placards must then be removed from the cockpit.

The MEL legally applies until the moment the aircraft starts moving under its own means for the purpose of taking off.

Operations department is responsible for the customization of the operational procedures in the MMEL through the duties of the technical pilot (ref. 1.3.4.4 Technical Pilot), the customization procedures are:

1. Operations department receives the MEL after the technical department has done the customization of the MEL items and entries.
2. The technical pilot carries out the customization of the MEL operational procedures in accordance with local regulations and standards.
3. The operations department compiles the customization of the MEL and delivers the final version to the chief inspector.
4. After the approval of the CMEL, it is distributed to the operations department for distribution on board.
5. Announce to pilots by e-mail.

8.7 Non-Revenue Flights

8.7.1 Definitions

The following flights are considered as non-revenue flights:

- Training flights,
- Test flights,
- Delivery flights,
- Ferry flights,
- Demonstration flights,
- Positioning flights with or without passengers.

8.7.2 Training Flights

Training flights are under the responsibility of the Training Manager with the purpose of:

- Pilot In Command / pilot qualification / re-qualification
- Training the abilities of pilots under normal and abnormal conditions
- In flight proficiency check.

However, the final decision to carry out the actual training flight and the responsibility for adherence to Company instructions described in the Operation Manual in general and the Part D in particular, remains with the designated Pilot in Command.

8.7.3 Test Flights

A test flight must be performed after special maintenance/or repair work on an aircraft (if required and authorized) and on special request of the Authority. Test flights shall be performed according to programs issued by the technical department in agreement the flight operations department.

Those flights shall be performed by the minimum flight crew according to the Operations Manual. The crew should be assigned by the Director of Operations.

If it is required by the kind of test flight, there might be, in addition to the minimum crew, engineers, mechanics or inspectors on board who are directly involved in the preceding work/inspection of the aircraft. They must be recorded in the journey log as additional crewmembers.

The technical department shall give the flight crew a briefing on:

- The reason for the test flight.
- The test program.
- How the preceding work may influence the airworthiness of the aircraft.

8.7.4 Delivery Flights

Delivery flights are flights where an aircraft is flown from the seller's facility to the airline or vice versa.

Provided all normal requirements are fulfilled, non-revenue passengers may be carried if this is not excluded on the certificate of airworthiness and certificate of registration. Full insurance coverage must be assured. For some delivery flights, the Authority might only issue a "ferry permit" in lieu of the certificate of airworthiness and the certificate of registration. This ferry permit may exclude the carriage of persons other than flight crew and engineers.

Flights with passengers aboard require full and normal crew complement.

8.7.5 Ferry Flights

Ferry flights are flights to position aircraft for maintenance. They may be conducted with minimum crew and reduced airworthiness as permitted by Operations Manual or the Authority. The Director of Operations shall give his consent to the Pilot in Command prior to commencing ferry flight after the approval of the authority.

8.7.6 Positioning Flights

A positioning flight is a flight to position an aircraft to an aerodrome for commercial operations. Positioning flights must be performed with the minimum flight crew and must follow the standard procedures described on the Operations Manual.
All flights whether revenue or non-revenue (i.e. ferry flights, Positioning flight) can be conducted without cabin crew *Refer ECAR 121.583 Carriage of persons without compliance with the passenger-carrying requirements of this Part.*

8.8 Oxygen Requirements

ECAR 121.329 And 121.333

8.8.1 Condition under Which Oxygen Must Be Provided and Used

Adequate breathing oxygen must be provided to the crew and passengers for sustenance in case of depressurization, smoke or toxic gas emission.

The Pilot in Command shall ensure that flight crewmembers engaged in performing duties essential to safe operation in flight use supplemental oxygen continuously whenever cabin altitude exceeds 10000ft for a period in excess of 30 minutes and whenever cabin altitude exceeds 13000ft

Additional "First Aid Oxygen" is required for passengers when the flight is planned to fly above 25000 ft. This First Aid Oxygen must still be available after a depressurization.

Description and use of Oxygen system and equipment are indicated in the FCOM "System Description" part for A320.

8.8.2 Requirement for Crew and Passengers

8.8.2.1 First Aid Oxygen

The quantity of oxygen required as first aid must be enough to provide 2% of passengers and not less than 2 passengers with undiluted oxygen at a flow rate of at least 3 liters per minute (Standard Temperature Pressure Dry) for the part of the flight above 8000 ft following a depressurization.

This quantity of oxygen must be added to the required oxygen quantity for the case of emergency descent.

The first-aid oxygen equipment shall be capable of generating a mass flow to each user of at least 4 liters per minute (STPD).

Means may be provided to decrease the flow to not less than 2 liters per minute (STPD) at any altitude.

8.8.2.2 Supplemental Oxygen for Sustenance

To operate a pressurized aircraft above 10000 ft, the quantity of supplemental oxygen on board for sustenance must be established for the most critical point of the flight from the standpoint of oxygen need in case of depressurization.
The cabin pressure altitude being considered the same as the aircraft altitude following a cabin depressurization.
The quantity of supplemental oxygen must be determined as required by the following table:

SUPPLY FOR:	DURATION AND CABIN PRESSURE ALTITUDE
All occupants of flight deck seats on flight deck duty	Entire flight time when the cabin pressure altitude exceeds 13 000 ft and entire flight time when the cabin pressure altitude exceeds 10,000 ft but does not exceed 13,000 ft after the first 30 minutes at those altitudes, but in no case less than: i. 30 minutes for airplanes certificated to fly at altitudes not exceeding 25,000 ft (Note 2) ii. (ii) 2 hours for airplanes certificated to fly at altitudes more than 2000 ft (Note 3).
All required cabin crew members	Entire flight time when cabin pressure altitude exceeds 13,000 ft but not less than 30 minutes (Note 2), and entire flight time when cabin pressure altitude is greater than 10,000 ft but does not exceed 13,000 ft after the first 30 minutes at these altitudes.
100% of passengers (Note 5)	Entire flight time when the cabin pressure altitude exceeds 15,000 ft but in no case less than 10 minutes.(Note 4)
30% of passengers (Note 5)	Entire flight time when the cabin pressure altitude exceeds 14,000 ft but does not exceed 15,000 ft.
10% of passengers (Note 5)	Entire flight time when the cabin pressure altitude exceeds 10,000 ft but does not exceed 14,000 ft after the first 30 minutes at these altitudes.

Minimum Requirements for Supplemental Oxygen for Pressurized Airplanes

Note 1: The supply provided must take account of the cabin pressure altitude and descent profile for the routes concerned.

Note 2: The required minimum supply is that quantity of oxygen necessary for a constant rate of descent from the airplane's maximum certificated operating altitude to 10,000 ft in 10 minutes and followed by 20 minutes at 10,000 ft.

Note 3: The required minimum supply is that quantity of oxygen necessary for a constant rate of descent from the airplane's maximum certificated operating altitude to 10,000 ft in 10 minutes and followed by 110 minutes at 10,000 ft.

Note 4: The required minimum supply is that quantity of oxygen necessary for a constant rate of descent from the airplane's maximum certificated operating altitude to 15,000 ft in 10 minutes.

Note 5: For the purpose of this table "passengers" means passengers actually carried and includes infants.

8.8.2.3 Crew Protective Breathing Equipment

An easily accessible quick donning type of breathing equipment for immediate use is required for each cockpit crewmember.
Portable protective breathing equipment is required at each cabin crew station, in galleys and cargo compartments.
This equipment must protect the eyes, nose and mouth of each crewmember while on duty and to provide oxygen for a period of not less than 15 minutes at a pressure altitude of 8000 feet.
The oxygen required for breathing protection can be included in oxygen required for sustenance, for depressurization and in first aid oxygen.
The equipment shall allow the flight crew to communicate using the aircraft radio equipment and to communicate by interphone with each other while at their assigned duty stations;
Note: when the flight crew is more than one person and a cabin crewmember is not on board, a portable unit of PBE shall be carried.

8.9 Operating Procedure

Operating Limitations

Nesma Airlines is authorized for the below operations:-

Type Of Operation	Authorization	Reference
Dangerous goods	N/A	**Chapter 09**
Low Visibility Operations ▪ Approach And Landing ▪ Takeoff	**YES** (CAT I RVR 550m DH200 ft CAT II RVR 300m DH100 ft **No** 150 M	**OMA 8.4**
RVSM	**Yes**	**OMA 8.3.2.5**
PBN	**YES** ▪ B-RNAV (RNAV 5) ▪ P-RNAV (ICAO RNAV1) ▪ RNP APCH	**OMA 8.3.2.3 OMA 8.3.2.4**
EFB	**YES Class II Type A&B**	8.12 Electronic Flight Bag (EFB)

8.10 Nesma Airlines Operating Philosophy and Procedures

8.10.1 Flight Documentation and Data Recording

8.10.1.1 Airways and Approach Charts:

Only Company approved Airway Manuals, Jeppesen, will be used. On all sectors the relevant en-route chart will be readily available to each pilot.

8.10.2 Flight Procedures

8.10.2.1 Basic Performance of Flight Crew

To assure a safe and efficient operation, each flight crewmember must be proficient in three areas of competence: Technical, Procedural and Interpersonal. Each area consists of vital elements. Optimum overall performance is achieved by integrated application of these elements:

Note: Interpersonal competence according to JAR-OPS: CRM-Skills. FARs and elsewhere referred to as Non-Technical Standards (NONTECHS)**.**

8.10.2.1.1 Technical

Elements	Descriptions
Manual Airplane Control; Pilots are able to control the airplane in all maneuvers. They endeavor to make the flight as accurate and smooth as possible.	**Ability** ▪ Be able to control the airplane manually at all times. ▪ Stabilize the airplane in all phases of flight. ▪ Maintain horizontal and vertical profile. ▪ Operate the airplane accurately and smoothly. ▪ Apply basic pitch & power values. ▪ Coordinate control inputs and trim. ▪ Recognize trends by instrument scan and react as appropriate. ▪ Adhere to applicable limitations and tolerances according to OM-B and OM-D.
Knowledge of Systems; Crewmembers know their airplane well, with special emphasis on operation, limits and interaction of systems.	**System Design** ▪ Know the structure and function. ▪ Know the limitations. ▪ Be familiar with the documentation Application. ▪ Know how to operate systems. ▪ Know the behavior and interaction of systems.
Use of Automation; Crewmembers are able to operate their airplane in the optimum mode of automation. They have the flexibility needed to change from one level of automation to another.	**Handling** ▪ Be able to manage and monitor all modes of automation. ▪ Use optimum mode of automation. ▪ Use automation to reduce workload Monitoring. ▪ Be aware of mode changes. ▪ Be flexible in changing level of automation.

8.10.2.1.2 Procedural

Elements	Descriptions
Knowledge of Procedures; It is essential for crewmembers to be thoroughly familiar with published procedures.	**Normal and Abnormal procedures** ▪ Know normal procedures for all phases of flight. ▪ Be thoroughly familiar with all relevant standards. ▪ Abnormal procedures. ▪ Know how to handle an abnormal situation ▪ Know memory actions by heart. ▪ Be familiar with relevant abnormal procedures and the appropriate checklist.
Adherence to Procedures; Disciplined use and accurate application of procedures is Vital Only if a higher degree of safety is achieved, deviation from Standard Procedures may be necessary.	**Discipline** Strictly apply required published procedures Perform procedures accurately and in a disciplined manner. ▪ Deviate from procedures only if a higher degree of Safety is achieved.

8.10.2.1.3 Interpersonal

Elements	Descriptions
Communication; Generally, Communications includes information transfer and social aspects. Crewmembers share information, and **assure** reception and understanding. Suggestions of other crewmembers are considered, even if one does not agree. Ambiguities and uncertainties are announced.	**Atmosphere** ▪ Encourage open and honest communication ▪ Achieve a positive first impression ▪ Listen actively ▪ Consider suggestions ▪ Information Transfer ▪ Share information ▪ Assure reception ▪ Assure understanding ▪ Information Management ▪ Clearly state plans and intentions ▪ Announce ambiguities ▪ Announce uncertainties ▪ Communicate candidly operational problems within the crew
Leadership and Teamwork Led by the Captain, the crew achieves a safe and efficient performance in a climate that is rational and free of intimidation.	**Command ability** ▪ Take the lead of the crew as Captain ▪ Establish goals, control outcome and correct ▪ Consider condition of others ▪ Team Ability ▪ Act as a constructive member of a team ▪ Take initiative ▪ Encourage others to cooperate ▪ Support others ▪ Seek ideas and views from others ▪ Present own point of view ▪ Provide appropriate feedback ▪ Propose alternative ideas if appropriate
Social interaction conflicts have to be addressed and managed. Every crewmember takes initiative to be an active and constructive part of the team.	▪ Conflict Management ▪ Address and manage conflicts ▪ Achieve rational climate ▪ Avoid intimidation ▪ Adopt assertive behavior if appropriate and persist until attention of others is gained or corrective action taken ▪ Accept appropriate criticism ▪ Avoid competition between crewmembers

Workload Management; Crewmembers clearly prioritize operational tasks and distribute them appropriately. Available external and internal resources are used for task completion within appropriate time frame. Stress and error are inherent factors of flight; crewmembers aim to minimize their negative effects. Situation Awareness and Decision Making; Crewmembers recognize and anticipate factors affecting the flight. After these factors are evaluated, they choose the appropriate course of action. To achieve a favorable outcome, crewmembers actively monitor execution	**Task** ▪ Prioritize operational tasks ▪ Distribute tasks appropriately ▪ Complete tasks in efficient time ▪ Use external and internal resources **Time** ▪ Plan ahead ▪ Allocate time to task appropriately ▪ Identify probable periods of Stress and Error ▪ Aim to minimize negative effects of stress ▪ Aim to minimize effects of error **Preparation** ▪ Act with respect to time available ▪ Avoid distractions ▪ Anticipate factors affecting the flight ▪ Recognize factors affecting the flight **Processing** ▪ Evaluate factors affecting the flight ▪ Choose appropriate course of action ▪ Monitor execution ▪ Monitor development of the situation ▪ Apply GRADE for complex decisions: G-Gather info, R-Review priorities, A-Analyze alternatives, D-Decide, E-Evaluate outcome.
And development of the situation.	**Interaction** ▪ involve others in the process ▪ discuss discrepancies

8.10.3 Crew Resource Management (CRM)

CRM can be defined as the utilization of all available human, informational and equipment resources towards the effective performance of a safe and efficient flight. CRM is an active process by crewmembers to identify significant threats to an operation, communicate them to each other and to develop and take measures to avoid or minimize the risk. CRM skills provide a primary line of defense against threats to safety that exist in the aviation and against human errors and its consequences. The basic performance of flight crew above has been defined, so as to include all CRM skills required by ECARs, JAR-OPS and FARs.
All flight crew shall be committed to applying CRM principles and practicing it through all aspects of operations

8.10.3.1 Multi Crew Concept (MCC)

The Multi Crew Concept regulates the organization of the work and task sharing in the cockpit. Goals, Roles, Responsibilities and Tasks are clearly defined.
The objectives of this concept are as follows:

- Full availability of PF for the primary job of piloting the airplane and the availability of the PM to carry out the secondary tasks.
- Clearly defined and balanced job sharing and workload distribution.
- Regulated co-operation by strict adherence to SOPs, mutual information, crosschecking, supervision and support.

These objectives are valid for all normal and abnormal conditions.

Responsibility of Command;

The Captain shall lead the entire crew according to the above principles and builds the team. He is responsible for:

- The entire flight
- Coordinating the co-operation between crewmembers
- Setting priorities
- Delegating tasks and responsibilities
- Maintaining the general overview through appropriate monitoring

Responsibility of Action;

Irrespective of the responsibility of command, the Copilot shall carefully and properly perform his regulatory assigned and individually delegated duties.

Monitoring and Supervision;

In addition to his primary tasks, each pilot shall monitor the flight progress and the actions of other crewmembers. Any significant and unexpected deviation from the normal flight path and/or SOPs shall be challenged and resolved according to the Two-Challenge Rule.

The Two Challenge Rule;

- Challenge the deviation
- If no response or response is inadequate/inappropriate, Challenge again (more assertively)
- If no response or response is still inadequate /inappropriate to the second challenge, Take control (" I have control") and resolve the deviation.

Mutual Information;

Both pilots shall keep each other informed of the current situation concerning aircraft systems, navigation, ATC, radio telephony, weather, etc. as well as of their individual intentions related to the flight progress.

Communication;

The co-operation as a team in accordance with the MCC requires a clear, effective and unmistakable communication based on the principle of "two way communication", i.e. instructions and certain information shall be confirmed verbally. Certain call-outs as well as instructions must be confirmed verbally (two way communication). A fixed wording is used for high priority communication, e.g. extending/retracting flaps, landing gear, for power setting.

High Priority Communication;

Due to the high priority of configuration changes and engine thrust settings pilots shall utilize a standard phraseology to operate flaps, landing gear as well as setting of engine thrust for take-off, climb, cruise and 'Go-around'. Cockpit communication must be in English and precise phraseology must be used. The exchange of information and verbal communications are either duty assignments by PF: commands, orders, and requests, or, transmission of information i.e. announcements and call outs.

Commands;

Assignment of duty to change aircraft configuration, power, flaps, gear. Company requires mandatory acknowledgment by PM, and when duty is performed a report. e.g.
PF: (commands): Flaps 1. PM: (acknowledges): Flaps 1,
PM: checks conditions allow the command to be performed, PM: executes command, continuously monitoring actions, PM: reports desired configuration is achieved.
ORDER: Instruction of a lower priority concerning a system. Acknowledgment and report are required (e.g. setting of navigational aids, activation of anti-ice.)
PF: Orders HGD
PM: Acknowledges HGD on # 1
PM: Reports HGD tuned and identified
REQUEST: An instruction, neither acknowledgement nor report is necessary e.g. Landing lights on

Announcement;

The transmission of information with the purpose of initiating a specific reaction by another crewmember, the action can be directly confirmed by observation.
No acknowledgment is required, but a reaction is a must e.g. high/ low speed, high rate of descent, below G/S. If no reaction occurs, the announcement will be repeated once; if still no reaction, a take-over by the other crewmember is mandatory, "Two Challenge Rule".

Call Outs;
Transmission of information, containing the transformation of instrument indication, or Amplification, or recognition of an existing situation, acknowledgment may be required in individual cases, e.g. altitude call outs in approach.

Note 1: All ATC instructions regarding altitude, heading, and speed, should be repeated by PF, after the PM acknowledges the ATC instructions.

Note 2: cross-cockpit communication for any two pilot crews is VITAL. Any time a crewmember makes any adjustments, changes to any information or equipment on the flight deck, he will advise the other crewmember of his intentions/actions and get an acknowledgment and/or confirmation of critical actions during normal, abnormal and emergency situations. This includes but is not limited to aircraft configuration changes, altimeter and airspeed settings, altitude settings, transfer of control the aircraft, automated flight system, flight management system, radio navigation aids, weigh and balance calculations and entries, performance calculations or inputs to FMS, Flight plan deviation etc…

Note 3: All intentional deviations from SOP should be announced by PF after obtaining clearance from the Captain. (In case F/O is flying). The nature and value of deviation should be clearly communicated in order to facilitate PM monitoring.

Note 4: ATC communications requires aviation English language fluency and the use of standard phraseology as indicated in OM-C Jeppesen.

Note 5: Effective communications between cockpit crew and cabin crew requires standardization and fluency in the English language, standard calls in normal, abnormal and emergency conditions are defined in FCOM (PRO-NOR-SOP, PRO-ABN-90).

8.10.3.2 Responsibility of Command

The Captain must lead the entire crew according to principles defined in basic performance of flight crew.

8.10.3.3 Responsibility of Action

Each flight crewmember must carefully and properly perform his regularly or individually assigned duties.
Any intended or observed deviation from normal flight operation and/or standard operating procedures must be announced and acknowledged.
By confirming the receipt, the crewmember concerned becomes responsible for the execution of the assigned task. After checking the necessary parameters, he acts accordingly.
The crewmember having assigned the task has to follow up on the proper task execution as assigned or requested.

8.10.3.4 Monitoring and Supervision

In addition to his primary tasks each member of the flight crew has to monitor the flight progress and supervise the actions of other crewmembers.

8.10.3.5 Role of PF/PM

The job sharing in the cockpit requires a clearly defined assignment of tasks to PF and PM; the aim is to guarantee that the full attention of PF is concentrated on the primary task of piloting the airplane.

PF focuses his attention in particular on:

- Control of airplane
- Observance of SOPs
- Compliance with flight safety aspects
- Altitude and speed restrictions
- Airspace observation
- Preparation of airplane for the individual segments of the flight procedures
- Correct use of checklists.

PM focuses his full attention in particular on:

- Monitoring and cross checking flight progress
- Assistance and supervision of PF
- Challenging Deviations
- Airspace observation
- Monitoring airplane systems
- Operating airplane systems in accordance with PF instructions.
- R/T communication and correct use of checklists.
- Setting, identifying and checking navigational aids according to the instructions of PF Keeping the necessary flight records.

Task assignment to PF and PM shall be observed in a very strict manner. For instance, PF shall unnecessarily intervene in handling of R/T communication; neither shall the PM set navigational aids without consulting PF. Whenever the Captain, with due consideration of all relevant circumstances, decides that any phase of flight (i.e. take- off, landing) may be critical, he shall assign himself as PF. If at any portion of the flight, the Captain believes that it will be safer course of action to take over controls of the airplane he shall do so, even if the Copilot originally had been assigned as PF.

8.10.3.6 Task Sharing

The PF must focus his attention primarily on the control of the airplane. Whenever other activities or special events may prevent the PF from fulfilling this task, he shall hand over to the PM with the call-out 'You have control'. The PM shall confirm takeover with the reply 'I have control'.
The PM has to assist the PF, by e.g.

Supervising the PF Performing R/T

Copiloting "For e.g. assisting the PF by executing the pilot's requests for headings, courses, NAV frequencies, etc." During manual flight all inputs to the auto flight control units must be performed by the PM when commanded by the PF. During auto flight, all inputs to the auto flight control units must be performed by the PF.
Note: For FMS task sharing refer to OM-B.

8.10.3.6.1 Philosophy for the use of Checklists

- The use of checklists is mandatory for all phases of flight. Reciting the checklist from memory is strictly forbidden except for Non-Normal or Emergency checklist recall items.
- On ground, the CAPTAIN shall call for all checklists up to and including before takeoff and after landing checklists.
- PF will call for all other checklists in flight up to and including the landing checklist.
- After reading any checklist, the crew- member reading it shall call the checklists Name followed by the word Completed, as follows: (AFTER TAKEOFF/CLIMB CHECKLIST COMPLETED)
- If a checklist is interrupted for any reason, the checklist must be restarted from the beginning.

Checklist Priority

- In all cases ECAM Actions shall always be performed immediately, in accordance with FCOM procedures.

ECAM Actions shall be followed by NORMAL then ABNORMAL CHECKLISTS during takeoff and by ABNORMAL then NORMAL CHECK LISTS during approach.

8.10.4 Policy for Use of Automation during Flight

In general there are 5 levels of automation, irrespective of the type of airplane:

1. **Managed Automatic**
   - The airplane is operated by use of autopilot and auto thrust with inputs from the FMS as programmed or modified by the pilots (Lateral NAV / Vertical NAV).
   - The objective is to provide assistance to the pilots, by freeing the PF from routine handling tasks and thus giving him time and resources to assess the overall operational situation.
2. **Selected Automatic**
   The airplane is operated by use of autopilot and auto thrust with inputs from an auto-flight control unit as selected by the pilots, e.g. speed, heading, vertical speed.
   The objective is to allow deviations from the programmed FMS profile to meet operational requirement.
3. **Managed Manual**
   - The airplane is operated by use of manual flight control inputs with or without auto thrust. The pilot follows the flight director indications generated by the FMS as programmed or modified.
   - The objective is to provide the pilot flying with adequate attitude or flight path orders with the flight director symbols so as to facilitate accurate hand-flying of the airplane.
4. **Selected Manual**
   - The airplane is operated by use of manual flight control inputs with or without auto thrust. The pilot follows the flight director indications as selected by the pilots on an auto flight control unit.
   - The objective is to allow deviations from the programmed FMS-profile while hand-flying the airplane.
5. **Basic Manual**
   - The airplane is operated by use of manual inputs. The pilot controls altitude, heading, speed and positions by applying attitude and thrust as required.
   - The objective is to maintain the desired flight path, while automatic guidance is not available or not appropriate/adequate.

The auto flight system shall be operated in such a way that optimum benefit is achieved from its capabilities. Examples for optimum benefits are:

- Reduction of workload,
- precision of navigation,
- availability of protection modes,
- passenger comfort,
- economic flight

Flight Crew shall use the maximum automation capabilities of their auto flight system to get the abovementioned benefits, especially in heavy traffic airspaces and airports such as (CDC, FRA, LGW, LHR…)

Levels of Automated Flight I

	AP	FD	A/THR	FMS-GUIDANCE
MANAGED AUTOMATIC	ON	ON	ON	YES
SELECTED AUTOMATIC	ON	ON	ON	NO
MANAGED MANUAL	OFF	ON	ON/OFF	YES
SELECTED MANUAL	OFF	ON	ON/OFF	NO
BASIC MANUAL	OFF	OFF	ON/OFF	NO

Levels of Automated Flight II

	AUTOMATIC	MANUAL
MANAGED	AP on A/THR on FMS Guidance	AP off A/THR optional FMS Guidance by FD
SELECTED	AP on A/THR on Selected Guidance	AP off A/THR optional Selected Guidance by FD
BASIC	-----------------	AP off A/THR optional no FMS/FD Guidance

Note: For limitations of the auto flight systems refer to AFM-LIM-22.

8.10.4.1 Operating Philosophy

Refer to OM-B

8.10.4.1.1 Auto-Flight System Monitoring

The monitoring of the Auto-Flight system by:

- Cross-checking the status;
- Observing the result of any change;
- Supervising the resulting guidance and aircraft performance;
- The use of appropriate level of automation.

8.10.5 Personal Safety Measures

In order to prevent personal accidents with cars or other movable equipment on the ramp, it is mandatory to wear the conspicuous yellow warning vest available on each aircraft. It must be worn during day and night when leaving the airplane for a walk-around or visual inspection.

8.10.6 Sterile Cockpit Policy

Refer to 8.3.12. Admission to Flight Deck

8.10.7 Selection of Runway

For take-off and landing the runway which gives the best safety margin under prevailing conditions shall normally be used, paying due regard to all relevant factors such as approach and landing aids, ATS requirements, etc.
For conservative performance calculation during take-off; wind direction and velocities expressed as light and variable shall be considered as 5 knots tailwind.
When practicable, take-off and landing shall be performed into the wind, especially when reduced braking coefficients exist (e.g. wet runway).
The tail-wind component for take-off and landing shall not exceed the values specified in the OM-B; due consideration, however, shall be given to the runway condition and the braking action to be expected.
Company tail wind limit is 10kts.

Note: Attention is drawn to the fact that the required runway length increases rapidly with increasing tailwind. It is therefore important, especially for landing on marginal runways, that the threshold speed does not exceed the prescribed speed for the configuration concerned. It may be necessary to avoid a landing under marginal crosswind or tail-wind condition after consideration of local conditions such as the length or width of the runway, its condition, and surrounding obstacles. The steady crosswind component for take-off and landing shall not exceed the values specified in the OM-B; due consideration, however, shall be given to the runway condition and the braking action to be expected.

Note: The crosswind capability increases with higher landing weights and speeds. As gusts are normally of short and rare occurrence, gusts exceeding crosswind limitation shall be considered whenever judged operationally significant.

Whenever take-off is limited by field length or obstacles, pilots should use the minimum line up distance possible. If these factors are not limiting, pilots should refrain from sharp turns during line up in order to avoid unnecessary stress on wheels and tires.
It is prohibited to take-off/land on a runway with a braking coefficient of 0.25 and less (Poor).

8.10.8 Clearance from Runway

An airplane shall be stopped not closer to the runway than at the holding position. During low visibility operations CAT II or III holding position markings and signs shall not be crossed without clearance. Lighted stop bars shall never be crossed. In the absence of such markings or visual aids the airplane shall be held at least 70 meters clear of the active runway.

8.10.9 Positive Identification of Runways

It is of vital importance that **both pilots** are fully aware of their location on the terminal or ramp and to prevent any risk of being in the wrong position, or on the wrong runway.

8.10.10 Positive Identification of Aerodromes

At certain locations the proximity of adjacent aerodromes, the presence of multiple runways, or the proximity of highways paralleling a runway, may create confusion and result in a landing at the wrong aerodrome or on the wrong runway, especially in darkness or conditions of reduced visibility.

In order to preclude such an incident which may have serious consequences, Captains shall take all measures to ensure positive identification of aerodrome/ runways such as:

- Strict adherence to standard approach procedures using the available instrument landing aids, regardless of weather conditions, down to the final stages of the approach. No short cuts shall be attempted which would entail loss of radio navigational guidance
- When conducting radar vectored approach a cross-check using available radio aids shall be made to determine whether the runway ahead is the correct one.
- When conducting an approach subject to maintaining VMC or a visual approach the pilot shall be thoroughly familiar with the aerodrome and the surrounding terrain, and ceiling and visibility shall be such that positive identification of the aerodrome/ runway is possible without difficulty. Available navigation aids shall be used to the fullest extent.

8.10.11 Noise Abatement

At many locations the close proximity of aerodromes to densely populated areas has created considerable problems resulting from noise by airplanes landing and taking off. In many instances this has led Air and State authorities to enforce noise abatement rules. These are published in (Route Information Manual) as appropriate.

Pilots shall take all possible measures during take-off and landing to ensure that noise created be kept to a minimum and shall comply with relevant noise abatement procedures and ATC instructions. Safety to flight operations shall always take precedence over compliance with noise abatement rules and the final decision shall always rest with the Captain.

At aerodromes where the preferential use of specific runways is prescribed pilots should normally use the preferential runway for landing or take-off, provided aircraft limitations are not exceeded (see OM-B)

8.10.12 Abnormal (Non-Normal) & Emergency Procedures and Checklists (E.G. QRH) Refer to FCOM-PRO-ABN-90.

Abnormal procedures contain actions which are necessary to cope with an impending or effective failure of any airplane system or component, or which are necessary to protect the airplane and its occupants from serious harm.
These actions are presented in the QRH, which are provided in booklet form in each cockpit.
When the necessity arises to apply an abnormal procedure it is the obligation of the Captain to identify the applicable procedure and it may be appropriate to change PF designation during progress of flight. For this decision he must take into consideration the complexity of cockpit duties, the necessity to supervise actions, the capacity and proficiency of crewmembers, and the workload arising from flight progress.
An abnormal/emergency procedure must only be commenced when PF is in full control of the situation, not below 400 feet during takeoff, and therefore it is initiated by PF.
Actions designed to contain the failure i.e. ECAM actions, shall only be accomplished after flight path control is achieved and can be maintained.
Actions designed to secure or reconfigure the inoperative systems i.e. Secondary actions, shall only be accomplished after flight path control is achieved and can be maintained, Primary actions have been completed and the aircraft is above the applicable minimum flight altitude.
Abnormal operation is non-routine. Therefore all actions are announced loudly before being performed. Announcement is either made by memory (memory actions) or by reading from the procedure presentation (booklet or screen). Execution of a challenged action is confirmed by the appropriate response. This challenge/response principle assures that all crewmembers are aware of progress and status.
Each CM must be familiar with the contents of abnormal procedures in order to execute his duties in proper sequence and to act efficiently. Each action must be mastered by the designated CM. Pilot actions must be mastered by both, CM1 and CM2, irrespective of the designation in the abnormal list.

Failure Handling Sequence:

- ➢ Fly the aircraft
- ➢ Silence the warning
- ➢ Identify failure/abnormality
- ➢ Ask for and execute checklist
- ➢ Refer to OM-B for relevant fleet type.

Pilot execution of abnormal / non-normal and emergency procedures shall ensures a crosscheck and verbal confirmation by the two flight crewmembers (dual response) occurs before the actuation of any critical aircraft system controls. Such guidance shall identify critical systems, as defined by the OEM, and address, as a minimum:

- ➢ Engine thrust levers;
- ➢ Fuel master or control switches;
- ➢ Engine fire handles or switches;
- ➢ Engine fire extinguisher switches;
- ➢ IDG/CSD disconnect switch.

8.10.12.1 Commitment Altitude

- At critical airports, where obstacle clearance, during a one-engine inoperative Go-around/Missed Approach at structural landing weight, cannot be assured, a Commitment Altitude, by raising the MDA/DA, will be determined.
- A Commitment Altitude is an altitude, below which obstacle clearance criteria cannot be guaranteed, in the event of a one-engine inoperative Go-around/Missed Approach, at Structural Landing Weight.
- Commitment Altitude's, when required, are listed in the Jeppesen manual, at the beginning of each airport plate on a light green colored page.

8.10.12.2 Overweight Landing

According to the Aircraft Maintenance Manual, Overweight Landing can be categorized as follows:

a) **Overweight Landing:** An overweight landing is a landing with an aircraft weight more than the Maximum landing Weight (MLW) and :
   - a vertical acceleration (vertical G) equal to or more than 1.7 g and less than 2.6 g at aircraft Center of Gravity (CG), or
   - A vertical speed (Vs) equal to or more than 6 ft./s and less than 13 ft./s (780 ft./min).

b) **Severe Overweight Landing:** A severe overweight landing is a landing with an aircraft weight more than the Maximum landing Weight (MLW) and:
   - a vertical acceleration (vertical G) equal to or more than 2.6 g at aircraft Center of Gravity (CG), or
   - A vertical speed (Vs) equal to or more than 13 ft./s (780 ft./min).

Up until the point of commencing the takeoff, it is not permissible to plan to land at a weight which exceeds either the maximum structural or performance limited landing weight.
Prior to departure, the predicted landing weight should be calculated based on the actual takeoff weight and the anticipated trip fuel burn. The performance limited landing weight should be calculated based on the ambient conditions forecast for the expected time of arrival.
For planning purposes, plan to land at Maximum Landing Weight minus 500 kg for tankering sectors in order to allow a margin for LMC and in case of fuel savings en-route (refer to 8.1.7.2.8 Fuel Transportation (Tankering).
If during the course of the flight it becomes evident that the aircraft will arrive at the destination at a weight which exceeds either the maximum structural or performance limited landing weight, appropriate action should be taken to modify the flight profile so that the landing weight is reduced to ensure that limit weights are not exceeded. It is recommended to:

- Fly at speed faster than ECON speed
- Fly at lower then optimum flight level
- Perform an early descent, use of speed brake or holding
- Request to extended track miles from the ATC
- Take landing configuration as early as possible

Note: Commercial expediency in itself is not a justification to land overweight.
An overweight landing should only be performed if it is considered safe. If a decision is made to land overweight, the FCOM PRO-ABN-80-overweight landing checklist and procedures must be followed.
On all aircraft, if a landing is made at a weight in excess of the structural maximum landing weight,

An entry shall be made in the Aircraft Technical Log, which includes the actual landing weight, flap setting and estimated rate of descent at touchdown.
In abnormal/non-normal or emergency situations, or when the QRH calls for an immediate landing, it is permissible to land at a weight which exceeds the maximum structural landing weight.
The following situations are typical of those in which it may be considered that an overweight landing is justified:

- A malfunction that renders the aircraft un-airworthy or unable to continue the flight according to plan;
- A condition where safety could be compromised unless an expeditious landing is carried out;

or

- Serious illness of crew or passengers that requires immediate medical attention.
- The following factors should be included in the assessment as to whether to land overweight, and if so, by how much:
- Familiarity with the runway to be used.
- Weather - IMC or VMC, windshear, turbulence, OAT, crosswind, tailwind, precipitation.
- Runway - elevation, length, slope, obstructions (at both ends), width and surface conditions.
- Available approach procedures and the use of auto land.
- Aircraft condition - number of engines operating, serviceability of systems, flaps, etc.
- The possibility of tire failure.
- Pilots' physical condition - limitations, fatigue.

8.10.12.3 Emergency Landing

Refer to QRH-ABN-25-EMER LANDING

8.10.12.4 Emergency Communications

The radiotelephony distress signal (MAYDAY) or urgency signal (PAN PAN) preferably spoken three times shall be used as appropriate. Subsequent ATC actions with respect to that aircraft shall be based on the intentions of the pilot and the overall air traffic situation.
Refer to Jeppesen 15.2.2 for complete procedures of emergency communications.

8.10.13 Flight with One Engine Inoperative

8.10.13.1 Engine Failure on Takeoff After V1

In the event of an engine failure the flight crew shall establish a safe flight path and land at a suitable aerodrome (e.g. departure aerodrome, take-off alternate). ATC must be notified as soon as practicable and must be informed about the intentions.
The engine failure procedure as contained in OM-B should be followed. Crewmembers must be aware that GPWS warnings/alerts may be generated along the engine out flight path even if the engine failure occurred considerably after V1 and even when the published EOSID is precisely followed.
Performance and terrain permitting two alternatives may be considered:

- Departure route according to the ATC clearance.
- In favorable weather conditions: Any safe visual flight path.

8.10.13.2 Continuation of Flight with One Engine Inoperative

When an engine of an airplane fails or is shut down in flight as a precautionary measure to prevent possible damage, ATC, crewmember, passengers and the Company must be notified as soon as practicable and must be informed regarding the progress of the flight. The following action must be taken:

8.10.13.2.1 Two-Engine Airplanes

Normally a landing shall be made at the nearest suitable aerodrome, at which a safe landing can be made.

8.10.14 Depressurization Strategy

European Alps Area Depressurization Strategies

- The European Alps extend from South-Eastern France through Switzerland, Austria and northern Italy.
- They are considered to lie within a 'box' bounded by latitudes 43 ° N and 48 ° N and longitudes 005 ° E and 014 ° E.
- The 'box' is divided into three sections, each with a different procedure..

Procedures

Section 1 - Between longitudes 005 ° E and 009 ° E.

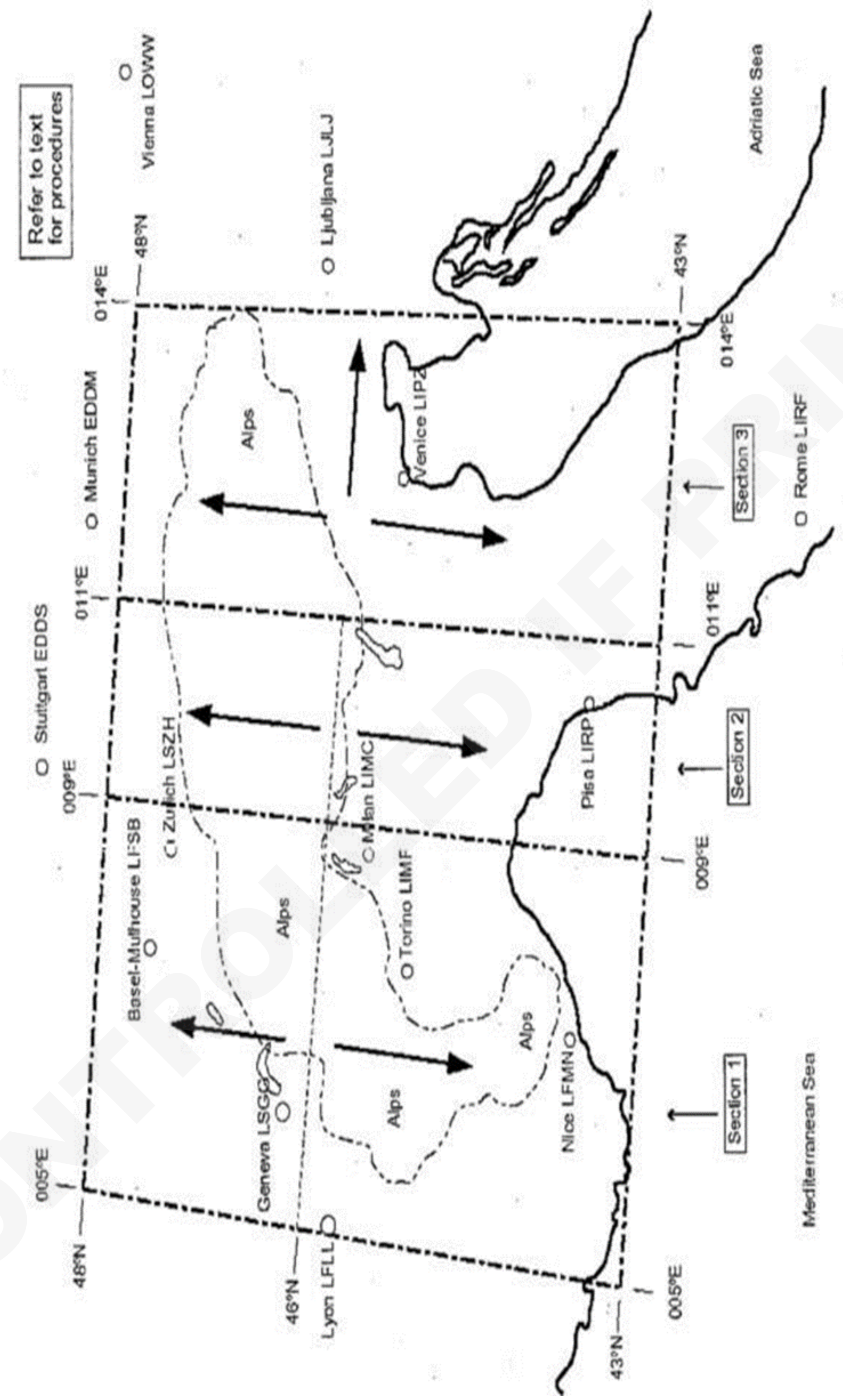
- Flight is north of latitude 46° N Initially descending to the North to FL 180.
Track as required to Zurich (LSZH), Basel-Mulhouse (LFSB) or Geneva (LSGG).
As soon as practical, descend to the higher of Grid MORA and 10,000ft.
- Flight is south of latitude 46° N Initially descending to the south to FL 180.
Track as required to, Nice (LFMN), Milan (LIMC), Lyon (LFLL) or Torino (LIMF).
As soon as practical, descend to the higher of Grid MORA and 10,000ft.

Section 2 - Between longitudes 009 ° E and 011 °E.

- Flight is north of latitude 46° N Initially descending to the north to FL 160.
Track as required to Zurich (LSZH), Stuttgart (EDDS) or Munich (EDDM).
As soon as practical, descend to the higher of Grid MORA and 10,000ft.
- Flight is South of latitude 46° N Initially descend to the south to FL 140.
Track as required to Milan (LIMC), Pisa (LIRP) or Rome (LIRF).
As soon as practical, descend to the higher of Grid MORA and 10,000ft.

Section 3 - Between longitudes 011 ° E and 014 ° E.

- For all latitudes,
Initially descend to the north, east or south to FL 140.
Track as required to Munich (EDDM), Vienna (LOWW), Ljubljana (LJLJ) or Venice (LIPZ)
As soon as practical, descend to the higher of Grid MORA and 10,000ft.


Refer to text for procedures
Vienna LOWW
Ljubljana LJLJ
Adriatic Sea
Munich EDDM
Stuttgart EDDS
Zurich LSZH
Basel-Mulhouse LFSB
Geneva LSGG
Lyon LFLL
Milan LIMC
Torino LIMF
Venice LIPZ
Pisa LIRP
Rome LIRF
Nice LFMN
Alps
Alps
Alps
Alps
Section 1
Section 2
Section 3
Mediterranean Sea
48°N
46°N
43°N
43°N
005°E
005°E
009°E
009°E
011°E
011°E
014°E
014°E

8.11 Standard Operating Procedures

8.11.1 Introduction

In order to compensate for the reduction of the human ability to perform and assimilate, it is essential to organize work in the cockpit for the crew individually and as a team. For this purpose, standardized rules must be established; these rules and procedures are referred to as SOP's. They are required to ensure safe piloting for the aircraft and the operation of its systems. SOP's increases safety, decrease cockpit work load, standardize the operation and reduce training requirements and costs. It is obvious that SOP's cannot cover each and every situation, no regulation or policy is substitute for the exercise of good judgment.
SOP's cannot be a substitute for awareness. Procedures or Manuals contents cannot replace the exercise of good Judgment. Under routine conditions, strict compliance with all policies, rules, regulations and procedures is required. In emergency, Instructions become guiding principles; it is the PIC authority to apply them when and as far as the situation permits.
This should not be construed to divert from the Manual's instructions, unless the situation in hand is not covered by procedures. Flight conditions may necessitate the PIC to temporary disregard instructions in favor of exercising his/her authority, if it is in his/her momentary judgment done for the sake of safety. Basically we are applying AIRBUS SOP "OM-B" for all our fleet except as mentioned for the specific type.

8.11.1.1. All Nesma Airlines operations shall be in compliance with, operating limitations and performance, as defined by the original equipment manufacturer (OEM) and established by the State of Registry for each aircraft type used in operations.

8.11.1.2. Standard callouts during all phases of flight must be done by PF and PM.

8.11.2 Aircraft Preparations

1. Flight preparation may start before the aircraft is released by Maintenance. However, a complete check is required once the aircraft is released. In order to prolong APU life and optimize bleed output, it is recommended to keep ground power connected to the aircraft to just before final preparations.

   Use of APU on ground:

   - The use of APU shall be limited on ground (for fuel, maintenance cost and emission reasons) without compromising on passenger comfort.
   - After landing, the use of APU should be delayed if taxi time permits and one engine taxi in procedures is not followed.
   - Whenever, GPU is not available, APU should not be started earlier than 60 minutes before scheduled departure time.
   - APU is recommended to be used 15 minutes before scheduled departure time.
   - APU should not be turned off before passenger disembarkation
2. The PM shall carry out the Preliminary cockpit preparation and the external checks, special attention is needed to include critical items such as:
   - Pitot/ Static ports (not damaged or obstructed)
   - Locked or disabled flight controls
   - Presence of frost, snow or ice on critical surfaces.
   - Aircraft structural integrity (damage)
   - Exterior Security inspection
3. The PF shall carry out the cockpit preparation which includes FMS set up and must be cross-checked by the PM and cockpit security inspection.

4. Cabin crew will complete the aircraft interior Emergency Equipment and Security inspections
5. Final cockpit preparation is to be performed by the Captain. When a crew change takes place, the outgoing crew shall carry out the Shutdown / Parking checklist (Normal Check List modified by Nesma Airlines, Refer to "Forms" Section). The joining crew should carry out full cockpit preparation and complete the preflight checklist.
6. The PM should cross check the fuel on board with fuel receipt figures.
7. **Transponder**
   Select SYS 1 (refer to FCOM-DSC-34)
8. **Radar System**
   Select Radar system for take-off (refer to FCOM-DSC-34).
9. The flight crew shall ensure availability, accessibility, and serviceability of the flight deck emergency systems according to cockpit preparation check list (QRH 3.01) and emergency equipment according to the aircraft LOPA, which as minimum , shall be conducted by the flight crew prior to the first flight:
   i) Of the flight crew on aircraft during the duty period;
   ii) On an aircraft after it has been left unattended by a flight crew for any period of time.
10. Either on conducting a passenger flight or transporting supernumeraries in the passenger cabin with cabin crew, the availability, accessibility and serviceability of the aircraft cabin emergency system and equipment shall be included in the preflight inspection. This inspection shall be conducted by the flight crew or, delegated to the cabin crew prior to the first flight of the flight crew on an aircraft during a duty period, after a new cabin crew has assumed control of the aircraft cabin and also after an aircraft has been left unattended by a flight crew or cabin crew for any period of time. Supernumeraries could assist but not interfere with qualified crewmembers in the performance their duties.

Note: The Security and the Emergency equipment inspections are conducted prior to each originating flight of the day.

8.11.3 Safety Belt and Shoulder Harnesses

8.11.3.1 Flight Crew

Flight crews must keep their safety belt fastened when at their station. In addition shoulder harnesses must be fastened

- During taxi, take-off and landing
- During climb phase, from take-off till top of climb
- During descent phase, from top of descent till landing
- During flight when deemed necessary in the interest of safety (e.g. turbulence, emergency). This also applies to a person occupying an observer seat.

8.11.3.2 Cabin Crew

Seat and shoulder harnesses must be fastened:

- During taxiing, take-off, climb, final approach and landing
- During flight, if so instructed by the flight crew. Exceptions:
- Safety checks
- Safety related announcements and demonstrations to passengers
- Cabin Reports
- Approval of the Pilot in Command.

8.11.4 Display of Lights

Navigation lights must be 'ON' when the airplane is manned for the purpose of ground maneuvering, and taxiing prior to towing or engine start during day and night conditions .
Beacon (Anti-collision lights) must be operated at any time an airplane is in operation, e.g. during flight and while taxiing. In addition, they must be operated before starting engines until the engines have been stopped.
Strobe lights must be switched on when entering a runway and during the flight operation; they are switched off when leaving a runway. In case of LVP enforce strobe lights, must be switched on during taxi
Taxi lights must be on while taxiing during day or night operations.
Landing / Turn Off lights must be used as described in the OM-B; they must be switched on when operating at altitudes below 10.000 ft and if deemed necessary when operating in areas of known inadequacy of ATS or birds activity; they may also be used for identification purposes with aerodrome control and as urgency signals. During fog, snowfall, etc. landing lights may reduce visibility and produce visual illusions; in this case they should be used appropriately. When lights are used while taxiing, care should be taken not to blind other aircraft or Marshaller.

8.11.5 Engine Start

Starting an airplane engine can produce a hazard to ground personnel and objects. Since the visibility from the cockpit is limited, an engine start on the ground shall normally be conducted with the aid of ground personnel. Communication procedures concerning engine start and the cooperation with ground personnel are outlined in section FCOM (SOP).

8.11.6 Pushback or Towing

Prior to pushback or towing, the required clearance shall be obtained in accordance with the procedures outlined in section FCOM (SOP**).**and published in Jeppesen (Route Manual). In addition, clearance shall be obtained from ground personnel as outlined in FCOM.

8.11.7 Jet Blast

Due to congested ramps and the potential damage from jet blast there is a risk of taxi incidents and damage. The Captain must therefore take great care to judge the situation around his aircraft, especially as to the distance from other aircraft and objects. Handle the thrust levers, particularly on initiating taxi, with caution taking into consideration jet blast. On most aircraft it is not possible to see the wing tip in the normal seated position during taxi, select an appropriate taxi speed, taking into consideration other traffic and the level of maneuvering required.

8.11.8 Ramp Signals and Guide Lines

In order to facilitate the safe taxiing of the airplane close cooperation between the pilot and ground personnel is required.
Note: for marshalling signals (see Jeppesen Manual). Taxi guide lines may vary from aerodrome to aerodrome and do not always and for all types of airplanes ensure adequate clearance from obstructions, especially in congested areas.
Apron guide lines and marshalling signals are intended to aid pilots when taxiing on the apron. Thus, even when guided by apron guide lines or by marshalling signals, the Captain shall exercise utmost caution as he is responsible for the safe maneuvering of the airplane. If there is any doubt about adequate clearance from obstructions, ground assistance should be requested.

8.11.8.1 Taxi

Proper attention and callout should be given by both pilots to maintain adequate object clearance during taxi; PF should concentrate on steering the airplane, while PM should concentrate on navigation and has to give advice from taxi chart, including heading information and visual cues to be expected. Surface markings must be observed. If there is any doubt about the position, the airplane shall be stopped and ATC or apron control shall be informed.
Holding position markings and signs must not be passed without clearance. Lighted stop bars must not be crossed (for exceptions refer to Jeppesen). In the absence of such markings or visual aids the airplane shall hold at least 70m clear of the active runway. Before take-off the flight crew must verify by all possible means that the airplane is lined up at the correct runway and takeoff position. When entering any parking or holding position PM calls out as soon as possible the markers, signs, indicators, etc. he has identified for the airplane type concerned. PF confirms verbally.

8.11.9 Takeoff

8.11.9.1 Take-off Data

Prior to every departure, the take-off data must be calculated, crosschecked and inserted in the FMGS;

- This calculation is performed by PF and must be crosschecked by PM.
- Speeds shall be set using the Speed bugs and inserted in the FMGS.
- Callouts during take-off shall be performed as prescribed in the FCOM.

Note: Prior to take-off the Captain must re-check weather and the runway conditions to ensure a safe take-off and departure.

8.11.9.2 Reserved

8.11.9.3 Take-off Briefing

All briefings shall reflect the appropriate actions by PF and PM. Prior to engine start a briefing shall be conducted by the PF. This should be as short as the situation permits, but must include the following:

- One engine out climb-out procedure and EOSID (if applicable)
- Use of automation
- Fuel status
- Low visibility procedures
- Noise abatement climb-out
- Confirmation of actual departure procedures to ascertain familiarity with the ATC clearance
- NOTAMS
- Special aspects of the particular take-off such as critical take-off weight, local traffic, and adverse meteorological conditions.
- Specify which runway and intersections to be used and the expected taxi routings and expected taxi routing, including points of high risk of incursion and airport hot spots. Also, addressing relevant taxi progress monitoring and/or verbal callouts after taxi way passage and taxi speed during LVP
- Review the runway conditions and any weather related factors
- Specify the Take-Off thrust setting and configuration to be used
- Review technical status and any MEL/CDL items and their effect upon handling or performance
- Rejected Take Off procedures.
  Type of SID and charts
- Prior to takeoff review and verify;
  1. ATC clearance and departure instructions shall be made by the PF, highlighting any changes from previous briefings.
  2. Take-off data shall be verified, taking into account the actual runway being used. Authorized persons occupying the flight deck jump seats shall be briefed before departure and approach, on the smoke ban, sterile cockpit procedure, emergency exits, use and location of oxygen and emergency equipment.

8.11.9.3.1 Takeoff Briefing Script

Special consideration was incorporated in the following Takeoff Briefings;

1. Initial actions and/or profile during the Takeoff phase for important abnormal procedures, such as the Engine Failure, Engine Fire and RTO.
2. Procedures and regulations requirements for the National and International regulatory during the Pre-departure and Takeoff phases, such as the reminder for the briefings on the Technical Status, SID, EOSID, Noise abatement or the need for necessary items such as the Anti- ice or Ignition.
3. The minimum required wordings in order to have quieter Cockpit but at the same time, meeting the above requirements.

Note: The titles (Phase one: Before T/O until below 400 feet and Phase two: 400' and above) are not part of the briefing, they are to simplify the briefing sequence.

8.11.9.3.2 T/O Briefing for A320

- **Aircraft technical status.**

Phase one: Before T/O until below 400 feet

- **Left/Right hand seat T/O. Standard call out,**
- Anti- ice.
- Ignition. **Is / are required**
- Noise abatement.

- **Any malfunction before V1, I/YOU will call STOP or GO**
- In case of **STOP**, I / You will take the necessary stopping action and ECAM action on my / your command.
- In case of **GO**, no action to be done below 400', Except for :
  - TOGA (If necessary)
  - Gears up
  - Canceling the Aural Warning.

Phase two: 400' and above

- At 400', we **Identify** "Failure" and we carry ECAM action, for :
- Engine Fire until second Agent discharge.
- Engine out profile: We accelerate to 1500', clean up, after "Green Dot" continues climb and ECAM action until STATUS, start APU and then "After T/O" checklist.
- SID "Briefing".
- EOSID if applicable.

8.11.9.4 Commencement of Take-Off Roll

The take-off should be commenced at the beginning of the runway. Intersection take-offs are permitted, provided due consideration is given to take-off performance limitations and local noise abatement requirements. To reduce noise and in the interest of expediting traffic, rolling take-offs are recommended whenever possible. Flight crews should refrain from sharp turns during line-up in order to avoid unnecessary stress on wheels and tires.

8.11.9.5 Callouts during Take-Off Roll

Refer to FCOM for details.

8.11.9.6 Normal Takeoff Procedure (All Engines- Including Noise Abatement)

The following procedure shall be used for takeoffs
Procedure A: Noise relief during the latter part of the procedure.

Takeoff to 1500 feet AAL	• Takeoff Thrust • Takeoff Flap • Climb at V2 +10 to 20 kt
At 1500 feet AAL	• Reduce Thrust to Climb Thrust
1500' AAL to 3000 feet AAL	• Climb at V2 +10 to 20 kt
At 3000 feet AAL)	• Accelerate as required.

8.11.9.6.1 Normal Takeoff Procedure (All Engines Including Noise Abatement)

The following shall be used for takeoffs **Procedure B**: Noise relief during the part of the procedure close to the aerodrome.

Takeoff to 1000 feet AAL	➢ Takeoff thrust ➢ Takeoff Flap ➢ V2 + 10 to 20 Kts
At 1000 feet AAL	➢ Accelerate to flaps retraction speed (F) ➢ Retract flaps / Slats on schedule ➢ Reduce to climb power ➢ Climb on Green Dot speed
At 3000 feet AAL	➢ Accelerate smoothly to Enroute climb

8.11.9.6.2 Turns after Take-Off

Turns up to a bank angle of 15º may be executed until 1000 ft.
Turns up to a bank angle of 20º may be executed between 1000 ft and 3000 ft. Turns up to a bank angle of 25º may be executed above 3000 ft.
Minor heading changes (up to 10º bank) are not considered to be a turn.
Note:
For the above maneuvers the minimum speeds as per OM-B shall be observed.

8.11.9.6.3 Initial Communication with ATC

Initial communication with ATC should be established as required by SID, or as instructed, but not before 400ft AGL.

8.11.9.7 Go / No-go-Decision

The decision to reject a take-off rests solely with the Captain.
He shall announce his decision to reject the take-off by the command: "Stop". If CM 2 is performing the take-off, CM 1 takes over control with the command: "Stop". The reasons justifying a rejected take-off diminish with increasing speed. Once the RTO has been initiated the procedure must be executed completely. For details refer to OM-B. Because a rejected takeoff is a critical maneuver, the Captain calls out, performs the stopping actions, using the following procedures:

1. The Captain calls stop and applies full brakes while simultaneously closing the throttles. If the automatic brakes fail to operate, the Captain shall stand on the brakes until the airplane stops.
2. Apply maximum allowable reverse thrust until stop, ground spoilers will deploy automatically.
3. Apply maximum braking. The automatic brakes, (ABS), will apply maximum wheel braking unless the pilot has overridden the system.
4. Maintain directional control with rudder and brakes.
5. If anti-skid is inoperative, select reverse first then apply brakes in a manner to prevent wheels from locking? If a skid is detected, release pedal pressure, and then reapply to a lesser degree.
6. Perform appropriate checklist when aircraft stops.
7. Check brake temperature indication.

The Captain should clearly announce his/her RTO decision, whether it is to continue or reject. Captains are encouraged to be go-minded. To this end, Captains may discontinue the takeoff below 100 knots for any abnormality, such a decision should not be considered as an acceleration-STOP. Above 100 knots, rejecting a takeoff may lead to a hazardous situation.

8.11.9.7.1 Items for Reject

Refer to FCTM-AEP-MISC

8.11.9.7.2 Special Procedure For Supervision Flights

The Captain may transfer the decision to reject a take-off to the Captain under supervision. He shall give due consideration to the proficiency status of the Captain under supervision and the prevailing take-off conditions.
On supervision flights the RTO shall be executed by CM 1. If the Captain occupying the right seat takes over control during a RTO he shall call out: I have control.

8.11.9.7.3 Procedure for Training Flights

The training captain, as the Captain has the prerogative to transfer the responsibility for the decision to reject a take-off to the Captain under training for a specific takeoff or for all takeoffs during an entire duty period. He shall give due consideration to the proficiency status of the Captain under training and the prevailing take-off conditions.
On training flights the rejection of take-off shall still be executed by CM 1, since a Captain under training has already passed Captain's training and since the left seat position is laid out for the optimum handling of the airplane. If the Captain occupying the right seat takes over control during a rejection of take-off he shall call out: 'I have control'.

8.11.9.7.4 Engine Failure On Take-Off (After V1)

Refer to FCOM.

8.11.9.7.5 Engine Failure Procedure (EFP), When An Engine Fails At Or After V1 And Before The First Turning Point

1. Standard Engine Failure Procedure
   a) Climb straight ahead or EOSID (extended runway centerline).
   b) At 1500ft AAL (acceleration height), accelerate to minimum clean speed and follow the prescribed procedure leading to the ’designated fix’ (in the procedure).
2. Non-Standard Engine Failure Procedure
   a) Climb straight ahead (extended runway centerline), and:
   b) At the point defined in the procedure, start turn (Left/Right) with a bank angle of 15^{o} (unless otherwise specified), and follow the prescribed procedure leading to the 'designated fix’ (in the procedure)
   c) At the acceleration altitude, accelerate to minimum clean speed

Notes:

(1) For the above maneuvers, the minimum speeds as per OM-B shall be observed.

(2) An EFP is classified as Non-Standard when:
- A turn starts before 1000ft AAL OR
- Acceleration height is greater than 1500ft AAL

(3) Non-Standard EFP will, in general, be designed only when there is a benefit of 1%, or more, of the MTOW

(4) No turn shall be initiated before the ’runway end’ and the ’minimum height’ before the start of turn, which shall be, at least, 400 feet.

8.11.10 Climb, Cruise and Descent

8.11.10.1 Climb

Non-Standard Engine Failure Procedure

Only published SIDs assure terrain clearance and compliance with other restrictions. The captain may, however, accept deviations from SIDs, provided:

Terrain clearance and compliance with other restrictions can be assured. If during any departure terrain clearance becomes doubtful, the flight crew shall take appropriate action and inform ATC accordingly. During any departure MEAs, MSA and MOCAs must be observed. Climb must be arranged so as to cross the point from which the higher MEA applies not below such altitude.

8.11.10.2 Conventional SID

Conventional SIDs are defined and described using conventional navigational elements (e.g. HDG, TRK, Radial, QDM, and DME) the designator on the chart is identical with the designator of the Nav Database.

Prior departure the flight crew must compare the FMS coding with the SID description. Navigational aids must be set accordingly. The term "conventional" must be added to the departure briefing. The SID in the NAV Database is programmed as closely as possible to the SID chart description.

FMS guidance may be used; however, tracking must be closely monitored by means of conventional navigational elements. Any deviations must be corrected by the PF.

8.11.10.3 RNAV Overlay SID

RNAV overlays SIDs are defined by way points with additional FMS instructions.

The SID in the NAV Database is programmed so as to match the SID chart description using special coding elements for the FMS. The designator on the chart is identical with the designator of the NAV Database. The description on the chart contains conventional navigation elements and in addition a GPS/ FMS/RNAV description with waypoints (e.g. A800' - DF051 - DF052).

Prior departure the flight crew must compare the SID designator from the chart with the selected SID from the FMS. Navigational aids should be set as appropriate. A plausibility check must be made by comparing FMS coding and NAV Display "ND" with the charted description of the RNAV SID. FMS guidance must be used. Any deviations by the FMS from the SID chart description must be corrected by the PF if considered relevant for safety reasons.

8.11.10.4 Rnav SID

RNAV SIDs are defined by way points with additional FMS instructions. The designator on the chart is identical with the designator of the NAV Database. The description on the chart contains a GPS/FMS/RNAV description with waypoints (e.g. PG274 - PG278 - NIBAR - NIPOR).

Prior departure the flight crew must compare the SID designator from the chart with the selected SID from the FMS. A plausibility check must be made by comparing FMS coding, description of the RNAV SID chart and NAV Display "ND".

The SID in the NAV Database is programmed so as to match the SID chart description using special coding elements for the FMS. FMS guidance must be used. Any deviations by the FMS from the SID chart description must be corrected by the PF if considered relevant for safety reasons.

8.11.10.5 Radar Departure

Radar departures are based on radar vectoring by ATC. In certain cases part of a SID may be based on radar vectoring as well.

8.11.10.6 No SID Departure

Where no SID is published and terrain clearance for initial climb to the first Enroute waypoint cannot be assured when proceeding direct to that waypoint, the Captain must take alternative measures to assure safe terrain clearance.
E.g. climb within the circling area or climb opposite to a published approach procedure may be considered.

8.11.11 Maximum Bank Angle

The maximum bank angle for normal operations shall not exceed 25°

8.11.12 Speed Control below 10,000ft AAL

1. A speed of 250 knots below 10,000ft AAL shall be observed for normal operations.
2. Exceptionally, at the request of ATC, a higher speed may be maintained below 10,000ft AAL, but must be reduced to 250 knots, or less, prior to descending below 5000ft AAL.
3. For higher altitude airports (i.e. Sanaa,), speed should be reduced to 250 Kts or less prior to descending below 10.000ft AAL.

8.11.13 Call-Out during Climb/Descent

PM shall call passing 1000ft before the cleared Altitude/Flight Level. This shall be acknowledged by the PF calling Checked.

- 1000ft prior to level off -One Thousand "Above/Below Alt./FL"
- Dual pilot response for ATC altitude clearance;
- "Double point" to altitude window (both pilots physically point to and confirm the new altitude set).
- Every 5000 feet descending and every 5000 feet climbing

8.11.14 Adherence to Level Assignments

As a safeguard against inadvertent reduction of vertical separation standards the cruising level(s) assigned by ATC or - in uncontrolled airspace - as selected in accordance with the applicable cruising level system shall be maintained as accurately as possible.

8.11.15 Cruise Level

A crosscheck that the assigned altitude is above the minimum safe altitude.

8.11.16 Flight below Minimum Altitudes during Climb and Cruise

Airplane proceeding in accordance with published departure routes are safe in respect of terrain and other restrictions on any level included in the departure route or otherwise assigned by ATC.
A crosscheck that the assigned altitude is above the minimum Safe En-route Altitudes published for subsequent segments of a departure route shall be observed by commencement of climb sufficiently in advance to ensure that the point from which the higher minimum safe en-route altitude applies is crossed not below such altitude.
During an off-route departure, level flight may only be accepted at or above the minimum sector altitude or minimum safe grid altitude. An airplane being radar vectored and positively identified may be flown below these altitudes if the pilot is able to monitor the airplanes position using the available radio navigational aids.

8.11.16.1 Point of Equal Time / Point of Safe Return

Where no suitable intermediate en route aerodromes are available and the fuel carried will not allow the airplane to return from the aerodrome of destination to the aerodrome of departure regarded as alternate, the following points shall be calculated in advance:

- Point of Equal Time (PET), and
- Point of Safe Return (PSR), if so required.

8.11.16.2 Strategic Lateral Offset Procedure

Under certain circumstances it is recommended to fly up to 2 miles right of track (i.e. doubtful ATC environment, avoidance of wake turbulence in RVSM airspace). The decision rests with the Captain.

8.11.16.3 Continuation of Flight

A flight may only be continued towards the aerodrome of intended landing if, according to the latest information available, the weather forecast for that aerodrome or at least one alternate aerodrome is above the applicable landing minimum.

8.11.17 Planning of Descent

Efficiency and economy in flight operations very much depend on a well-planned and conducted descent. The descent shall be performed as efficiently and smoothly as possible taking into account flight safety, local conditions, ATS procedures, and meteorological factors (turbulence, icing).
In order to obtain descent clearance in time, adequate advance notice should be given to ATC.

8.11.17.1 Descent

STARs and associated minimum altitudes assure terrain clearance and compliance with other restrictions. The Captain may, however, accept deviations from published STARs provided:

- Limitations given in this section are met
- Compliance with other restrictions can be assured.

8.11.17.2 Descent Briefing

Prior to starting any descent the flight crew must check terrain and applicable minimum altitudes related to the descent path. The PF must brief all flight crewmembers about restrictions during descent regarding the applicable minimum altitudes. If during any descent terrain clearance becomes doubtful, the flight crew must take appropriate action and inform ATC accordingly.

8.11.17.3 A. Maximum Permissible Rate of Descent

1. During descent down to 10.000 ft. above the minimum safe flight altitude, there are no limitations with regard to the rate of descent.
2. During descent below '10.000 ft. above the minimum safe flight altitude', the rate of descent shall, for safety reasons not exceed the following values:

Down to an Altitude of	Max. Rate of Descent
10.000 ft. above MGA / MEA	not specified
5.000 ft. above the terrain	5.000 ft. / min
4.000 ft. above the terrain	4.000 ft. / min
3.000 ft. above the terrain	3.000 ft. / min
2.000 ft. above the terrain	2.000 ft. / min
1.000 ft. above the terrain	1.500 ft. / min
Below 1.000 ft. above terrain	1.000 ft. / min

The Ground Proximity Warning System (GPWS) provides additional protection in various flight phases. Exception: Adherence to some published approach profiles may require a higher rate of descent than 1.000 ft. /min below 1.000 ft. AGL. In this case a rate of descent of up to 1.500 ft / min is acceptable provided the airplane is in a stabilized descent when passing 1.000 ft AGL.

8.11.7.3 B. Escape Maneuver When Potential Terrain Conflict Is Recognized

When potential terrain conflict with recognize PF must exercise a go-around procedure to clear off from the terrain.

8.11.17.4 Descent Below Minimum Safe En-Route Altitude/Minimum Safe Grid Altitude

Descent below the minimum safe en-route altitude/ minimum safe grid altitude to the minimum sector altitude may be made when approaching the navigation aid from which an approach-to-land will be conducted, provided the airplane's position can be accurately established as being within 25 NM from the navigation aid upon which the minimum sector altitude is based by:

- The use of a radio navigational aid or
- Positive radar control.

8.11.17.5 Descent Below Minimum Sector Altitude

When conducting radar vectored instrument approaches, clearance to descend below the minimum sector altitude may be accepted, provided the Captain is able to monitor the airplane's position using the available radio navigational aids. In certain instances the minimum sector altitude for a given sector may be higher than the minimum safe en-route altitude established for a particular route segment between fixes or for a holding area within that sector. In such cases descent below the minimum sector altitude down to the minimum safe en-route altitude is permitted, provided the flight is conducted along the respective route or within the holding area.

Definition: Minimum sector altitude is the lowest altitude which will provide a minimum clearance of 1.000 ft above all objects located in an area contained within a sector of a circle of 25NM radius centered on a radio aid to navigation.

8.11.17.6 Flight Below Minimum Safe Altitudes

In general no flight may be operated below published Mesa

For limiting portions of flight (e.g. shortcuts, radar vectoring off route etc) however a flight may be operated below published minimum altitudes when it is assured that following conditions are met:

1. **Flight below MEA/MHA/MSA down to MGA:**
   - Confirmed airplane position within applicable MGA Grid, and
   - Adjacent higher MGA must be respected when airplane position within 5 NM to grid boundary
2. **Flight below MEA/MHA/MGA down to MSA:**
   - Confirmed airplane position within applicable MSA sector
3. **Flight below MSA down to cleared FL/ALT by ATC:**
   - Confirmed airplane position within applicable MSA area, and
   - Radar vectored, and
   - terrain/obstacle clearance can be assured by use of appropriate charts
4. **Flight below MEA/MHA/MGA/MSA down to MRVA:**
   - Radar Vectoring Chart available and
   - Confirmed airplane position within applicable sector of Radar Vectoring Chart &
   - Radar vectored

8.11.17.7 Escape Maneuver When Potential Terrain Conflict Is Recognized

When potential terrain conflict is recognized during descent proceed for go around procedure and change heading to area of minimum safe altitude.

8.11.18 Approach and Landing

Every approach shall be planned and conducted in accordance with the procedures prescribed in OM-B and observing the limitations in respect of rate of descent and bank angle. This phase of flight specifically requires most accurate flying technique and highest attention of all flight crewmembers. Planning for an approach shall be done well in advance in order that pilots are well prepared for the expected approach procedures and that the Approach Chart is only required for quick references. It is, however, compulsory for each pilot to have the Approach Chart, and where applicable the TMA chart, readily available during every approach.
The speed during an approach shall be kept within reasonable limits paying due regard to ATS procedures, traffic density, weather conditions, and approach aids used, and shall be decreased to approach speed before the instrument approach procedure or, if executing a visual approach, before entering the aerodrome traffic pattern. Altimeter setting during the approach to land shall be in accordance with published procedures. Before commencing an approach the Captain must re-check the weather at the aerodrome, the runway conditions and the airplane technical status to ensure a safe approach, landing or missed approach. In IMC or at night it is recommended that. Flight crewmembers are to maximize the use of radar monitoring where available.

8.11.18.1 Approach Briefing

The approach briefing should be conducted after both pilots have reviewed all relevant factors affecting the forthcoming approach and landing (weather, NOTAMS, runway conditions, specific airport restrictions). It should be completed prior to commencement of the descent. Persons occupying the flight deck jump seats shall be reminded with the sterile cockpit procedure.
The PF shall conduct the briefing covering the following items in the given order:

- Nominate the runway and the type of approach to be used.
- Brief on any special or non-normal requirements (Technical status, anti-ice, runway occupancy limits).
- Chart number, layout, and date (cross-checked by the PM)
- STAR, STAR Transitions, Approach Transitions
- Type of approach and use of automation
- Low visibility approaches
- NOTAMS
- Transition Level, MSA (highest MSA sector, the aircraft is expected to cross, on the arrival route to the Initial Approach Fix)
- Lateral profile
- Vertical profile, including minimum height positions
- Outer Marker/Equivalent fix altitude – precision approaches
- Final Approach Fix (FAF) altitude – non-precision approaches
- AH/DH/DA/VDP/MDA and if any ‘commitment altitude’
- Minimum required and existing visibility and/or RVR
  – Threshold elevation and field elevation
- Missed approach point
- Missed Approach procedure
- Diversion fuel and fuel available
- Landing distance

- Taxi routing after landing.
- Any other important information (APU, Auto-brakes, Low-drag approach, etc.)

In case of abnormal/emergency situations; when time permits, PIC or his delegate shall call cabin crew (normally the purser) – in accordance with FCOM PRO-ABN-90 Communications – and brief him/her with the following points (NITS):

PIC's NITS Briefing

- Nature of the emergency
- Intentions
- Time available to prepare the cabin

(Synchronize watches)

- Special instructions (for example, exits that may be unusable)
  - Signal to brace
  - Signal to remain seated (if no evacuation is required. On ground emergency only)
  - Final Call (if applicable)
  - At 2000 feet, the flight crew will make the P.A: "Finish Preparation"

This is an order. Cabin crew should immediately take their seats.

The Purser/briefed cabin crewmember will acknowledge the PIC/delegate briefing by repeating back the full instructions given (NITS), and must ask for clarification on anything not understood.

8.11.18.2 Noise Abatement during Approach

In order to avoid coming in too low while on final approach, Captains shall endeavor not to descent below the prescribed glide path, even after visual reference to the ground has been established, making use of all available aids,.

I.e. ILS glide path or VASIS. When flying in an aerodrome traffic circuit pilots should likewise avoid overflying populated areas at too low altitudes and shall observe the circuit heights as may be established by the appropriate Authority.

8.11.18.3 Setting of Decision Height/Decision Altitude/Minimum Descent Altitude

Except for CAT II/III ILS approaches the barometric altimeter, set to the current QNH of the aerodrome concerned, shall be used to indicate the applicable DA/MDA.

8.11.18.4 Setting and Checking of Navigational Aids

For instrument approaches the setting and checking of navigational aids is regulated as follows:

1. The order for tuning to a particular navigational aid is given by the PF.
2. The PM tunes the appropriate receiver(s) and checks the identification of the facility.
3. In case of ILS: the execution is confirmed by PM after identification has taken place: Completed and identified.

8.11.18.5 Descent to Prescribed Altitudes during Approach

The altitudes prescribed in instrument approach procedures shall be strictly adhered to. Descent to the next lower altitude prescribed in a procedure shall only be made after passing the relevant fix and provided the airplane is following the track specified in the procedure.
Note: The foregoing does not apply when the flight is cleared to descent during radar vectoring or to conduct a visual approach**.**
Note: In the context of this requirement, a "visual circuit" is considered to consist of at least downwind, base and final approach legs, flown in accordance with the recommended procedure specified in the applicable aircraft type's FCOM. In all other circumstances, a stabilization limit of 1000ft AAL shall apply.

8.11.18.5.1 Stabilized Approach

An approach is stabilized when all of the following criteria are met:

1. Minimum stabilized heights to achieve stabilized approaches:

Meteorological Conditions	Heights above Airfield Elevation
IMC	1000 ft.
VMC	500 ft.

2. The aircraft is on the correct lateral and vertical flight path (based on navaids guidance or visual references).
3. Only minor changes in heading/pitch are required to maintain the correct flight path.
4. Bank Angle not greater than 7 degrees.
5. The aircraft indicated speed is not less than VAPP (computed by GS-MINI function for Airbus types).
6. The aircraft is in the correct landing configuration.
7. Sink rate is no greater than 1,000 feet per minute; if an approach requires a sink rate greater than 1,000 feet per minute, a special briefing should be conducted.
8. Power setting is appropriate for the aircraft configuration and is not below the minimum power for an approach as defined by the aircraft operating manual.
9. All briefings and checklists have been completed.
10. For stabilized ILS approaches, it must be flown with maximum deviation of one dot of the glide-slope and ¼ dot of localizer;
11. Special approach procedures or abnormal conditions requiring deviation from the above elements of stabilized approach criteria require a specific briefing prior to commencement of the approach.

Note: When conducting circling, or visual approaches, the height at which the airplane must be fully stabilized may be lower than 1000 ft above threshold elevation, but in no case less than 500 ft.

8.11.18.5.2 Excessive Flight Parameter Deviation Callouts

Parameter	Callout Criteria
Airspeed	Lower than V APP – 5 kt or Greater than V APP + 10 kt (*)
Vertical Speed	Greater than – 1000 ft./MN
Pitch Attitude	Lower than (-2.5˚) Nose Down or Greater than (10 ˚) Nose Up
Bank Angle	Greater than 7 degrees
LOC deviation	1/4 dot or Excessive (Beam) Deviation Warning
Glide Slope deviation (ILS)	1 dot or Excessive (Beam) Deviation Warning

When reaching the applicable stabilization height and below, a callout should be performed by the PM if any flight parameter exceeds the limits provided in the following table:
(*) The final approach speed V APP is considered to be equal to V REF + 5 kt (or V LS + 5 kt, as applicable).
V REF is the reference target threshold speed in the full flaps landing configuration (i.e., in the absence of airspeed corrections because of wind, windshear or non-normal configuration).
Note: The crew should ensure that the above mentioned stabilization criteria are met, if not a go around should be executed immediately.
Runway alignment must be accomplished not later than 500 ft above threshold elevation.
However, where certain types of approaches (e.g. low visibility circling, non-precision, sidestep) swing over necessitate alignment turns below 500 ft it is essential that special attention is being given to bank angle.
A swing over to another RWY may be accepted provided

- The landing RWY is clearly visible and
- It can be assured that the airplane will be aligned on centerline and fully established in slot no later than 500 ft. above threshold elevation.

Nesma Airlines upholds a No-Blame Policy concerning go-around(s). If an approach is not stabilized by the limits specified above, or become un-stabilized after passing these limits, an Immediate Go-Around Must Be Executed.
Notwithstanding the above, crews are encouraged to exercise sound judgment and airmanship, and to consider executing an earlier go-round, if it is likely that these limits may be exceeded.
A go-around must be considered a Normal Maneuver, to be carried out whenever a crewmember assesses that this option offers the safest course of action. Go-around is to be reported.

8.11.18.6 Direct Straight-In Approaches

Direct straight-in approaches are authorized and encouraged at Captain's discretion to shorten the approach procedure, if conditions are suitable and subject to ATC clearance.
In the case of a radar vector to a final approach course or fix, a timed approach from a holding fix, or an approach for which the procedure specifies "No PT", Pilots shall not make a procedure turn unless cleared to do so by ATS.

8.11.18.7 Sre Approach

Data for SRE approaches are published only in exceptional cases. ATC will provide procedure details such as minima, termination point and missed approach procedure upon request.

8.11.18.8 Par Approach

Data for PAR approaches are published only in exceptional cases. ATC will provide procedure details such as minima and missed approach procedure upon request.

8.11.18.9 Non-Precision Approaches

Non-precision approaches with a minimum 2.5 degrees slope from FAF to touchdown are required. In cases where only a step down approach is available, Flight crew shall aim at executing the approach with a stabilized constant descent profile during the final segment of non-precision approach. Where terrain is a factor, approach charts with color and shaded contour formats shall be used.
The duties of PF and PM during Non-ILS (including non-precision) approach, refer to QRH 3.08, 3.09.

8.11.18.10 Visual Approach

Definition: An approach when either part or all of an instrument approach procedure is not completed and the approach is executed with visual reference to the terrain.
The following shall be provided for the acceptance and the conduct of visual approach:

1. A visual approach requires ATC approval and is part of an IFR flight
2. The Captain must have the aerodrome in sight and identified
3. The Captain must be familiar with the aerodrome and the surrounding terrain
4. It must be flown closely to the basic principles of instrument approaches and whenever practicable according to the traffic pattern outlined in the FCOM. Where no instrument approach procedure is available the circuit altitude shall be 1500 ft. above aerodrome elevation.
5. The visual glide path angle should be 2.5 to 3 degrees depending on terrain. Optical illusions may seriously affect the flight crew's perspective in judging this visual glide path.
   Therefore the following must be observed:
   - Early stabilized approach
   - Continuous monitoring and cross checking of flight instruments
   - Full use of all available navigation and landing aids during the entire approach.
6. In case of straight-in visual approaches the published instrument approach procedure shall be adhered to as closely as possible.
7. Once the airplane is established and descending on the final approach to the runway of intended landing, 360 degrees turns and other maneuvers for descent profile adjustment are not permitted.

8.11.18.11 Circling Approach

Definition according ICAO: A circling approach is the extension of an instrument approach procedure which provides for visual circling of the aerodrome prior to landing. I.e. the visual phase of an instrument approach to position an airplane for landing on a runway which is not suitably located for a straight-in approach.
(Refer to 8.1.3.5.6. Visual maneuvering (Circling))

8.11.18.12 Side Step Approach (SSTP)

This procedure is mostly used in U.S.A.
Definition according to FAA: A visual maneuver accomplished by a pilot at the completion of an instrument approach to permit a straight-in landing on a parallel runway not more than **1200 ft** to either side of the runway to which the instrument approach was conducted.
Landing minima are applicable as for circling approaches.

8.11.18.13 Standard Call-out Procedure during Approach

The following mandatory call-outs must be made by the flight crewmember specified in the right-hand column unless generated automatically by synthetic voice.

Call-outs during Approach

(Refer to OM-B for details)

8.11.18.14 Change-Over from Instrument Flying to Flying with Visual Reference

Excellent co-operation between PF and PM is necessary during changeover from instrument flight to flying with visual reference to the ground. When, during the progress of the final approach, visual reference is expected to be obtained, the pilot flying shall divide his attention between monitoring the flight instruments and lookout.
When the approach lights, runway lights, or runway markings are clearly in sight and the altitude of the airplane with reference to the ground can be determined, he shall indicate to the pilot monitor where to look for visual reference (i.e. "Runway 11 o'clock").
During transition to visual flight the pilot flying shall pay particular attention to retain the proper approach path by maintaining the stabilized attitude. He should **never** allow the airplane's **nose to drop** and should **not** permit the rate of **descent to increase** during the last part of the final approach and shortly before flare. Flight crews shall be aware of factors and conditions that cause visual illusions and their effects, including:

- Perception of height/depth, distances and angles: and
- Assessment of the aircraft's horizontal position and glide path.

8.11.18.15 Approaches with Visual Reference to the Ground

Approaches shall be flown closely to the basic principles of instrument approaches; they are only authorized subject to ATC approval and provided the Captain has the aerodrome in sight and is familiar with the aerodrome and the surrounding terrain. Whenever practicable the approach with visual reference to the ground shall be flown according to the traffic pattern outlined in OM-B.
In case of straight-in visual approaches the published instrument approach procedure shall be adhered to as closely as possible. Where no instrument approach procedure is available the circuit altitude shall be 1500 ft. above aerodrome elevation. The visual glide path angle should normally be in the order of 2.5° to 3.0° depending on terrain clearance requirements.

8.11.18.16 Wind Correction during Approach

To compensate for wind, gusts and shear effects corrections of the approach speed shall be made in accordance with the FCOM-LIM-12 page 5/6.

8.11.18.17 Aerodrome Lighting

At aerodromes equipped with high intensity approach and/ or runway lights due regard shall be paid to the possibility of glare from the lighting system. The pilot monitor should be alert to request dimming of lights by order of the pilot flying.

8.11.18.18 Use of VASIS, T- VASIS or PAPI

On runways equipped with VASIS, T-VASIS or PAPI the visual glide slope shall be adhered to as closely as possible. Due to glide slope tolerances, however, VASIS, TVASIS or PAPI indications shall not be used below 200 ft above aerodrome elevation.
Note: In conditions of ground fog, mist or snow T-VASIS may provide erroneous indications due to light refraction

8.11.18.19 Descent below DA/H or MDA/H

Continuation of an approach below the applicable minimum is only allowed if:

1. The airplane has arrived at a position from which a normal approach profile can be followed to the runway-in-use; the maximum rate of decent is 1000 ft/min, and
   At least one of the following visual references for the intended runway is distinctly visible and identifiable:
   Non Precision and CAT I operations:
   - Elements of the approach light system, threshold, threshold markings, threshold lights
   - Threshold identification lights, visual glide slope indicator, touchdown zone or
   - Touchdown zone markings, touchdown zone lights and runway edge lights. **Note1:** CAT I; the minimum visual segment to control the airplane consists of three centerline lights/barrettes of the ALS and either one crossbar of the ALS or the threshold lights of the landing runway.
   - Below Five Hundred feet if the runway is clearly visible by announcing LANDING. The flight crew must monitor the approach and the PM must call out:
     - Malfunction of instruments, approach and landing aids
     - Deviations from the approach path
     - Deviations from the required airplane configuration
     - Deviations from the altitudes specified for the approach procedure
     - Rates of descent in excess of defined limits
     - Deviations from target speed of plus 10 / minus 5 Kts
     - Bank angles exceeding 7^{o} or Pitch Attitude exceeding 10^{o} up or 2.5^{o} down.
     - All other significant deviations.

8.11.18.20 Go-Around and Missed Approach

A Missed Approach Procedure (MAP) is the navigational description of a go-around for a specific runway. It starts at the Missed Approach Point (MAP) and not lowers than DH / DA / MDA / MDH to ensure adequate protection from obstacles. A MAPT is published for non-precision approaches.

1. A 'Go-around' is a normal procedure which should be applied without hesitation if required.
2. A decision to initiate a 'Go-around' rests with the Captain as long as the airplane is higher than 1.000 ft. AAL.
3. As soon as the airplane is lower than 1.000 ft. AAL, a 'Go-around' shall be executed as soon as any active crewmember calls out "GO-AROUND", regardless of who is PF/PM.
4. Adequate protection from obstacles is assured if the missed approach procedure is initiated not lower than the decision height/decision altitude/minimum descent altitude (DH/DA/ MDA) and not later than at the missed approach point (MAPT) where one is specified.
5. In a precision approach procedure, the MAPT is the point where the glide path intersects the decision height, or a suitable fix (e.g. middle marker, DME fix). If no suitable fix is available or if the MAPT facility is unserviceable the missed approach shall be initiated when time to MAPT has expired.
6. During a non-precision approach: in the event a 'Go-around' is initiated prior to arriving at the MAPT the pilot should, while climbing, proceed to the MAPT and then follow the missed approach procedure in order to remain within the protected airspace.
7. When executing a non-precision approach procedure at the missed approach point (MAPT). If the Missed Approach Point (MAPT) is determined by 'time', the Missed Approach Procedure shall be executed when the time has elapsed.
8. During a precision approach: in the event a 'Go-around' is initiated prior to reaching DH/AH, the aircraft shall proceed to the threshold of the runway of intended landing, before following the missed approach procedure.

8.11.18.21 Go-around and Missed Approach with one Engine Inoperative

In the event of a go-around following an engine out approach the flight crew shall establish a safe flight path. ATC must be notified as soon as practicable and be informed about the intentions.

Prior to starting an engine-out approach, the flight-crew must consider limiting factors in case of a missed approach. Limiting factors could be a specific climb gradient required for the published missed approach procedure and / or the obstacle situation.

Three alternatives may be considered:

- Published EOSID.
- Published missed approach procedure
- In favorable weather conditions: Any safe visual flight path.

8.11.19 Landing Distance

In preparation for each landing on a destination or alternate aerodrome due consideration shall be given to all relevant factors, such as wind, slope, runway surface condition/braking action, MEL, faulty equipment or system in the conditions existing at the estimated time of arrival, in regard to the required runway length.
The following minimum distances shall be available (VREF at threshold at 50 ft.):

CONDITION	REQUIRED
Dry Runway	Landing field length - dry
Wet Runway	Landing field length - wet or, if not available, landing field length dry X 1.15
Contaminated Runway	115% of the actual landing distance for contaminated runway according to published tables, or The Landing field length -wet, whichever is longer.
Abnormal Landings	Actual landing distance

If the runway is dry or damp and the Landing Distance Available (LDA) is more than 2400m, the landing distance need not be determined.
Landing performance, Refer to QRH 4.02, 4.03& 4.04.

8.11.19.1 Height over Threshold

To accomplish a safe landing, the height of the airplane over the landing threshold should be approximately 50 feet. The airplane has to cross the landing threshold in the correct configuration and attitude. The Threshold Crossing Height (TCH) may vary according to the information provided on the approach chart.
When downdrafts are expected (e.g. terrain, Windshear, turbulent air) the height over the threshold may be slightly increased considering the runway condition and length available.

8.11.19.2 Touchdown

Final approach shall be adjusted so as to achieve touchdown in the Touch-Down Zone (TDZ) area paying due regard to obstructions in the final approach area, runway length, runway conditions etc.
Notes:

- If the touchdown cannot be accomplished within the Touchdown Zone of the landing runway, a 'Go- around' shall be initiated.
- Touch down Zone (TDZ) Area is defined as Area starting from 150 m (500 feet) till 30% of Runway length with maximum 900 m (3000 feet).

8.11.19.3 Noise Abatement after Landing

After each landing full reverse thrust shall be applied. When landing at night and/or where local airport noise restriction apply, the use of full reverse thrust should be used to such extent as required in the interest of safety, paying due regard to landing weight, runway length, wind, and runway conditions. On such occasions the auto brake system shall be used while monitoring its effectiveness

8.11.20 Parking Brake

After having arrived at the ramp, parking brakes shall not be released until all engines have been shut down and until it is ascertained, that chocks are in position, by verbal communication or other visual means (refer to OM-B for details) On releasing the brakes, the Captain shall ensure the airplane is not moving.

8.11.21 Communications Language Skills

English language fluency is necessary for effective communication between flight crew and ATC controllers.

Radio Communications

All radio communications must be in English and in a precise correct and clear manner, standard ICAO radio phraseology should be used at all times. Standard callouts contribute to improved situational awareness and safety. Pilots shall make sure that all ATC instructions accepted are clearly understood. Pilots should understand that missed or misunderstood clearance could pose a safety risk to flight, if in doubt, ask the controller to repeat and clarify the instructions particularly where terrain is a consideration, all ATC clearances shall be written; listen before transmitting especially when changing to a new frequency. Keep the last used frequency in the standby window until communications are established on the new frequency. The following phraseologies are to be used:

1. Ready for departure instead of ready for takeoff.
2. Line up and wait instead of line up and hold.
3. Request to cross RW instead of request clearance to cross RW
4. The phrases 'cleared for' and 'cleared to' are only used by ATC.
5. After landing when clear of runway, report runway vacated.
6. Use Go-around instead of overshoot.
7. Use affirm instead of affirmative.
8. Call looking out, traffic in sight, or negative contact when responding to inflight traffic information by ATC.
9. When requesting something from ATC state only 'call sign' and 'request' on initial transmission e.g. London control Nesma Airlines6046 request…
10. Follow ICAO R/T phraseology as indicated in OM-C Jeppesen. In addition, flight crewmembers are required to report the cleared flight level on first contact with ATC, unless specifically requested not to do so by ATC unit.
11. To avoid call sign confusion, all ATC clearances should be repeated word by word including the use of call sign, do not use the terms Roger or Wilco by themselves to acknowledge instructions.
12. Special attention must be drawn to call sign confusion during altitude clearance acceptance and read back, especially at busy airports or areas.
13. All clearances to enter, land on, takeoff, cross and backtrack on the runway in use shall be read back.

14. When unable to use standard phrases, be brief, consistent with clarity. The following phrases and words should be used whenever applicable:
Acknowledge, Confirm, How do you read? Roger, Negative, Correction, Standby, Say again, Disregard, Cancel, Break, Go ahead.

- **In flight Broadcast**: This message is broadcast by the PM on pilot frequency 126.9, or 123.45 when over flying areas with poor or without ATC control services/coverage. The call should indicate aircraft call sign, departure and arrival airports, the airway, direction of flight, FL, position, time, next position and time.
- **Listening Watch:** All Flight crew shall maintain a radio listening watch as applicable to the theatre of operation to include monitoring guard frequency 121.5 as will to appropriate FRQ.s

8.11.22 Standard Call Out

Refer to OM-B (QRH-SOP)

8.11.22.1 Communication with Cabin Crew

Nesma Airlines policy is to standardize verbiage / terminology signals and / or Verbal commands to be used for communication.
Refer to FCOM for standard verbiage and terminology and signals.

8.11.23 Checklist

Refer to OM-B (QRH-SOP)

8.11.24 Flight Data Analysis (FDA) Program

Nesma Airlines established a continuity monitoring of the all flights by activating the Flight Data Analysis (FDA) Program.

8.11.25 Electronic Flight Bag EFB

Refer to 8.12 Electronic Flight Bag (EFB).

8.11.26 Punctuality

In order to improve accuracy in recording of chocks-off / on, takeoff and landing times, and the following procedures shall be applied:

- On flights where a pushback is required, record chocks-off time when the aircraft actually begins to move.
- On flights where a start is done at the stand (no pushback), once the second engine start has commenced, order the mechanic to disconnect. Record chocks-off time when the aircraft actually begins to move.
- Chocks-off/on shall be logged in accuracy of minutes, by any means, do not round it to the nearest 5 or 10 minutes.

Note: Once the second engine start has commenced, the flight crew may order the mechanic to disconnect even before the engine has stabilized. This will allow departure procedures to be expedited and the mechanic can always be called back if a problem arises.

- On all arrivals, record the chocks-on time when the parking brake is set, before the engines are shut down at the final stopping place, even if waiting for ground power to be connected.

On-time performance is of vital importance for Nesma Airlines operations. In order to ensure this, delays are reported in written format using the journey log. The reasons for the delay must be defined in full, the defined IATA delay codes are for reference only. The following guidelines will be used for reporting delays:

- When possible, pass the delay reason to the mechanic along with the Chocks off time. Record reason and delay time in the Journey Log and as further clarifications would help to identify a problem area, expand with additional comments on the delay reasons.
- All outstations are allotted a defined turnaround time (e.g. 00:45 minutes). In case of an inbound delay, all crew efforts should be directed at recovering the delay and departing as close to the Scheduled Departure Time as possible. If the flight departs within the scheduled turnaround time, there is no additional station delay.
- Delay shall be recorded after 5 minutes of the STD.

Flight crew should make every effort to be on the aircraft as early as possible but in no case later than 35 minutes before Scheduled Departure Time (STD).

In order to maintain the integrity of our on-time performance, boarding clearance should be given no later than 25 minutes before STD to allow boarding to be in progress by STD –20 minutes. For ground time greater than 60 minutes, commence boarding by STD –30 minutes. Under no circumstances must boarding be delayed in anticipation of delayed transfer passengers unless a decision is taken by Dispatch Control with flight crew co-ordination.

Note: Do not prolong cockpit set up procedures longer than required, e.g. during completion of FMS set-up, enter INIT-B average wind and only enter full wind data if time permits or during flight. The time gained can better be used to expedite departure or for customer service issues.

8.11.26.1 Delayed Fuel Decision

If the Final Fuel figure is made available to the Flight Dispatch when Flight crew sign the Dispatch Release, the maximum reduction in fueling delays can be achieved.
The check-in counter normally closes at the latest 45 minutes prior to departure and the gate 15 minutes prior to departure, thus Final ZFW may be obtained at least 35 minutes before STD. Flight crew should make a fuel decision immediately. In the event that the transfer counter is still open, a delay in receiving the Final ZFW may be experienced. If no Final ZFW is given by 15 minutes pre- STD, Minimum Fuel should be declared as Final without waiting further.

Note: Be aware that a delayed fuel decision means a delayed fuel browser at the aircraft which, in-turn delays the fueling of other aircraft and ultimately results in compounded delays throughout the system.

8.11.26.2 Fuel Load Procedure

The procedure of advising the fuel load for each flight from the Flight Dispatch to the Maintenance staff shall be as given below:
For Tankering flights, the Flight Dispatch staff shall keep a margin of 2000 Kgs for any unexpected additions to the EZFW and enter the OFP Min Fuel Load + Tanker Fuel – 2000 Kgs as the minimum fuel quantity to be loaded (See 8.1.7.2.8 Fuel Transportation (Tankering)).
Maintenance staff shall then relay the requested figure for pre-loading on the aircraft.

Note: When Flight Crew arrives the aircraft, Standby Figures must be communicated in proper place such as Flight deck without any distraction and with reconfirmation of the figures from the Technician. Standby and Final fuel figures must be crosschecked by both pilots to avoid any errors.

8.11.26.3 On-time Performance Management

On-time performance is a key requirement for Nesma Airlines' cost saving policy and customer satisfaction goals.
Research on the performance of major airlines suggests that there is a positive correlation between on-time performance and operating profit.
Punctuality is a key leadership challenge in Nesma Airlines and ranks high on the management agenda from strategy and planning all the way to front-line operations.
Crewmembers are the face of front line operations. The Commander, in addition to his other duties and responsibilities, is the manager of the flight and has the final responsibility to achieve the on time departure.
The "Target is ETD - 3 minutes" for all doors to be closed and for push back / engine start to be in progress. In order to achieve this, the following performance indicators (milestones) are being introduced.
The Commander is responsible to ensure that all departments / support agents coordinate with one another to achieve this objective.
Achieving OTP success requires focus. All involved should be committed every step of the way on the end result of avoiding delays.
Detailed Flight Crew reports are essential for robust delay monitoring and analysis. On a daily basis, the OTP of the fleet is reviewed by operations management in order to establish the root cause of delays with the purpose of implementing corrective actions to eliminate delays and improve OTP.

Besides ensuring that you do everything possible to maintain on-time departures, to aid in the investigative process you are required to clearly specify, on the Journey Log, the precise reasons why a delay occurred. This requires you to be aware of the time progress leading to the departure and note the actual times reached during all stages of the pre-departure sequence. Flight Crew should feedback in the Journey Log where barriers to achieving an on time departure are occurring.

Any slot times and revised slot times which are issued, must be noted on the Journey Log.

> **Note:** Whenever the Flight Crew depart and or arrive on time, this information must be included and communicated very clearly as part of the PA to the passengers.

8.11.26.4 Punctuality Key Performance Indication (KPIs)

The following table shows the KPIs required to maintain adequate on-time performance (OTP).

Elements for On Time Departure	Target Time for Departure (minutes)1
Report time / Sign-in	-90 (Flight/Cabin crews)
Crew on-board / Arrive On Chocks	-45
Cleaning / Security Checks completed Boarding Clearance given	-25
Load sheet presented to the Captain	-10
Cockpit Briefings and Checklists completed	-10
Boarding Completed Refueling Completed	-5
Paperwork Signed Cabin and Cargo Doors Closed	-4
Engine Starts (No Pushback)	-4
Push-back commences / Taxi	0
Delay Reporting	+5 minutes

[1] Negative sign indicates time before flight

8.11.26.5 Nesma Airlines' OTP Best Practices

As a business it is imperative that we strive to be the best in all areas under our control. In a competitive environment passengers have a choice, and all it takes is one bad experience to lose a loyal customer who could have expanded our reach to other customers. It costs five times more to attract new customers than to keep existing ones so we must position ourselves to be defined by everything that we do best and not by bad experiences.

OTP is one area which strongly affects passenger perception of an airline and where passengers determine that an airline reliably departs on time, a sense of dependability arises which in turn results in the airline becoming the preferred choice for repeat travel.

Nesma Airlines closely monitors delays and maintains a database in order to develop statistics that show the when, why and what caused a delay. The aim is not a blame game, but to see what trends are developing and to what severity in order to determine the root causes of delays. The following key points take into account on-line experiences in order to advise on best practices that have the potential to impact OTP positively if followed.

Table: Points to take into account for OTP management

1. Safety First.
2. Get to work on time.
3. Get to the aircraft early.
4. Do not wait around Ops for paperwork, get it delivered to the aircraft.
5. Do not stop Cabin Crew from proceeding to the aircraft before you.
6. Do not get lost during long transits.
7. Control Cleaners.
8. Tankering must not be done at the expense of an on time departure.
9. Prior to requesting new flight paperwork, confirm the requirement.
10. Do not sign the load sheet until all passengers are on board and settled.
11. Do not sign the Aircraft Technical Log (ATL) until all fueling and engineering works have been completed.
12. Use the Secondary Flight Plan pages to prepare the return flight.
13. Before arrival inform the arriving station's GHA about the requirement for wheel chairs/ high loaders / GPUs etc.
14. Clearly indicate delay reasons on the Journey Log.
15. In case of in-bound delays, reduce turn-around time to pick up the rotation schedule
16. For headcount problems, delegate the responsibility to the stations
17. Over fueling concerns

1. **Safety First:**

   Do it right and safe.

   Though OTP is an important business objective, our number one priority shall always be safety. Do not, for example, rush a sick aircraft into the air because of the concern of minimizing delay.

   Follow correct procedures and get an all clear from an authorized engineer. Should an in-flight emergency result, the cost in terms of money and time would be far worse without even taking into account the tragic impact of injury or loss of life.

2. **Get to work on time**

   Complete your pre-flight planning early and proceed to the aircraft without delay. It may be that the aircraft is at a remote bay requiring extra time to reach it.

   Anticipate the situations that you will face in your journey to work. If traffic is a known issue, plan accordingly and give yourself the necessary journey time. If passengers can account for traffic when getting to their flight, then so can crew. All the same, if you will be late, make sure that the other Pilot and Crew are informed to enable them to board and ready the aircraft. At the earliest opportunity, let dispatch know so they can prepare an alternate solution.

   If you are using the company's transportation and they happened to come late, do not wait and take the most comfortable transportation you can find and you will get reimbursed.

3. **Get to the aircraft early**

   As part of your pre-flight preparations you are allotted a 60 minutes pre-departure period from Standard Departure Time (STD). This is Company time and you should utilize it effectively and be focused on the end goal of an on-time departure.

   Make every effort to be on the aircraft a minimum of 45 minutes before departure.

   Bear in mind the On-Time Departure KPIs target times given in 8.11.26.3 Punctuality Key Performance Indication (KPIs) and aims, as much as possible, to better them. Do your best to be on-board early as there may be last minute issues arising, which necessitate an early resolution to avoid impacting OTP.

   Passenger boarding should be requested early taking into account the time it takes passengers to reach the aircraft, which if by bus, may be impacted by aircraft movements on the apron.

4. **Do not wait around OPS for paperwork, get it delivered to the aircraft**

   Tasks such as coordinating with dispatch regarding payload, additional weather reports or amended TLR do not require you to hang around operations as the documents can be delivered to the aircraft or send through PPS Crew Briefing.

   If for any reason more time is required at dispatch, ensure that one Flight Crew member proceeds to the aircraft to start boarding.

5. **Do not stop Cabin Crew from proceeding to the Aircraft before PF**
The cabin purser reports to the Commander before leaving operations as a courtesy and so that the Flight Crew can inform them if there are any variables affecting the flight, which they should know about. Unless PF are ready to proceed to the aircraft at that same moment, do not delay the Cabin Crew from proceeding to the aircraft ahead of PF.
Getting to know each other and team building can just as easily be achieved on-board during the Crew Briefing as detailed in 8.3.15. Cabin Safety Requirements. Delaying the crew in getting to the aircraft early delays them in starting their preparations for passenger boarding. Bearing in mind the above, when a bus is required to transport the Crew to the aircraft, the whole crew should attempt, to the maximum extent possible, to proceed together in order to avoid extra transport charges which are applicable for each bus used. All the same, OTP remains the primary objective to perfect, so under no circumstances shall a departure delay be acceptable due to late arriving crew. It is preferable to take an extra bus transport charge then to cause a departure delay.
6. **Do not get lost during long transits**
There is a tendency from some crews who have a long transit time between flights to disappear for personal errands such as duty free etc. Under no circumstances should this be allowed to impact OTP. If total transit time is greater than 60 minutes, commence boarding a minimum of STD -30 minutes (refer to 8.8).
7. **Control Cleaners**
If you find the cleaners slow completing their tasks, take control and expedite them. They should not be allowed to delay the aircraft.
8. **Tankering must be done at the expenses of an on time departure**
Company policy prohibits taking a delay due to tankering. Passenger perception is focused on on-time departures and any departure delay affects our on-time reputation, which we must protect. Delays are not acceptable if the reason for taking extra fuel is purely tankering.
9. **Prior to requesting new flight paperwork, confirm the requirement**
The OFP, TLR and Load sheet have built in variables that allow for considerable variations in actual conditions that minimizes the necessity for new reports.
Certain changes to flight details are acceptable using with the same OFP as detailed in 8.1.10. Operational Flight Plan.
Do not rush to generate a new load sheet for small weight change, consider LMC option first. Do not give printer problems more than 5 minutes of troubleshooting, request the backup printer or send your documents to the station/operations office for printing. Report the issue after the flight.
If you request new flight plan, do not wait the hardcopy, print it onboard.
10. **Do not sign the load sheet until all passengers are on board and settled**
Only once the “All on Board” message is delivered and all passengers are settled the Captain should then sign the Load sheet and note his staff number.
11. **Do not sign the Aircraft Technical Log (ATL) until all fueling and engineering works have been completed**
To avoid duplication of work if a technical problem arises, do not sign the technical log until all technical work is done.

12. **Use the secondary flight plan pages to prepare the return flight**
    During arrival preparations, and especially if arriving late, the secondary flight plan can be prepared for the return flight and then stored as a SECONDARY F-PLN in the DATA INDEX
    /PILOTS ROUTES page and then kept as is or instead re-used to prepare a diversion / alternate routing or for expected runway changes at landing. If re-used, recall that stored flight plans do not retain certain revisions (see FCOM DSC-22_20-60-60 'Pilots / Stored Route Functions').
13. **Before arrival inform the arriving station's GHA about the requirement for wheel chairs / high loaders, GPU etc.**
    To reduce turn-around delays, early on, before arrival, use the radio to inform the arriving station about specific handling instructions
14. **Clearly indicate delay reasons on the Journey Log**
    Detailed Flight Crew reports are essential for robust delay monitoring and analysis, and in order for operations management to apply the right corrective actions to eliminate delays. Always write down the cause of Departure and Arrival delays in the remarks column of the Journey Log or in a Voyage Report giving clear explanations.
    When an arrival delay is due to en-route circumstances such as extended holding due to ATC restrictions or other, this should be clearly explained in the Journey Log.
    If an arrival delay is due to insufficient Block time compared to Flight time, this should be highlighted and reported immediately after flight. Ensure that the extended flight time was not caused by unforeseen en-route delays, and if so, explain that separately.
15. **In case of in-bound delays, reduce turn-around time to pick up the rotation schedule**
    If an in-bound delay is experienced, and in order to pick up the rotation schedule, every effort should be made to turn-around within 40 minutes regardless of the allocated turn-around time. For those stations that have been allocated a scheduled turn-around time less than 40 minutes, the allocated time shall be respected as given. Recall that most of the competitors turn-around within 25 minutes as a standard, so 40 minutes is generous and achievable.
16. **For headcount problems, delegate the responsibility to the stations**
    In case of discrepancies in headcount between the GD, passenger manifest and the actual passengers onboard, ask the stations personnel to find the source of discrepancy and account for it in the flight documents. Do not keep recounting many times. It is the responsibility of the stations.
    Note that you can write down extra passenger names or scratch it off the paper using a pen. You do not have to re-print the passenger manifest.
17. **Over fueling concerns**
    In case of mistaken fuel loading (Over fueling) and as long as it does not affect your maximum structural weights, make defueling your last choice.

8.12 Electronic Flight Bag (EFB)

8.12.1 Abbreviations

AFM	Airplane Flight Manual
AC	Air Circular
CM1	Crewmember 1 – Left Hand Seat Pilot
CM2	Crewmember 2 – Right Hand Seat Pilot
EDFO	Executive Director Flight Operations
EFB	Electronic Flight Bag
EMI	Electro-Magnetic Interference Test
EQRH	Electronic Quick Reference Handbook
FAA	Federal Aviation Authority
FCOM	Flight Crew Operating Manual
FCTM	Flight Crew Training Manual
FO	First Officer
FODM	Flight Operations Documentation Manager
Flight Dispatcher	Flight Operation Officer
ECAA	Egyptian Civil Aviation Authority
GOM	General Operation Manual
IOE	Initial Operating Experience
JDM	Jeppesen Distribution Manager
MDM	Mobile Device Management
MEL	Minimum Equipment List
NA	Not Applicable
OCC	Operations Control Center
OLB	Operations Library Browser
OPS	Operations
PAAdmin	Performance Application Administrator
POI	Principle Operation Inspector
RD	Rapid Decompression
TOC	Top of Climb
TOD	Top of Descent
W&B	Weight and Balance
XML	extensible Mark-up Language

8.12.2 Definitions

A. Airworthiness of iPad

1) Hardware Status:

Screen, frames, buttons, connection ports are in good condition.

2) Software Status:

All applications are current and up to date per company policy, and / or comply with the EFB failure procedures.

B. Critical Phases of the flight:

Flight phases below 10,000 ft. AGL (not including cruise flights), Takeoffs, Landings, Taxi procedures and all parts of the flight operation considered as critical or require high workload by the flight crewmembers.

C. Class II:

IPad Class II EFB is portable, commercial off-the-shelf (COTS) device. Class II EFBs are not mounted to the aircraft, connected to aircraft systems for data and can be temporarily connected to an existing aircraft power supply for battery recharging.

Class II EFBs that have Type B applications for aeronautical charts, approach charts must be appropriately secured and viewable during critical phases of flight and must not interfere with flight control movement.

Note: Portable Class II EFB components are not considered to be part of aircraft type design (i.e., not in the aircraft type certificate (TC) or Supplemental Type Certificate (STC)).

D. Secured

The iPad is secured on the Holder.

The holder is secured in an existing provision with the intended function to hold charts (chart clip on each sliding window).

E. Stowed

The iPad is stowed at the proper place.

CM1 stows the iPad on the left side operation manual stowage. CM2 stows the iPad on the right-side operation manual stowage.

The iPad should be in standby or turned off mode to reserve the battery.

F. Type A:

Type A applications are those applications intended for use on the ground or during noncritical phases of flight when pilot workload is reduced. EAC 121-15, lists examples of Type A applications is in shown 8.12.5 Software Description.

Malfunction of a Type An application must be limited to a “minor failure effect” classification for all flight phases and have no adverse effect on the completion of a flight operation.

1) Type A applications for aeronautical charts are applications that require all aeronautical charts pertinent to the flight to be printed prior to departure of the flight.

2) Type A applications for Weight and Balance (W&B) are applications that present existing information found in the applicable Aircraft Flight Manual (AFM). Type a W&B applications may accomplish basic mathematics but must not use algorithms to calculate results. Type a W&B applications must retrieve and apply existing published information.

3) Type A applications for aircraft performance are applications that present existing information found in the applicable AFM or PEP/POH. Type an applications for performance may be software applications that retrieve and apply existing published information. Type A performance applications must not use algorithms to calculate results.

G. Type B:

Type B applications are applications that are intended for use during critical phases of flight or have software and/or algorithms that must be provided by an acknowledged service provider or tested for accuracy and reliability. EAC 121-15, Appendix 2 may be referred to for examples of Type B applications.

1) Type B aeronautical chart applications are applications that display aeronautical charts in electronic format. These applications must be available for use during all phases of flight. These applications do not require paper printing of aeronautical charts and the viewable electronic format allows chart manipulation.
2) Type B ECL: Not Applicable.
3) Type B W&B applications are applications with algorithms to calculate W&B results. Type B W&B applications are produced for a specific aircraft and, therefore, must be tested and proven accurate by the applicant.
4) Type B aircraft performance applications are performance applications with algorithms to calculate performance results. Type B aircraft performance applications are produced for a specific aircraft and, therefore, must be tested and proven accurate by the applicant.
5) Electronic checklists, including normal, abnormal, and emergency.

H. Viewable:

1) The iPad is powered ON,
2) The appropriate chart is displayed,
3) The iPad brightness is appropriate.

I. EFB Release:

A version of EFB that includes performance data, weight and balance data, new manuals or any other data related to EFB applications (i.e. forms, aeronautical charts, logs, checklists, performance calculations, etc.). New releases are synchronized with the onboard devices through servers or any means provided by the application's vendor.

Definitions

Fly Smart with Airbus: it is Airbus primary interface for EFB concept. It includes five basic modules and subject to further development as part of the manufacturer strategy. The five modules are takeoff, landing, Load sheet, and documentation and inflight performance.
Fly Smart In-flight Performance: the application of Fly Smart with Airbus suite that calculates the in-flight performance. It includes five sub-modules; climb, cruise, flight planning, one- engine descent, holding and atmospheric conversion tables. This application contains all the data contained in the in-flight performance tables inside the QRH.
Fly Smart Gateway: the interface for uploading EFB releases on the server.
PEP: the official Performance Engineering Program from Airbus. It contains the performance database of the aircraft and its basic operational characteristics.
PA Admin: The PA Admin tool is used to process the aircraft/airports raw data obtained from accredited sources to establish the required setup of the fly Smart interface.
PA Admin requires PEP and Aircraft balance and service files as a prerequisite along with the Gateway as an interface to publish the data.

LTS: load sheet software. The Airbus software used for load sheet generation.
FODM: Flight Operations Documentation Manager. The document production and customization tool provided by Airbus.
PPS crew Briefing: PPS is the official flight plan application. Crew Briefing holds all the Data generated by the OCC and makes them available for offline retrieval.
EQRH: Electronic QRH. The application provided by the manufacturer that provides electronic checklists including normal, abnormal and emergency procedures.

8.12.3 Control and responsibilities

1) **Chief Pilot** responsible for ensuring that all Electronic Flight Bag contents comply with approved procedures. Chief Pilot has the authority to establish and modify the Electronic Flight Bag Program. He is responsible to ensure that the Electronic Flight Bag contents comply with the approved procedures.
2) Training department is responsible for the EFB training program.
3) Flight Dispatcher are responsible to update and keep the airworthiness of the back-up iPad.
4) Fly Smart with Airbus administrator
   – Managing iPads users
   – Managing iPads users profile.
   – Importing data loads from applications administration tool.
   – Creating dedicated iPad releases
   – Having overview of iPad configuration (performance and ops library data installed)
   – Delegating Gateway administration to IT personnel
   – Creating monthly reports during evaluation period
   – Customize the performance applications as per Nesma Airlines policies.
   – Will take Documentation administration responsibility in case of no assigned personal as per his qualification.
5) Documentation Administrator is responsible for:
   – Customize (modify or add to) the content of the manuals
   – Generation of Fly Smart with Airbus compatible document files (*.OLB file)
   – Provide document files to the Fly Smart with Airbus Administrator
   – Administer and manage the safetycloud-based document management in a way that ensures the latest controlled copies of the manuals are uploaded to the cloud.
   – Generation and customization of Fly Smart EQRH package.
6) JDM administrator
   – Manage iPad user accounts for JDM
   – Manage Jeppesen charts updates
   – Manage, update, distribute and control the following company manuals through JDM administration tool:
     1. JEPPESEN Airway text Manual covering the applicable area of operations
     2. OM-A Vol 1
     3. CMEL
     4. Company Security manual
        – Ensure up-to-date devices onboard
        – Report to the Chief pilot the status of operation

7) EFB Administrator
   – The EFB Administrator works as the link between administrators (Fly Smart administrator, Documentation administrator), JDM administrator, Chief Pilot and End users.
   – He manages/delegates the Fly smart Gateway to Manage iPads users, Manage iPads users profile, import data loads from applications administration tool (FODM, PERFO administration tool), Create dedicated iPad releases, and have overview of iPad configuration (performance and ops library data installed).

8.12.4 EFB Hardware

1) IPad Air 2 and iPad Pro are selected as a COTS device to serve Nesma Airlines for EFB Class I and Class II.
2) It will be strictly used for EFB purposes, and it will include the list of the approved Apps and application mentioned in the EFB package.

A. iPad Hardware Description Template

The template below has been provided to facilitate the documentation of these components.

a) Aircraft Owner or Applicant's Name: **Nesma Airlines**
b) Aircraft Make/Model: **Airbus family**
c) Operating Rule: **ECAA121**
d) Manufacturer/Model: **Apple/ iPadAir2/iPad Pro**
e) The following major components are included with this make/model of EFB: Technical specifications for iPad are clarified in the next table.

iPad Air		**iPad Pro**	
Model	A1430	**Model**	A2435
Processor	A8X chip with 64-bit architecture	**Processor**	Apple M2 chip 8-core CPU with 4 performance cores and 4 efficiency cores
Display	▪ Retina display ▪ 9.7-inch (diagonal) LED-backlit Multi-Touch display with IPS technology ▪ 2048-by-1536-pixel resolution at 264 ppi ▪ Fingerprint-resistant oleo phobic coating ▪ Fully laminated display Antireflective coating	**Display**	Liquid Retina display 11-inch (diagonal) LED backlit Multi-Touch display with IPS technology 2388-by-1668-pixel resolution at 264 pixels per inch (ppi) ProMotion technology Wide color display (P3) True Tone display Fingerprint-resistant oleophobic coating Fully laminated display Antireflective coating
Hard Drive	16-32-64GB	**Hard Drive**	128-256GB
Connection	- Wi-Fi (802.11a/b/g/n/ac); dual band (2.4GHz and 5GHz); HT80 with MIMO - Bluetooth 4.2 technology UMTS/HSPA/HSPA+/DC-HSDPA (850,900,	**Connection**	Wi-Fi + Cellular models Wi-Fi 6E (802.11ax) with 2x2 MIMO; speeds up to 2.4 Gbps4 Simultaneous dual band Bluetooth 5.3

	1700/2100,1900, 2100 MHz); GSM/EDGE (850, 900, 1800, 1900 MHz)		5G (sub-6 GHz) with 4x4 MIMO Gigabit LTE with 4x4 MIMO and LAA GPS/GNSS, Cellular
Weight	444 grams	**Weight**	468 grams
Battery	Built-in rechargeable lithium-polymer battery	**Battery**	Built-in 28.65-watt-hour rechargeable lithium-polymer battery
Operating System	Apple iOS	**Operating System**	Apple iOS
Classification	Class II	**Classification**	Class I
Power Supply	▪ Up to 10 hours of surfing the web on Wi-Fi, watching video, or listening to music ▪ Up to 9 hours of surfing the web using cellular data network ▪ Charging via power adapter or USB to computer system		

B. EFB Holder

Nesma Airlines may provide portable holder to secure the iPads during critical phase of flight for using type B EFB applications. The holder is secured in an existing provision with the intended function to hold charts (chart clip on each sliding window). The used holder shall satisfy the following:

1) The holder is secured during the critical phase of the flights.
2) The holder must be viewable during the critical phases of the flights, if the Jeppesen FD PRO is in use.
3) The holder is not permanently attached to the airplane and it is part of the pilot flight kit, therefore no need for ICA, STC, or any other kind of certification.
4) The holder is found in compliance with the rules and regulations stated in the EAC 121-15

C. Printer

Wireless printer shall be provided onboard for Load sheet printing, stowed and secured in cabin and used only in ground. It shall not be stored or opened in the cockpit during any phase of flight.

D. iPads Serial Numbers:

SN	SU-NMG	SU-NML	SU-NMR
1	DMPR451MG5WR	RG7245FVMR	JQMTCD7KN9
2	K7RQQ27TKG	L2Y4JYL4RC	CX9GJX9N9T
3	XPQOH7H6NX	DMPQG6V5G5WQ	Q6TX7016TM

8.12.5 Software Description

8.12.5.1 Scope

Nesma airlines are approved for type A and type B EFB operations.
These five modules are the takeoff, landing, Load sheet, documentation and weather modules.
The following list of applications shall be used as a part of EFB Class II on board Nesma airlines aircraft:

Application	Type
Jeppesen FD PRO	B
FlySmart AIB Manager	B
FlySmart AIB Load sheet	A
FlySmart AIB Takeoff	A
FlySmart inflight performance	A & B
FlySmart AIB Landing	A
FlySmart AIB OLB	B
Adobe Products	A
PPS Crew Briefing	A & B
EQRH	B

8.12.5.2 Flysmart Server

It's the responsibility of Nesma Airlines to maintain connections to servers and archive EFB releases. In that realm, Nesma Airlines shall provide at least one server and ensure its reliability and robustness.
Database used shall be in accordance with Fly Smart with Airbus technical instructions.
Fly Smart server shall host the Fly Smart Gateway application, on which the new EFB releases are uploaded. Fly Smart Gateway allows the creation of user profiles, management of fleet and documents. It also allows the tracking of registered devices and status of updates.

8.12.5.3 Jeppesen Distribution Manager (JDM PRO)

Nesma Airlines use the JDM pro administration tool provided by Jeppesen as a part of the service, which provide a full control of the JEPPESEN FD PRO Application including both contents and users control in accordance with JDM PRO online user guide in accordance with Nesma Airlines operational and quality requirements (ref 8.1.12. Onboard Library, 8.12.6.4 Process of the Jeppesen FD Pro update and new revision and 8.12.15.4 Jeppesen FD Update Control)

8.12.6 EFB Processes

8.12.6.1 Process of PA Admin Setup

1) Adding Aircraft Data;
   a) Open PA Admin.
   b) Click on "ADD AIRCRAFT" icon.
   c) Select the company database which is already implemented in the PEP.

Ref: PPM, PERF APPLI- ADMIN

2) Adding Airport Data;
   a) Download required airport(s) from contracted company provider.
   b) Filter the airports from unneeded obstacles if any.
   c) Check for unusual type of information such as an obstacle inside the clearway and so on.
   d) Import the downloaded airports in the airport manager.
   e) OCC manager is responsible for airport data provision as per OCDM 3.9.2

Ref: PPM, PERF APPLI- ADMIN

3) Import Weight & Balance Files and Data;
   a) Preparation of aircraft W&B data for manual calculations or for EFB W&B module is carried out in accordance with the procedures mentioned in OMA Ch. 8.1.8.
   b) This includes aircraft operational data, weighing report and establishment of DOW/DOI.
   c) All operational configuration, service type, crew configuration and other operationally- related weight issues should be carried out with the perspective reference.

Ref: PPM, PERF APPLI- ADMIN

4) PACKAGING DATA OR CREATING THE "LOAD";
   a) Package the data to create the load files.
   b) Zip the three load files.
   c) Send those three files to EFB Administrator to publish them to end users

8.12.6.2 Process of the Documentation

8.12.6.2.1 Airbus OLB Documents Distribution

1) The Documentation administrator gets the new manual.
2) The Documentation administrator imports new manual into FODM. Only the documentation administrator has the privilege to modify documents before delivering the EFB package if directed by the operations director.
3) Documentation administrator converts the files using FODM from XML format to OLB format.
4) The Documentation administrator notifies the EFB Administrator of the new update.
5) The Documentation Administrator publishes the new data the Gateway server.
6) The EFB Administrator notifies the Test Team (Technical Office Team).
7) The Test Team will report to the EFB Administrator of the result if any anomaly exists
8) If result is unsatisfactory, the EFB Administrators sends it back to Documentation Administrator.
9) If result is satisfactory, the EFB Administrator will publish the new data on the Main Server.
10) The EFB Administrator notifies Chief Pilot of the update.

11) Chief Pilot notifies End users of the new update or delegates the technical office team to notify end users
12) End users synchronize iPad with the FlySmart with Airbus Gateway.
13) The EFB Administrator will review End users update status (through the Gateway software) and forward any discrepancy to the Chief Pilot.

Note: outdated documents on the server shall not be used or reproduced. Documentation administrator ensures the currency of the documents on the server.

8.12.6.2.2 Cloud-Based Documents Distribution

1) After receiving the updated documents, documentation administrator uploads the new documents to the cloud.
2) The documentation administrator ensures that the newly uploaded documents are fully synchronized.
3) EFB administrator notifies Chief Pilot of the update
4) Chief Pilot notifies End users of the new update or delegates the technical office team to notify end users.
5) End users synchronize iPad with the cloud. Normally, automatic synchronization is turned on.

8.12.6.2.3 EQRH Package Update

1) The Documentation administrator gets the new manual.
2) The Documentation administrator imports new manual into FODM.
3) The Documentation administrator notifies the EFB Administrator of the new update.
4) The Documentation administrator creates the package using EQRH packager tool provided by the vendor of the application.
5) The Documentation administrator notifies Chief Pilot and EFB administrator through the update procedures mentioned in 15.1 Update Notification.
6) Chief Pilot notifies End users of the new update.
7) End users synchronize iPad with the Fly smart with Airbus Gateway.
8) The EFB Administrator will review End users update status (through the Gateway software) and forward any discrepancy to the Chief Pilot.

8.12.6.3 Process of the Performance and Load Sheet Update

1) The Performance Administrator generates and sends the data to the EFB Administrator.
2) The EFB Administrator validates/ Ensures traceability.
3) The EFB Administrator publishes new data on back-up server.
4) The EFB Administrator notifies the Test Team.
5) The Test team will report back to the EFB Administrator of the result.
6) If the result is unsatisfactory, the EFB Administrator sends it back to Documentation Administrator.
7) If result is satisfactory, the EFB Administrator will publish the new data on the Main Server.
8) The EFB Administrator advises Chief Pilot of the update.
9) Chief Pilot notifies end users of the update or delegates anyone from the EFB team to notify end users.
10) End users synchronize iPad with the Fly smart with Airbus Gateway.
11) The EFB Administrator will review end users update status (through the gateway software) and forward any discrepancy to the Chief pilot.

8.12.6.4 Process of the Jeppesen FD Pro Update and New Revision

1) Jeppesen sends the update directly to the application.
2) The terminal charts are updated as per provider.
3) The En-route charts will be updated as per provider.
4) Terrain and cultural data only updated with the application updates.
5) The JEPPESEN text Manuals (General, Europe, Eastern Europe, Africa and middle east/south Asia) are updated as per provider.
6) The EFB Administrator will verify the users are in configuration through the JDM software and forward any discrepancies to the Chief pilot.

8.12.6.5 Process of Updating FODM/Gateway/PEP Software

1) Airbus notifies Nesma Airlines
2) EFB Administrator will check the compatibility of the new (FODM/Gateway/PEP) update with other software:
   - Documentation Administrator: FODM Version
   - PAA Admin: PEP Version
   - IT: Servers Version
3) If the compatibility result is unsatisfactory, the EFB Administrator will evaluate the result and send it to the proper stakeholder.
4) If the compatibility result is satisfactory, the EFB Administrator notifies the
5) User to continue with the update.
6) The EFB Administrator will review End users update status through Gateway software and forward any discrepancy to the Chief pilot.

8.12.6.6 Process for updating PPS Crew Briefing data

1) Flight dispatchers create new flight plan data using the approved PPS software
2) Data is automatically synchronized on the application
3) User download the required files to be available offline
4) At least two iPads should be synchronized to have the required files available offline.

8.12.6.7 Process of changing hardware/software

1) In case that any change of hardware/software is required due various reasons, such as out of stock or stop the production line. The EFB Administrator will communicate with concerned personnel.
2) If the hardware/software requires any special approval documentation, the documentation must be received prior to change/replace/purchase
3) The new hardware/software.
4) The approval documentation must be forwarded to operations director, and then to ECAA for approval.

8.12.7 EFB Operations Procedures

8.12.7.1 General:

a) Task sharing and cross-checking data is mandatory to reduce the risk of erroneous inputs.
b) Whenever it says (Both), CM1 and CM2 shall do it on his own iPad.
c) Whenever it says (CM1 or CM2), conscientious crosschecking item by item of inserted data and results between the PIC and the SIC is required (both have same revision and version of applications). If any doubts exist regarding results both crewmembers shall do it.
d) In case of any discrepancy between EFB revisions, only the last approved revision shall be used.
e) Each aircraft shall be equipped with an approved iPad holder in the flight kit.
f) Each pilot is responsible to ensure the airworthiness of the iPad. For the first flight of the day, verify the iPad battery status – Minimum of 70%.
g) EQRH is part of Fly Smart installation and takes the same version number as the rest of Fly Smart applications.

8.12.7.2 Flight Preparation

IPad……………………………………………………………………………………..ON
AIB Manager……………………………………CHECK FLYSMART VERSION (Both)

<u>*To update data used by Fly smart with Airbus Applications for iPad, or when EFB version is out of date</u>

Server, Username, Password..Enter (Both)

Update All .... Select (Both)

*Once update is completed, the new EFB version appears on top

Jepp FD PRO…………………………………………………………………….Display (Both)
PPS CrewBriefing…………………………………………………………………Synchronized
*update data used by Jeppesen FD PRO application for iPad, or when new update is released:
Updates………………………………………………………………………….Select (Both)

8.12.7.3 Preliminary Cockpit Preparation:

a) EFB preparation
IPads……………………………………………………………………ON (Both)
IPad Holder…………………………………………………………………SECURED (Both)
Jepp FD PRO………………………………………………………………...PREPARE (Both)

- Setup the flight details (Departure, Arrival, Alternates)
- Insert the En-route details
- Select the proper terminal charts (REF, Co, STAR, APP, TAXI, SID)

Fly smart AIB (My Flight page) …………………………………………PREPARE (Both)

- Select the Aircraft Type
- Select the proper Aircraft Registration
- Clear previous flight setups
- Insert the Flight Number (e.g. NMA xxx)
- Select the Departure airport (FROM)
- Select the Arrival airport (TO)

PPS Crew Briefing…………………………………………DOWNLOAD DOCUMENTS

- Update list of flights
- Select flight
- Download required documents
- Make sure the downloaded sign is shown

b) MEL / CDL Items Check OLB DISPLAY (Both)
MEL/CDL Items…………………………………CHECK DISPATCH CONDITIONS (Both)

- check dispatch conditions

MEL/CDL Items…………………………………………………………………SELECT (Both)

- Selected MEL/CDL items are sent to the performance app

c) EQRH
CHECKLISTS…………………………………………………………RESET AND READY

8.12.7.4 Before Pushback or Start:

a) Load sheet Calculations (Load sheet not received from agent)

Actual Figures……………………………………………………………………...OBTAIN

Load sheet data…………………………………………………..PREPARE (CM1 or CM2)

- verify aircraft configuration
- Detailed Entry Mode
- Crew
- Catering
- Insert passenger loading instructions
- Insert Cargo loading instructions
- Insert Fuel On Board (FOB), Trip Fuel, and Taxi fuel details
- verify MEL item is properly selected

Final Loading………………………………COMPUTE (CM1 or CM2) & CROSSCHECK

- Crosscheck inputs and results
- Last minute change computation should be recomputed and crosschecked in accordance with company rules.

Load sheet………………………………………Export, Sign and Generate (CM1 or CM2)

- The Load sheet must be approved by the PIC
- PIC may insert information notes
- The Load sheet must be signed by the crew who checked it.

Load sheet Display……………………………………………………SEND (CM1or CM2)

***First option:**

- Select Print
- Fetch the Load sheet
- Send to the appropriate station Email to print

***Second option:**

- Select Print
- Select the printer
- Select the number of copies

b) Performance Calculations

Note:

1. Consider to do Load sheet Calculation when MANUAL Load sheet received from agent (to check it)

2. In case of failure of both options revert to manual load sheet and file a report to EFBreporting@nesmaairlines.com

Airfield Data………………………………………………………………OBTAIN (Both)

- both pilots listen to ATIS

T.O. Data…………………………………PREPARE & CHECK/REVISE (CM1 or CM2)

- Check and select the departure airport
- Select Runway in use, and modify the runway if required.
- Insert Airfield data (Wind, OAT, QNH, RWY COND)
- Check or insert TOW
- Check or insert T.O. thrust
- PIC select the Thrust setting
- Select Flap configuration for take off
- Air condition (ON or OFF)

- Select Anti Ice (ON or OFF)
- Verify proper MEL/CDL item is properly selected
- Set up All Engine Climb Gradient Parameters (Thrust reduction altitude, level-off altitude, gradient)

T.O. Performance……………………………COMPUTE (CM1 or CM2) & CROSSCHECK

- Last minute change: Takeoff computation should be recomputed and crosschecked in accordance with company rules.

Note 1: if takeoff weight limited by performance is less than the maximum structural takeoff weight, load sheet calculation shall be redone to update limiting weights.

Note 2: Takeoff performance calculates All Engine Climb Gradient (SID gradient). If the aircraft is not capable of achieving the required gradient, inform the ATC.

c) iPad

Airplane Mode…………………………………………………………………ON (Both)

- The transmitting capability of the iPad should be switched off.

d) Jepp FD PRO – Navigation chart

Terminal charts……………………………………………………………As required (Both)
Brightness…………………………………………………………………As required (Both)

- Night Theme is recommended during night operations.

e) PPS Crew Briefing

Flight Data……………………………………………………………………Downloaded (Both)

f) EQRH

Normal Checklist………………………………………………………………BEFORE START

8.12.7.5 Taxi

Terminal charts…………………………………………………………...…As required (Both)
IPads…………………………………………………………On, Secured, & Viewable (Both)

- Any changes to the calculations must be computed and crosschecked.
- The CM2 computes and updates FMGS
- The CM1 crosschecks.

8.12.7.6 Before Takeoff

Terminal charts……………………………………………………………As required (Both)
IPads……………………………………………………On, Secured, & Viewable (Both)

- Use appropriate brightness setting
- Use of power outlet in this phase is prohibited
- EQRH BEFORE TAKEOFF

8.12.7.7 Flight

Jepp FD PRO……………………………………………………………As required (Both)

- Jepp FD PRO En-route charts may be used IPads……………As required (Both)
- iPad may remain secured on the holder
- IPad should be charged during cruise in the documentation Stowage.
- iPad should be on Standby to reserve the battery

EQRH……………………………………………………………AFTER TAKEOFF/CLIMB
In-flight Performance………………………………………………WHEN REQUIRED

8.12.7.8 Approach and Landing

Airfield Data……………………………………………………………OBTAIN (Both)

- Both pilots listen to ATIS.

Landing Data…………………………………PREPARE & CHECK/REVISE (CM1 or CM2)

- Check or select proper arrival airport
- Insert runway in use, and modify it if required.
- Insert airfield data (Wind, OAT, QNH, RWY COND)
- Check or insert proper landing weight
- Check or select proper landing CG
- Select Landing configuration
- Select Air Condition (ON or OFF)
- Select Anti-Ice (ON or OFF)
- Select and insert APPR Type
- Select proper GA Gradient
- Insert Pilot
- Select Landing Technique
- Brake Mode
- Verify or select proper MEL/CDL/ECAM status.

Landing Performance…………………………COMPUTE (CM1 or CM2) & CROSSCHECK
EQRH……………………………………………………………………….APPROACH

- Compute if landing conditions have changed (i.e. runway or weather conditions or in-flight failures affecting performance)
- No preliminary landing performance was established before departure, for example, in case of diversion.

IPads……………………………………………………On, Secured, & Viewable (Both)

- IPad should be on, secured, and viewable during final approach.
- Use of the power outlet during landing is prohibited.

8.12.7.9 Taxi In

Terminal charts…………………………………………………………As required (Both)
EQRH……………………………………………………………………..AFTER LANDING
IPads……………………………………………………On, Secured, & Viewable (Both)

- Use appropriate brightness setting
- Use of power outlet is prohibited

8.12.7.10 Parking

IPad Airplane Mode……………………………………………………………OFF (Both)
EQRH……………………………………………………………….……PARKING
My Flight…………………………………………………………….……Display (Both)
Clear button…………………………………………………………Select (Both)

8.12.7.11 Securing the Aircraft:

EQRH…………………………………………………………SECURING THE AIRCRAFT
IPad…………………………………………………………………Remove (Both)

8.12.8 EFB Failure Procedures

General:

1) EFB Failure Procedures provide operational mitigation means related to EFB failures prior to dispatch. It also describes the subsequent failure with operational impact in flight and their associated impact on operations.
2) At least three iPads will be located at airport OCC to be used only as a backup.
3) A complete set consists of three iPads, at least two of them should be operative prior to takeoff, and otherwise it is a no-go item as per CMEL MI46-11-01.
4) Failure includes malfunctioning of the device and out-of-date dataset with no accessibility to update.
5) A Pilot Report (EFB) must be written and submitted when a failure condition is encountered – refer to EFB Reporting Procedures.

8.12.8.1 IPads:

1) A Minimum of two iPads must be operative before takeoff as per CMEL MI46-11-01.
2) A failure of **one or two** iPads when flying from Nesma Airlines base.

Consequence	Operational Procedure
Back up iPads are available at OCC office – updated and charged	The crew must check the backup iPad airworthiness The crew must sign the custody of the backup iPad and write the reason The crew must return the backup iPad to OCC The Flight Dispatcher must check the backup iPad airworthiness The Flight Dispatcher must sign the return of the backup iPad The Flight Dispatcher must send the form to Chief pilot Refer to failure procedures of the EQRH Application:

3) On Ground (outside Nesma Airlines base or after closing doors when flying from Nesma Airlines base) or In Flight: Failure of iPad on one (CM1 or CM2) side:

Consequence	Operational Procedure
Applications remain available on the other side	Status on operative iPad checked OK Battery life is sufficient for the remaining flight Use of backup iPad in lieu of the failed one

4) On Ground (outside Nesma Airlines base or after closing doors when flying from Nesma Airlines base): Failure of both iPads (CM1 & CM2 side):

Consequence	Operational Procedure
Electronic flight bag is not complied with Loss of iPads on both sides	Refer to CMEL MI 46-11-01

Documentation:

1) A Minimum of two Documentation sources should be available as per CMEL 46-11-01.
2) **On Ground or In Flight: Failure of Documentation on one (CM1 or CM2) side:**

Consequence	Operational Procedure
Loss of Documentation on one side	Documentation is available on the other side and backup iPad is ready. Replace broken iPad with the backup iPad

3) **On Ground or In Flight: Failure of Documentation on both (CM1 & CM2) sides:**

Consequence	Operational Procedure
Loss of Documentation on both sides	Refer to CMEL MI 46-11-01 Use Backup iPad

8.12.8.2 Takeoff Application:

1) **On Ground or In Flight (if needed): Failure of T.O. PERF on one (CM1 or CM2) side:**

Consequence	Operational Procedure
Loss of T.O. PERF on one side	T.O. PERF is available on the other side Use Backup iPad

2) **On Ground or In Flight (if needed): Failure of T.O. PERF on both (CM1 & CM2) sides:**

Consequence	Operational Procedure
Loss of T.O. PERF on two sides	Refer to CMEL MI 46-11-01 Use Backup iPad

8.12.8.3 In FLT LDG Application:

1) **On Ground or In Flight: Failure of IN-FLT LDG on one (CM1 or CM2) side:**

Consequence	Operational Procedure
Loss of IN-FLT PERF on one side	In-Flight PERF is available on the other side Use of Backup iPad

2) **On Ground or In Flight: Failure of IN-FLT LDG on both (CM1 & CM2) sides:**

Consequence	Operational Procedure
Loss of IN-FLT PERF on both sides	Refer to QRH

8.12.8.4 Load Sheet Application:

1) **On Ground: Failure of Load sheet on one (CM1 or CM2) side:**

Consequence	Operational Procedure
Loss of IN-FLT PERF on one side	In-Flight PERF is available on the other side Use of Backup iPad

2) **On Ground or In Flight: Failure of IN-FLT LDG on both (CM1 & CM2) sides:**

Consequence	Operational Procedure
Loss of IN-FLT PERF on both sides	Refer to QRH

8.12.8.5 Load Sheet Application:

1) **On Ground: Failure of Load sheet on one (CM1 or CM2) side:**

Consequence	Operational Procedure
Loss of Load sheet on one side	Load sheet is available on the other side Use Backup iPad

2) **On Ground: Failure of Load sheet on both (CM1 & CM2) sides:**

Consequence	Operational Procedure
Loss of Load sheet on both sides	Refer to CMEL MI 46-11-01 Use of Backup iPad Revert to Manual load sheet if outside Nesma Airlines Base

8.12.8.6 Jepp FD PRO Application:

1) **On Ground or In Flight: Failure of Jepp FD PRO on one (CM1 or CM2) side:**

Consequence	Operational Procedure
Loss of Jepp FD PRO on one side	The Jepp FD PRO is available on the other side Use Backup iPad

2) **On Ground or In Flight: Failure of Jepp FD PRO on both (CM1 & CM2) sides:**

Consequence	Operational Procedure
Loss of Jepp FD PRO on both sides	Refer to CMEL MI 46-11-01 Use Backup iPad on CM1 side

8.12.8.7 PPS Crew Briefing

1) **On Ground or In Flight: Failure of PPS Crew Briefing on one (CM1 or CM2) side:**

Consequence	Operational Procedure
Loss of PPS Crew Briefing on one side	Use Backup iPad and make sure PPS crew briefing documents are available on two devices Use Backup iPad

2) **On Ground or In Flight: Failure of PPS Crew Briefing on both (CM1 & CM2) sides:**

Consequence	Operational Procedure
Loss of PPS Crew Briefing on both sides	Revert to paper documents

8.12.8.8 EQRH Application

1) **On Ground: Failure of EQRH on one (CM1 or CM2) side:**

Consequence	Operational Procedure
Loss of EQRH on one side	EQRH is available on the other side Use Backup iPad Request paper copy of QRH as a backup.

2) **On Ground: Failure of EQRH on both (CM1 & CM2) sides:**

Consequence	Operational Procedure
Loss of EQRH on both sides	Refer to CMEL MI 46-11-01 Use of Backup iPad Revert to paper copy of QRH if available

8.12.8.9 In-Flight Performance Application

1) **On Ground: Failure of in-flight performance on one (CM1 or CM2) side:**

Consequence	Operational Procedure
Loss of in-flight performance on one side	The app shall be available on the other side Backup iPad should be functional

2) **On Ground: Failure of EQRH on both (CM1 & CM2) sides:**

Consequence	Operational Procedure
Loss of in-flight performance on both sides	Refer to CMEL MI 46-11-01 Use of Backup iPad Revert to paper copy of QRH if available

8.12.8.10 Gateway

Gateway including all releases uploaded on the server shall be backed up on daily basis as per IT manual to avoid any unrecoverable failure.

8.12.9 EFB Maintenance Program

A. EFB Maintenance Program

1) All anomaly reports will be recorded and maintained by Operations Technical Office.
2) All actions taken will be recorded and maintained by Operations Technical Office.

B. Scheduled maintenance:

1) The EFB administrator has the authority to conduct/delegate the scheduled maintenance actions.
2) The scheduled maintenance program must be accomplished once every 12 Calendar Months.
3) Check will be conducted according to the below checklist.

EFB Maintenance Form		
IPad ID:	**A/C:**	**Date:**
Item	**☐S**	**☐US**
iPad Hardware		
Check Hardware status	☐	☐
Screen condition and touch screen response	☐	☐
Buttons and clicks	☐	☐
Others (Comments).		
iPad Software		
iPad updates	☐	☐
Non EFB apps (specify).		
EFB applications		
Check manuals and documents.	☐	☐
Any items recommended by Authority.	☐	☐
Any items recommended by manufacture or software providers.	☐	☐
Battery		
The battery should be fully drained.	☐	☐
IPad battery will require a 6- hour capacity check.	☐	☐
The battery (or device) will require replacement every 2 to 3 years, subject to the battery 6- hour capacity check.	☐	☐
If the device cannot sustain power through 6 hours of normal use, the battery (or iPad) will be replaced.	☐	☐
Check completed by:	**Date:**	**Signature:**

C. Un-scheduled maintenance:

1) Operations Technical Office Publishes a bulletin to conduct any unscheduled maintenance.

8.12.10 Reporting Procedures

a) **The pilot must submit the pilot Report (EFB) <u>within 24 hours</u> from Sign Off.**

b) **EFB Reporting System - Pilot:**

1. The pilot can submit the pilot Report (EFB) by the following:
    a) <u>Electronically:</u> The pilot should submit email to the EFBreporting@nesmaairlines.com.
    b) <u>Manually:</u> If the report is too long or the pilot cannot submit the report electronically, the pilot can submit the report by handwriting in the flight folder or by hand to the Chief pilot.

c) **When to write, and submit a pilot Report (EFB):**

1) Whenever a failure condition is encountered – refer to EFB Failure Procedures.
2) In case of inability to comply with the revision procedures – refer to EFB Revisions Procedures.
3) In case of problems associated with the iPad hardware, such as damages or screen brightness, etc.
4) In case of problems associated with the iPad software, such as viruses or crashes, etc.
5) In case of any safety hazards associated with EFB program.
6) Whenever a hardcopy is used instead of the applications provided.
7) Any missing Data. Such as, airport missing in the Jepp FD-PRO application or a runway is not in database of the Fly smart, etc.
8) Whenever a Back-up iPad is used instead of the assigned iPad.
9) Whenever a trouble shoot is accomplished by the end user – refer to the EFB Training Program iPad.
10) Any recommendations the end users believe that it will improve the EFB program and Nesma Airlines operations.

b) **Operations Technical Office Duties:**

1) Operations Technical Office will evaluate the problem and communicate the anomaly with the appropriate departments:
    a. Software issues with the software providers,
    b. Airplane manuals issues with the publication department,
    c. Company manuals issues as needed,
    d. Jepp FD-PRO with Jeppesen,
    e. Takeoff charts (runway analysis)
    f. Hardware issues with IT,
    g. Safety Hazards with Safety department,
    h. Others as appropriate.
2) Operations Technical Office will fill out the corrective action regarding EFB reported issues.

If required: Operations Technical Office will publish a bulletin to End users to avoid similar problems in the future.

8.12.11 EFB Training Procedures

a) EFB Training Program - Users:

1) Initial New Hire Pilots

a. Airbus Presentations (Self Study)

i. My Flight

1. Performance Module Management
   - a. Select aircraft
   - b. Select Weight variant
   - c. Enter a Flight Number
   - d. Select Airports – Departure and destination
   - e. Start Performance application
2. Link the Performance Modules
   - a. Integration among EFB Modules i.e. Load sheet, Takeoff, Landing and OLB Modules
3. Update EFB data
   - a. Airbus Manager
   - b. Account Setting
     - i. SERVER
     - ii. USERNAME
     - iii. PASSWORD
   - c. Update
     - i. Performance Takeoff User Module
       - 1) Introduction
       - 2) User interface – Input data
       - 3) User Interface – Output data
       - 4) Exercises
     - **ii. Performance Landing User Module**
       - 1. Introduction
       - 2. User interface – Dispatch (if applicable)
       - 3. User Interface – In-Flight (if applicable. Note: at least one landing interface should be available)
       - 4. Practice
     - **iii. Load sheet User Module**
       - 1. Introduction
       - 2. Flight Configuration
       - 3. Entry Modes
         - a. Detailed Mode
         - b. Detailed - DOW/DOI Mode
         - c. Reduced Mode
       - 4. Passengers, Cargo and Fuel Distribution
       - 5. Changing Fuel Density

b) Nesma Airlines Classroom – Hand on experience 03:00 hrs.

i. iPad 00:10 mins

1) How to operate the iPad.

ii. AIB Manager 00:05 mins

1) Verify the correct version of EFB.
2) If not, update EFB.

iii. Takeoff User Module 00:25 mins

1) Select My Flight and enter:
   a. Aircraft Type
   b. Aircraft Registration
   c. Flight Number
   d. From and To Airports
2) Select Takeoff Module and verify correct Tail Number
   a. Select Departure Runway, if there is a NOTAM, modify the runway length and, if required, one obstacle can be entered through "Modify Runway option".
   b. Enter Wind:
      i. Absolute or
      ii. Relative
   c. Enter OAT
   d. Enter QNH
   e. Enter Runway Condition
   f. Enter Actual Takeoff Weight (this normally comes from Load sheet module)
   g. Enter T.O. CG in %MAC (this also normally comes from
   h. Load sheet module)
   i. Select T.O. Configuration (CONF 1+F is Standard choice)
   j. Air Cond "ON" is standard Selection but can be changed
   k. Select A-ICE ON or OFF
   l. MEL/CDL can be selected. However, OLB is the correct module to select desired MEL
   m. COMPUTE
   n. On "RESULT" page select Thrust:
      i. TOGA
      ii. Maximum FLEX or
      iii. Conservative FLEX, a few degrees lower than the MAX FLEX
      iv. Then three pages of output values are displayed.
      v. First page gives V1range/Vr/V2, limitations, ENG OUT ACC, Green DOT, Reversers for computation, MTOW (Performance Limit) and Accelerate Stop Distances for Minimum and Maximum V1.
      vi. Second Page displays FMC CDU Takeoff Page
      vii. Third Page Displays Maximum and Minimum Altitudes.

iv. Landing User Module **00:20 mins**

1. Select Landing Module – In-Flight Landing is the default sub module
2. Verify correct aircraft Tail number
3. Enter Landing Runway in use
4. Modify the Runway length, if desired
5. Enter Wind
6. Enter OAT
7. Enter QNH
8. Enter Runway Condition as per Runway Condition Assessment Matrix (RCAM)
9. Enter Landing Weight (this normally is forwarded from the load
10. sheet Module)
11. Enter Landing CG(this normally is forwarded from the load sheet Module)
12. Select Landing Configuration (CONF FULL is standard DEFAULT
13. value)
14. Select AIR COND ON or OFF (AIR COND ON is standard DEFAULT value)
15. Select A-ICE ON or OFF as applicable
16. Verify APPR TYPE is NORMAL
17. Standard GA Gradient is 2.1%. If required it may be increased.
18. Add Pilot if desired
19. Select LDG TECH:
    - **a.** MAN- A/THR OFF
    - **b.** MAN- A/THR ON
    - **c.** Auto land (not to be used)
20. Select BRK MODE. Auto Brake LOW is standard.
21. Select the option for Reverser. Yes or No.
22. If the MEL was selected in OLB, it will automatically be carried to Landing Module. Otherwise, select the MEL/CDL manually
23. Select In Flight Failure(s) in ECAM Icon.
24. Select COMPUTE to run In Flight computations.
25. The result variables are displayed on 2 pages.
    - **a.** Page 1 gives:
        - **i.** MLW (PERF Limit)
        - **ii.** VAPP
        - **iii.** Landing Distance (LD)
        - **iv.** Factored LD (FLD) and
        - **v.** Margin with FLD
    - **b.** Page 2 gives:
        - **i.** LIMITATION Code
        - **ii.** Go Around Gradient
        - **iii.** VAPP Calculation and
        - **iv.** In Operative Systems in case of In Flight Failure (s)

v. Load sheet User Module 00:25 mins

1. Select Load sheet module
2. Verify correct aircraft tail number
3. Select Entry Mode
   a. Detailed (Standard)
   b. Reduced (Not Applicable for Nesma Airlines)
   c. Detailed (DOW/CG input)
4. Select Crew Compliment from the given catalogue. Standard value is 2 pilot s and 4 cabin Crew
5. Verify Catering
6. Select Passengers and distribute them in cabin Zones OA, OB and OC
7. Select Cargo/Baggage and distribute it in cargo compartments CP1,
8. CP3, CP4 and CP5
9. Verify Fuel Onboard
10. Enter trip fuel
11. Verify Taxi Fuel. Default value is 500 kg but it can be changed
12. Verify Fuel Density. Default value is 0.785 kg/l but it can be changed. Note: Fuel density has no effect on computations rather than changing the fuel vector for balance calculations. A change in fuel density will affect the total fuel weight that can be carried in the fuel tanks.
13. Touch COMPUTE to start the calculations.
    a. If all the parameter are within Takeoff Weight/CG envelope, results will be displayed as follows:
       i. On page 1 of the results:
          1. A message of under load/overload will be displayed on top of the Weight/CG Envelope.
          2. Below the Weight/CG Envelope are displayed:
             a. DOW/DOCG, Payload, ZFW/ZFWCG,T.O. Fuel, TOW/TOCG, Trip Fuel ,LW/LCG and THS
             b. Above Under load message on the right hand side of heading Results an ICON appears for Export. The option EXPORT is used to generate, sign and print or email the Load sheet to Flight Operation Performance Engineering to save the load sheet for future reference.
       ii. On page 2 of the results:
          1. Tank-wise fuel distribution diagram is shown.
          2. Below fuel diagram is given the breakdown of passengers and cargo with distribution in cabin zones and cargo compartments respectively.

vi. Fly smart OLB Application 00:10 mins

1. Select OLB
2. Verify correct Tail Number of the aircraft
3. The following list of manuals will be displayed:
   a. Flight Crew Operating Manual (FCOM)
   b. Minimum Equipment list (MEL)
   c. Quick Reference Handbook (QRH)
   d. Aircraft Flight Manual (AFM)
   e. Cabin Crew Operating Manual (CCOM)
   f. Flight Crew Training Manual (FCTM)
   g. Weight and Balance Manual (WBM)
   h. Any other documents in PDF format that should be part of the onboard library.
4. Select and browse the appropriate manual
5. Procedure for inserting an MEL:
   a) Select the arrow against the MEL
   b) Select MEL Entries
   c) Select the ATA chapter to which the MEL is related to e.g. chapter 27 – Flight Controls
   d) Select the MEL Entry E.g. F/CTL GND SPLR FAULT
   e) Select the applicable Condition of Dispatch e.g. Item 27-92- 02 Ground Spoiler Control System
   f) MEL Items will be displayed which will inform whether the
   g) Item is GO or NOGO along with applicable Maintenance or/ and Operation procedure.
   h) Tick the Square Box on the left side of 27-92-02 Ground Spoiler Control System
      i) The selected MEL will be incorporated in Takeoff and Landing modules automatically.

vii. Jepp FD Pro Application 00:30 mins

1. Introduction
2. Operations
3. How to use:
   a. Terminal Charts
   b. En-route charts

viii. EFB Operation/EFB Failure Procedures **00:20 mins**

1. EFB Applications
2. Revision/Upgrade Procedures
3. EFB Operation Procedures
4. EFB Failure Procedures
5. EFB Reporting Procedures
6. EFB Checklist

2) Transition Training

It follows the same Training Curriculum as Initial New Hire.

3) Upgrade Training

- **a.** Revision – Takeoff, Landing, load sheet and OLB Modules **as required** EFB Operation/EFB Failure Procedures
- **b.** (as per GOM Vol. 1 Chapter 11) **20 mins**
  - **i.** EFB Applications
  - **ii.** Revision/Upgrade Procedures
  - **iii.** EFB Operation Procedures
  - **iv.** EFB Failure Procedures
  - **v.** EFB Reporting Procedures
  - **vi.** EFB Checklist

4) Recurrent Training

It follows the same Training Curriculum as Upgrade Training.

- **a.** EFB Training Program – EFB Administrator/ Administrators
  1. iPad Configuration
  2. Fly smart
     - **a)** Performance: The administrator will be trained as per Airbus Performance Administration Course
     - **b)** Documentation: the administrator will be trained as per Airbus Gateway Course
  3. Jeppesen charts
     - **a.** How to administrate the JDM software
     - **b.** How to administrate the Jepp FD-PRO application
  4. Adobe Acrobat
     - **a.** How to use and administrate electronic forms
     - **b.** How to send electronic forms

8.12.11.1 EFB Training Program - iPad

A. iPad General:

1. IPad shall be used for EFB only.
2. Prior to pushback or engine start until the end of flight: the iPad must be on Airplane Mode.

B. Hardware: Solar Mitigation:

1. The iPad operates properly within a specified temperature range. The device features **an automatic shut-down in the event the device temperature is outside the range**. In the event of a shutdown, allow the iPad to change temperature until it is back in the required range. The iPad is a low power-consumptive device, and its operation does not generate heat that would result in a shutdown. The primary cause of shutdown is an effect called "solar gain," or heat generated within the device as a result of solar energy absorbed through the display. Anecdotal evidence suggests that glare shield design with inherent UV protection may protect against this effect.
2. When the sunlight is in direct contact with the iPad, the crew should attempt to prevent a shut-down by using the window shades such that the sun is not aimed directly to the iPad. Or during non-critical phases of the flights, consider stowing iPads.
3. If an EFB user experiences an unexpected automatic shutdown, the user must report it immediately as per the EFB Reporting Procedure. Provide details such as phase of flight, lighting conditions, and environmental temperature.

C. iPad Battery:

1. The iPad will have a 12 month ops check and a 2-3-year battery life limit consistent with the procedures established with other the Class II tablet device EFBs in use.
2. iPad battery must be at least 50% or more prior to the first flight of the day
3. Ensure the following are turned off to enhance the battery life:
   a. The cellular 3G/4G/ Bluetooth/ Wi-Fi connectivity
   b. Fly smart apps when not in use
   c. Location services should be reduced to minimum
   d. Other apps or functions that can drain battery's life. (I.e. Internet browsing, reading, photos, videos, etc.)
4. The device brightness may be adjusted as needed; however, a lower setting (if appropriate) can reserve the battery's energy.
5. The use of a portable back-up battery will allow the device to be charged in flight or provide supplemental power if needed (without ships power). If a portable battery is to be used force charging, it must also be tracked and on a suitable life-limit schedule. This portable battery shall not be charged while in flight, only on ground.
6. If desired, the use of ship power via a standard 110V AC cockpit outlet is authorized provided that Apple authorized accessories are used. If ships charging is not used, then either a charged spare external battery or a third approved source of chart data must be available for any Type B application.
7. IPad has an internal rechargeable battery. The battery icon in the upper right corner of the status bar shows the battery level or charging status.
8. The best way to charge the iPad battery is
   a. To connect iPad to a power outlet using the 10W USB power adapter.

- **b.** Connecting iPad to the USB connector of a Mac or PC that is turned off might discharge iPad.
- **c.** If Mac or PC does not provide enough power to charge iPad, a not charging message will appear in the status bar.
- **d.** If iPad is very low on power it might need to be charged for up to 10 minutes before you can use it. The screen might go black for up to 2 minutes.

9. Charging Battery and use of a portable back-up battery with cable during flight:

- **a.** Charging iPad and use of a portable back-up battery with cable during Takeoff and Landing is prohibited.
- **b.** Avoid charging the iPad and use of a portable back-up battery with cable during critical phases of the flight (other than Takeoff and Landing); except when urgently needed.
- **c.** The device must be unplugged when the battery reach 100%.

10. Ensure the iPad charger is original and in good condition.

11. Monitor the device while it is charging from an aircraft power source.

12. The crew should not charge the device when it is hot to the touch or in an extreme hot environment.

13. Certain carrying cases trap the device's heat and may need to be removed while charging.

D. Device Troubleshooting

1) If iPad won't turn on, or the display stops responding:

- **a.** Turn the iPad off and turn it on again. Press and hold the Sleep/Wake button on top of iPad for a few seconds, until a red slider appears. Then slide the slider. Then press and hold the Sleep/Wake button until the Apple logo appears.
- **b.** Reset iPad. Press and hold the Sleep/Wake button and the Home button at the same time for at least ten seconds, until the Apple logo appears.

2) The user must submit a report – refer to <u>EFB reporting procedures</u>.

E. Software Policy:

1) All iPad users are responsible to ensure that any other installed apps or customized settings do not affect the intended function of Nesma Airlines authorized applications.

2) The end user must not delete any of the EFB application without a proper notification from the Chief pilot.

3) Download games, songs, movies, and videos that are not related to the EFB usage is prohibited.

4) 'Jail braking', or any modification of the hardware, software or installed apps is prohibited.

5) Violating company rules and regulations – refer to OMA VOL1.

6) If an EFB user discovers an anomaly that affects the operation of the device hardware or software, the user must report it immediately following the EFB reporting procedures.

7) The user is only authorized to install approved company Email only.

F. iPad Settings:

1) Before engine start or pushback until the end of flight, the iPad must be on airplane mode.

- Go to Setting
- Airplane Mode - ON

8.12.11.2 EFB Training Program – Fly Smart

A. General:

1) The performance applications include: Takeoff, Landing, and Load sheet apps.
2) The operation documentation application (OLB).
3) Manager application.
4) Refer to the Fly smart presentations and latest user guide documents.
5) Color Definitions:

- Blue = user's input
- White = default values (defined by the Administrator)
- Yellow = system data (modifiable)
- internal (structural weights, passenger distribution)
- from other performance modules
- Red = out of limits computed data

B. Data Storage and Retrieval:

1) The data is stored at Fly smart Gateway.
2) The Gateway is installed at two servers, one works as a primary and the second one works as a back-up.
3) The Fly smart Gateway application store the username activities.

C. Airbus AIB Manager

1) User Guide – EFB version:

1) The EFB version represents the version of the data release installed on your iPad applicable to all your Fly smart with Airbus applications.
2) The EFB version when displayed in GREEN, it means that all your applications are up- to-date regards to the available data release.
3) If the EFB version is set to UKNOWN, it means that all your applications are not up- to-date regards to the available data release.

2) User Guide – Applications status:

1) D : Application is up-to-date regards to current EFB version
2) ! (RED): The Application is not up-to-date regards to current EFB version
3) ! (BLACK): No data available for the application in the current EFB version

3) How to update the Airbus Fly smart contents:

1) Open the AIB Manager
2) Verify the EFB Version
3) Insert the Server: shall be provided by official means
4) Username: as given by the EFB administrator
5) Password: as given by the EFB administrator
6) Tab "Update All" button
7) Ensure that all application has a green D symbol
8) Verify the EFB version

4) How to troubleshoot:

1) Delete the application,
2) Download the application again.

A. My Flight

1) Verify the EFB revision with the latest revision.
2) Verify the appropriate Aircraft Family
3) Choose the Aircraft registration (ex. SU-NMA)
4) Flight: Clear button to clear previous set ups
5) Flight Number: (ex. NMAXXX)
6) FROM: the name of the departure airport
7) TO: the name of the arrival airport
8) All the inputs that the user has entered on one MY Flight Page are retrieved by other applications.

B. EFB VERSION

1) Each crew at the start of their duty must compare the EFB version with the valid version that is provided by the operation department.
2) The latest update is provided by a bulletin or an email from the chief pilot.
3) Documents with ECAA approval are to have ECAA approval letter.

C. Airbus AIB OLB

1) Brightness Selection
2) Autorotation lock
  a. Portrait and landscape display
3) List of Manuals:
  a. FCOM
  b. MEL
  c. FCTM etc.
4) Search
5) Bookmarks
6) What-if
7) Notes
8) ECAM

D. T.O Performance Calculation:

1. Import Data:

1) Flight information
   - **a.** Airplane Identification
   - **b.** RWY- Runway
   - **c.** Wind
   - **d.** OAT – Outside air temperature
   - **e.** QNH
   - **f.** RWY Cond - Runway Condition
   - **g.** TOW – takeoff weight
   - **h.** T.O CG – takeoff CG
   - **i.** CONF
   - **j.** Air Condition
   - **k.** Anti-ice
2) MEL/CDL
3) CLEAR / COMPUTE
4) Tab on the runway to modify its data.

2. Export Data:

1) Tab COMPUTE: it takes approximately 60 seconds
2) Avoid the use of STOP
3) Choose the appropriate thrust settings
4) Check all three pages available for data
5) Write down important information in the flight release
6) Operators Picture Display – used in case of EOSID

E. Landing Performance Calculation:

1) Import Data:

Inflight	Dispatch
Airport name RWY; Runway in use Wind direction OAT – outside air temperature QNH RWY COND - Runway Condition LW - Landing Weight LDG CG – Landing Center of Gravity LDG CONF - Landing Configuration AIR COND - Air Conditioning A-ICE - Anti Ice APPR TYPE - approach Type GA Gradient – Go Around Pilot - Velocity Pilot LDG Tech BRK MODE: Brake Mode MEL/ CDL/ ECAM Clear/ Compute	Airport name RWY; Runway in use Wind direction OAT – outside air temperature QNH RWY COND - Runway Condition LW - Landing Weight LDG CG – Landing Center of Gravity LDG CONF - Landing Configuration AIR COND - Air Conditioning A-ICE - Anti Ice APPR TYPE - approach Type GA Gradient – Go Around Pilot - Velocity Pilot LDG Tech BRK MODE: Brake Mode MEL/ CDL Clear/ Compute

2) Export Data:

1) Tab COMPUTE: it takes approximately 60 seconds
2) Avoid using the STOP button
3) Check the two pages for data
4) Use MODIFY button: to modify import data

F. FLYSMART AIB Load sheet

1) Input Data:

DETAILED	REDUCED
CONFIG ENTRY MODE CREW FDC – flight deck crew FA – flight attendant F – forward R - reward CATERING LIMITING Weights PAX - passengers CARGO FOB – fuel onboard TRIP FUEL TAXI FUEL DENSITY MEL CLEAR/COMPUTE	CONFIG ENTRY MODE LIMITING Weights DOW/DOCG ZFW – zero fuel weight ZFWCG – zero fuel weight center of gravity FOB – fuel onboard TRIP FUEL TAXI FUEL DENSITY MEL CLEAR/COMPUTE

DON'T USE REDUCED MODE

2) Export Data:

1. Tab export
2. Checked by: the name of the SIC or the PIC
3. Approved by: the name the PIC
4. FROM: the name of the departure airport
5. TO: the name of the arrival airport
6. PAX PER CLASS: number of passengers
7. CAPT INFO NOTES
8. LTS MODE
9. EDITION NUMBER

G. EQRH

Refer to EFB Training Program – EQRH

H. In-flight Performance

1) Setup parameters as required in every respective tab 1- Average wind
2) Temperature
3) Anti-ice
4) Air-conditioning
5) Initial Weight at cruise
6) Average CG position in MAC%
7) Ground distance (nautical miles)
8) Cruise Altitude
9) Speed Type (Cost Index, LRC, Fixed Speed)
10) Non Standard configuration items

8.12.11.3 EFB Training Program –Jepp FD PRO

A. Introduction:

1) Jepp FD Pro is an application that works with the iPad to act as a Class II EFB, Type B software application.
2) One click update automatically replaces outdated content with new versions via the internet. Notifications are displayed when content has expired and new content needs to be uploaded.

B. Data Storage and Retrieval:

1) The contents are stored at Jeppesen servers.
2) The data is retrieved through Jepp FD Pro application.
3) The JDM stores the user activities and configuration status.

C. Jepp FD Pro Features

1) Full Scree view maximizes use of the entire iPad screen area
2) Two fingers swipe left or right takes you to the selected plate
3) Overview provides thumbnails and key information for quick selection of plates
4) Zoom in and out
5) Screen can be dimmed for use of device in low light environments
6) Choose the airports you are planning to use.
7) Easy use.
8) Annotate plates by simply drawing your finger tip
9) Text customized for Nesma Airlines
10) En-route charts
11) Display intended flight plan on the En-route charts

D. Training

1) Presentations
2) Videos

E. Configuring the Jepp FD Pro:

1) Ensure the IOS iPad comply with the Jepp FD PRO requirement.
2) Jepp FD PRO is downloaded properly on the iPad.
3) An email is received from the administrator with a link. On the iPad, tab on the link or copy and paste on the Internet browser. The link will automatically open the Jepp FD PRO application.
4) Click on Update to update all required items.
5) According to EAC 121-15 the display of an own-ship symbol limited to the airport surface as a Type B software application and limited to functions having a failure condition classification considered to be a minor hazard or less, and only for use at speeds of less than 80 knots. Type B software applications using own-ship may be considered only an aid to situational awareness (i.e. not appropriate for: surface navigation, guidance, maneuvering, control functions, etc.). Crewmember training, to use display of own-ship position on the airport surface, should include visual check procedures to require the pilot to do visual checks of outside airport signage and markings against the depicted airport map to verify the own-ship symbol is shown at that same location. Training should also include proper error reporting procedures for crewmembers when visual checks reveal display discrepancies.

Due to not approved GPS receiver and without Visual Check Procedures flight crewmembers shall follow Jepp FD-PRO company settings (Settings -> Jepp FD-PRO):

- ENROUTE VIEW: Enable Moving Maps: **OFF**
- ENROUTE VIEW: Display Township on En-route: **OFF**
- TERMINAL CHART VIEW: Display Township on Airport Diagram: **OFF**
- Weather setting (Settings -> Jepp FD-PRO):
- WEATHER: Display En-route Wx: ON
- WEATHER: Display METAR/TAF: ON

F. Updating the Jepp FD PRO:

1) Terminal charts are updated every two weeks.
2) The En-route charts are updated every 28 days.
3) The application itself has a notification sign on the app icon itself.

8.12.11.4 EFB Training Program – Holder

A. Secured and Viewable:

1) EAC 121-15 requires EFB Class II, iPad, with the aeronautical charts (Jeppesen FD PRO) must be secured and viewable during critical phases of the flights.
2) The EFB Class II, iPad, may be unsecured during non-critical phases of the flights.
3) The holder is secured on the side window left side (captain), and right side (FO).
4) The holder does not affect the pilot line of sights during normal and abnormal operations.
5) The holder does not interfere with the view ability of any primary or secondary flight control, displays, or indications.
6) The holder allows the iPad to be viewed in landscape orientation.
7) The holder is located within an acceptable distance from an average sized person and within 90 degrees of view when facing forward. It is the similar location of the current location of the approved paper charts in the Airbus 3xx fleets.

B. Pilot's Flight kit

1) EAC 121-15 states that EFB Class II is part of the pilot flight kits and it is usually handled or carried on/off the airplane.
2) Each aircraft is equipped with a complete EFB flight set, stowed and secured onboard and all pilots shall have access to its contents.
3) As a contingency plan, there will be iPads and holders at the OCC for back up purposes.
4) For any abnormalities, please refer the EFB reporting procedures.
5) Personal iPads are allowed to be used in case needed provided it is iPad air 2 and has the latest EFB version and will be used under the responsibility of the PIC.

C. Emergency operation requirements.

1) The holder does not obstruct or impede any emergency egress, including the cockpit door and the cockpit window.
2) The holder does not interfere with the window normal operation and its handle. The window will still be normally opened and closed during normal and emergency operations.
3) The holder does not interfere or affect the escape rope operation during emergency evacuation from the cockpit window.
4) The holder does not interfere with the window shade operation.
5) The holder does not interfere with the flight crew duties and tasks assigned during normal and emergency operations.
6) The holder does not affect the movement of any primary or secondary flight controls during normal and emergency operations.
7) The holder does not block or impede any emergency lights.
8) The holder does not block or impede any emergency signals.
9) The holder does not block or impede any emergency equipment.

D. Flight controls movement and display.

1) The holder does not affect the movement of any primary or secondary flight controls during normal and emergency operations.
2) The securing location ensures that the holder does not conflict with any visual or physical access to the flight controls.

E. Holder operational procedure.

1) Each crewmember must ensure that the holder and the iPad are secured prior to engine start or pushback and prior to the top of descent (TOD).
2) The holder and the iPad must be secured and viewable during critical phases of the flight.
3) In case of a failure of any component of the Holder, refer to the EFB MEL Procedures.

F. How to install and secure the holder

1) The holder is secured to the side window left of the captain and right of the first officer.
2) The crewmember should insert the upper side of the holder in the sunshade slot.
3) Hold the right side (captain) or the left side (FO) with the chart clip located on the side sliding window.
4) The crewmembers should ensure the holder is properly secured to the side window.
5) Place the iPad on top of the holder.

8.12.11.5 EFB Training Program – PPS Crew Briefing

A. General

PPS Crew Briefing is part of EFB Type a & B as per EAC 121-15. It acts as an interface for flight plan data retrieval on mobile devices. Crew Briefing system solutions are based on a modular and fully scalable software structure as well as a modular update data service structure all in relation to each user's operational requirements. It makes the trip-tailored briefing packages automatically and instantly available to the pilots on the iPad device.

B. Data Retrieval

Prior to each flight pilots shall ensure that flight data are downloaded and available offline. Once flight data are available offline, they are accessible anytime even in the airplane mode or after the shutdown of the application.

C. Training

Orientation of PPS crew Briefing is available at the briefing room for rehearsal and refreshment. The training program shall ensure that each pilot can refresh the flight list and download the required documents.

1. Open PPS crew Briefing
2. Update list of flights

Download the required documents and make sure the downloaded sign is shown

8.12.11.6 EFB Training Program – EQRH

A. Introduction

EQRH training material and syllabus is exclusively provided by the vendor of the EQRH application. In case of Nesma Airlines, the EQRH training materials are provided by AIRBUS through an e-learning application. For information about e-learning approval, procedures and control refer to the Operations Manual Part D chapter 6.

B. Objectives

The objectives of the EQRH e-learning are:

- To know and understand the interface of the EQRH application
- To know the main features that allow the efficient use of the EQRH application.
- To master checklists/procedures executions and rapidly access emergency procedures
- To know how to detect erroneous data
- To get acquainted with behavior in case of emergency (i.e. smoke)

C. Training

Training on how to use the EQRH application especially in emergency cases and abnormal procedures shall be carried out through Nesma Airlines approved e-learning application. The training material is provided by AIRBUS. Nesma Airlines is committed to updating the material if AIRBUS modified the content.

8.12.12 EMI and Rapid Decompression Tests

Nesma Airlines hold the responsibility for presenting proofs on the qualification of its selected EFB hardware against ECAR regulation regarding rapid decompression and Electro Magnetic Interference (EMI) tests as stated in EAC121-15.

The test should include EMI test, batteries, power source and rapid decompression for civil activities.

The test should abide by the following standards and other standards dictated by the manufacturer for the safety of operations:

EMI test: EASA Acceptable Means of Compliance (AMC) no. 20-25

Batteries: for batteries that contain lithium, the following international standards shall be followed:

- United Nations (UN) transportation regulations UN ST/SG/AC.10/11/Rev.5-2009
- International Electro technical Commission (IEC). International Standard IEC 62133
  Rapid Decompression: should follow the Radio Technical Commission for Aeronautics (RTCA) guidelines DO-160 for the Environmental Conditions and Test Procedures for Airborne Equipment. Rapid Decompression testing should be carried out up to the maximum operating altitude of the aircraft in which the EFB is to be used and it should be operative for or at least 10 minutes after the start of the decompression

Nesma Airlines have already acquired a compliance certificate for the hardware used for EFB following international standards and this compliance certificate shall be furnished upon request.

8.12.13 EFB Evaluation Procedure

This letter is to be signed by the Flight Operation Officer and the pilot (Captain or First Officer) to transfer the custody of the iPad from OCC department to the concerned crew. The pilot must state the reason behind the use of the back-up iPad.

Backup iPads are only used for conditions, which the crew may not be able to operate the flight with the current iPad. The crew must report the condition in accordance with the EFB REPORTING PROCEDURE.

The iPad must be returned to the Flight Operation Office at the airport, and signed by the flight operation officer.

Flight Crew I certify that I received the iPad fully functional and operational. And I will be responsible for the iPad until I return it to the Flight Operation Office.	
Reason: (Mandatory Field)	
Name:	
Date:	Signature:
Flight Dispatcher or Dispatcher I certify that I received the iPad fully functional and operational	
Name:	
Date:	Signature:
Comments:	

8.12.14 Onboard Printing

A wireless printer will be available onboard Nesma Airlines aircraft for printing legal documents that require a hardcopy with signature. The printer shall be stowed in safe place outside the cockpit and its use shall be limited to on-ground printing. Using of wireless printer in the cockpit during all phases of flight is absolutely prohibited.

The printer shall be consistent with commercial iPad devices and shall be easily connected through wireless means.

In case a wireless printer is provided onboard, simple technical documents on how to use shall be furnished and user orientation shall be carried out.

In normal operations, it is not mandatory to print onboard, rather the load sheet could be sent by email to the station to print and bring back the hardcopy.

8.12.15 EFB Update

8.12.15.1 Update Notification

Once a new EFB release is uploaded and available for download, an official email shall be sent to all concerned personnel to cope with and update their records. Other means for notification could be used along with the email notification.
Nesma Airlines use a mailing list to dedicated to EFB update alerts: EFBUpdates@nesmaairlines.com
The email shall be sent from EFB administrator or any delegate and shall include at least the following information:

- **I.** Release Name
- **II.** Release Notes
- **III.** Server(s) IP addresses
- **IV.** Login credentials
- **V.** Identification of documents (title and revision date)
- **VI.** Effective date, if applicable.

Release notes could include reason of the update, latest revision of documents, etc. Other information that may be deemed useful and related to the new release could also be included.
The update shall be retained for download on the server to all users until another release is uploaded.

8.12.15.2 Update Procedures

EFB administrator shall assign qualified personnel to update EFB version, and in normal cases, he may delegate the update process to the flight crew.
End users are assigned user name and password to update their FlySmart with Airbus applications. User privilege includes the download of the weight and balance data, performance data and documents. Users cannot access or download outdated EFB releases or modify the content.
As stated in EFB Bag Content, the EFB bag includes simple instructions on how to update EFB version.
Update process is as follows:

- Insert server IP address as provided in the update notifications
- Insert login credentials as provided in the update notifications
- Connect to the internet
- Once all data are set, the “Update All” button is activated
- Click Update All and wait while the EFB release is downloaded
- Once download is complete an install prompt shows up
- Click install
- After installation is completed check EFB version against the new release name and that all applications have green ticks indicating correct installation.

8.12.15.3 FlySmart with Airbus Update Control

As per the CMEL MI 46-11-01, each aircraft shall be equipped with three iPads exclusively used for EFB operations. Each iPad shall be given a unique name that allows following up with FlySmart updates.
Once an EFB update is announced, the update record is clarified on FlySmart Gateway allowing the EFB administrator to identify the update status on each aircraft. EFB administrator has the duty of ensuring the database currency on each Aircraft before its effective date.
FlySmart Gateway gives the following indications on the status tab:

Status	Explanation
Installed	Update is complete and all packages are installed
Upload in Progress	The packages are still being downloaded on the device
Update Failed	Update process failed, EFB version unknown
Transferred	Packages downloaded but still not installed

For Cloud-Based Document Management, the update shall be done in accordance with the procedures established in 8.12.6.2.2 Cloud-Based Documents Distribution and notification shall be sent as in 8.12.15.1 Update Notification. Pilot-in-command in the first flight after the effective date of the update shall receive 13.1.16 Cloud-based Documents Update Form to check the update is done correctly and received onboard the aircraft. Records of the updates shall be kept in the operations department.

8.12.15.4 Jeppesen FD Update Control

As per the contract between Nesma Airlines and Jeppesen Company, JDM administrator is provided with an administrator tool called Jeppesen Distribution Manager Pro that allows him to track the update status of each device. Each device onboard is set up using a unique ID that is easily monitored through the administrator portal.
An update notification appears on the device indicating that the Jeppesen version is not up-to-date until the update is made.
Once an update is available, the administrator can use his tool to make sure every device onboard is updated and rectify any problems associated with the update.

8.12.16 Initial Retention of Papers

As per ECAA regulations, Nesma Airlines should retain the complete paper documents onboard all its aircraft during the test period. The complete set of paper documents includes all mandatory papers that are listed in 8.1.12. Onboard Library.
All paper documents shall be packed in sealed bags onboard during the test period and a list of documents in every bag shall be seen clearly from outside. List of documents should include:

- Name of document
- Issue/Revision date
- No. of copies
- Signature of the accountable personnel

In case bag seal is broken and pilots are reverted to paper documents and/or manual Load sheet or RTOW charts a report shall be sent to EFBReporting@nesmaairlines.com in accordance with EFB Reporting Procedures.

8.12.17 EFB Bag Content

Items	Quantity
Changing the cartridge leaflet (Optional)	1
Printer Network Configuration leaflet (if applicable)	1
EFB Update Procedure leaflet (Optional)	1
iPad Air 2/ iPad Pro	3)NMx1-NMx2-NMx3(
iPad Sim Card	3
iPad Cable Charger	2
Charger Adaptor	2
Printer	1 (Cannon Pixma i110)
Charger Printer	1
Cartridge (Optional)	1
iPad Portable Holder	2

8.13 Aircraft Tracking

8.13.1 Global Aeronautical Distress and Safety System (GADSS)

According to the ICAO Concept of Operations, the Global Aeronautical Distress and Safety System (GADSS) will address all phases of flight under all circumstances including distress. This GADSS will maintain an up-to-date record of the aircraft progress and, in case of a crash, forced landing or ditching, the location of survivors, the aircraft and recoverable flight data.
GASS concept has three main functions: 1- Aircraft Tracking
2- Autonomous Distress Tracking
3- Post Flight Localization and Recovery
The ICAO GADSS concept of operations (ICAO ConOps) was designed to address three specific issues, namely, the late notification of SAR services when aircraft are in distress (as defined in ICAO Annex 11), missing or inaccurate end of flight aircraft position information and lengthy and costly retrieval of flight data for accident investigation.

8.13.2 Definitions

Aircraft Tracking: A process, established by the operator, that maintains and updates, at standardized intervals, a ground-based record of the four dimensional position of individual aircraft in flight. (ICAO Annex 6). The 4D position is mandated report every 15 minutes that includes longitude, latitude, altitude and time.
Alerting service: A service provided to notify appropriate organizations regarding aircraft in need of search and rescue aid, and assist such organizations as required. (ICAO Annex 11)
Autonomous Distress Tracking (ADT): The capability using transmission of information from which a position of an aircraft in distress can be determined at least once every minute and which is resilient to failures of the aircraft's electrical power, navigation and communication systems. (ICAO Annex 6)
Cospas-Sarsat System: A satellite-based system designed to detect and locate activated distress beacons transmitting in the frequency band of 406.0-406.1 MHz and to distribute these alerts to
RCCs. (ICAO/IMO IAMSAR Manual)
Emergency locator transmitter (distress tracking): Emergency locator transmitter for ICAO specified in-flight distress tracking (Cospas-Sarsat Glossary C/S G.004 - Issue 2) **Emergency phase:** A generic term meaning, as the case may be, uncertainty phase, alert phase or distress phase. (ICAO Annex 11 & 12)

- Uncertainty phase. A situation wherein uncertainty exists as to the safety of an aircraft and its occupants.
- Alert phase. A situation wherein apprehension exists as to the safety of an aircraft and its occupants.
- Distress phase. A situation wherein there is reasonable certainty that an aircraft and its occupants are threatened by grave and imminent danger or require immediate assistance.

False alert: An alert received from any source, including communications equipment intended for alerting, when no distress situation actually exists, and a notification of the alert should not have resulted.

GADSS Information Management: The infrastructure and services used for the exchange and timely dissemination of information in support of the GADSS
Iridium satellite Communications: A communication over low-orbit satellites that ensures voice and data are transmitted and received through a band of 1-2 GHz frequencies. Iridium satellite constellation consists of 66 satellites as for 2018.
Mission Control Centre (MCC): A component of the Cospas-Sarsat ground segment that follows a prescribed set of data processing and distribution rules to process distress alert data from 406 MHz beacons, exchange it with other MCCs, and send it to RCCs
Rescue Coordination Centre (RCC): A unit responsible for promoting efficient organization of search and rescue services and for coordinating the conduct of search and rescue operations within a search and rescue region. (ICAO Annex 11 & 12)
NOTE: The term RCC is used hereafter to apply generically to an aeronautical, maritime or joint (aeronautical and maritime) rescue coordination center (ARCC, MRCC, JRCC respectively).
SATCOM: satellite communication.
Search and Rescue Region (SRR): An area of defined dimensions, associated with a rescue coordination center, within which search and rescue services are provided. (ICAO Annex 12)

8.13.3 Aircraft Tracking

The GDASS Aircraft Tracking function is planned to provide an automated four-dimensional position (latitude, longitude, altitude and time) at a reporting interval of 15 minutes or less. If air traffic services obtain an aircraft position at 15-minute intervals or less, it will not be necessary for the operator to track the aircraft. However, should the aircraft be operating within an area where ATS obtains the aircraft position at intervals greater than 15 minutes, the operator will be required to ensure that the aircraft is tracked.
In general terms the Aircraft Tracking function:

- Does not introduce any change to current ATC Alerting procedures
- Establishes operator responsibilities for tracking based on areas of operation
- Is not technology-specific
- Establishes communication protocols between operator and ATC

According to ECAR 121.9 4D aircraft tracking is mandatory on Egyptian civil aircraft.

8.13.4 Autonomous Distress Tracking

The Autonomous Distress Tracking (ADT) function will be used to identify the location of an aircraft in distress with the aim of establishing the location of an accident site within a six NM radius. An aircraft is considered to be in a distress condition when it is in a state that, if the aircraft event is left uncorrected, may result in an accident. Triggering criteria might include items such as unusual attitudes, altitudes or speeds, potential collision with terrain, total loss of thrust on all engines, Mode A squawk codes, and others as defined by the operator.
The ADT function will use on-board systems to broadcast either aircraft position (latitude and longitude), or a distinctive distress signal from which the aircraft position and time can be derived. Once the ADT has been triggered by a distress condition event, the aircraft position information will be transmitted at least once every minute.

8.13.5 Post Flight Localization and Recovery

In the event of an accident, the immediate priority is the rescue of any survivors. The ADT function will greatly reduce the potential search area and even more accurate aircraft position information will be provided through the Post Flight Localization function by means of Emergency Locator Transmitter (ELT) and/or homing signals to guide SAR services on site.
To facilitate the ability to locate the wreckage and recover the flight recorder data after an accident, the post flight localization and recovery function specifies a number of requirements for ELTs, Underwater Locator Beacon (ULB) and flight recorders which are being incorporated into the provisions of ICAO Annex 6.

8.13.6 Nesma Airlines Statement of Compliance

Nesma Airlines has established Aircraft tracking capability for duration of all flights. A 4D/15 tracking is ensured through the 8.14 Automatic Flight Information Reporting System (AFIRS) installed on Nesma fleet and as indicated in 8.14.6 AFIRS UpTime Software.

8.14 Reserved

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8.15 Runway Excursions

8.15.1 Definition

When an aircraft on the runway surface departs the end or the side of the runway surface, runway excursions can occur on take-off or landing and they consist of two types of events:

1. **Veer-off:** a runway excursion in which an aircraft departs the side of a runway;
2. **Overrun:** a runway excursion in which an aircraft departs the end of a runway.

8.15.2 General

1. Nesma Airlines monitor aircraft parameters related to potential runway excursions in their Flight Data Analysis (FDA) program. Whenever standardised FDA markers are provided through trend analysis, the industry best practices, should be used with priority to ensure the effectiveness of risk mitigation and safety assurance associated with runway excursion barriers and to allow comparability on industry level;
2. Nesma Airlines should incorporate appropriate technical solutions to reduce runway excursion risks, where available (including Runway Overrun Awareness and Alerting System (ROAAS), and runway veer off awareness and alerting systems, when and if available);
3. Flight Deck Crew shall not accept ATC procedures and clearances which have the potential to decrease safety margins to an unacceptable level for the flight crew thereby increasing the risk of runway excursions. This includes such procedures and clearances which increase the likelihood of having an unsafe approach path management with consequences for safe landing, e.g. which bear the risk of being un-stabilized at the landing gate or high-energy approaches. Flight Deck Crew should report such risks within their reporting process;
4. Training includes realistic, scenarios into the training programs requiring threat and error management for runway excursion prevention during both take-off and landing. This should include evidence of recurrent simulator training programs which are representative in terms of environmental conditions, including crosswind, landing on contaminated/slippery runways and poor visibility adapted with simulator representativeness. Representativeness of simulators should be assessed and their limitations communicated (in order to avoid negative training).

8.15.3 Recommendations to Prevent Runway Excursion Risk are:

1. A mishandled rejected take-off (RTO) increases the risk of take-off runway excursion – Flight Deck Crew shall strictly adhere to the procedures of Rejected Take-off ***Ref. OM-B and Ref.*** ***8.11.9 Takeoff***;
2. Take-off performance calculation errors increase the risk of a take-off runway excursion –Flight Deck Crew shall strictly adhere to the procedures of ***8.10.3.6 Task Sharing*** **&** ***8.11.9 Takeoff***;
3. In flight landing distance calculation errors and runway conditions changes increase the risk of a landing runway excursion – Flight Deck Crew shall strictly adhere to the procedures of ***8.11.18.1 Approach Briefing***.

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Dangerous Goods and Weapons

Chapter 9

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Chapter 9 Dangerous Goods and Weapons

9.1 Information and General Guidance on the Transport of Dangerous Goods

Nesma Airlines does NOT transport any revenue or non-revenue shipment of goods or property, Mail, or even company materials that is not consumed or used during flight.
Nesma Airlines does not carry any kind of Danger Goods and/or COMAT.
Notwithstanding the contents of this manual, Nesma Airlines is responsible for compliance with all ECAA regulations, ICAO Doc 9284-AN/905 manual, hereafter referred to as DGRs.
This manual is intended to ensure that no employee, agent or contract employee of Nesma Airlines will accept and/or cause to be shipped any dangerous goods as defined in this chapter.
The provisions of the manual shall be adhered to by all employees, agents, and contract employees of Nesma Airlines when they are involved in the acceptance, handling, and storage of freight designed to be and/or having been transported in air commerce, and in handling checked baggage and/or passenger carry-on baggage.
Further, these individuals must have satisfactory completed the Dangerous Goods recognition training program within the last 24 months. Training requirements are contained in Part Two of this manual.
In order to comply with DGRs, a current copy of this manual and pertinent potion of the DGRs will be available at each of Nesma Airlines facilities where freight, checked baggage and/or passenger carry-on baggage are accepted for transportation in air commerce.
Passenger information signs will be posted at ticket counters, passenger check in areas, aircraft boarding areas, baggage areas, and cargo accepting areas containing the type of DGs forbidden on board an aircraft specified in the DGRs.
Nesma Airlines will ensure that all DGs will be offered to a different mode of transportation (e.g. ground) and/or an air carrier that is authorized to transport DGs. Any employee, agent, or contract employee of Nesma Airlines who prepares and/or offers DGs for shipment via any mode must be fully trained as DGs shipper.

9.1.1 Terminology

Terms used in this chapter have the following meanings:

Acceptance Check List. A document used to assist in carrying out a check on the external appearance of packages of dangerous goods and their associated documents to determine that all appropriate requirements have been met.

Cargo Aircraft. Any aircraft which is carrying goods or property but not passengers. In this context, the following are not considered to be passengers:

- A crewmember;
- An operator's employee permitted by, and carried in accordance with, the instructions contained in the Operations Manual;
- An authorized representative of an Authority; or
- A person with duties in respect of a particular shipment on board.

Dangerous Goods, are articles or substances which are capable of posing a risk to health, safety property or to the environment and which are shown in list of Dangerous Goods in the IATA Dangerous Goods regulations or which are classified according to regulations.

Dangerous Goods Accident. An occurrence associated with and related to the transport of dangerous goods which results in fatal or serious injury to a person 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, 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 that seriously jeopardizes the aircraft or its occupants is also deemed to constitute a dangerous goods incident.

Dangerous Goods Transport Document. A document which is specified by the Technical Instructions. It is completed by the person who offers dangerous goods for air transport and contains information about those dangerous goods. The document bears a signed declaration indicating that the dangerous goods are fully and accurately described by their proper shipping names and UN/ID numbers and that they are correctly classified, packed, marked, labeled and in a proper condition for transport.

Freight Container. A freight container is an article of transport equipment for radioactive materials, designed to facilitate the transport of such materials, either packaged or unpackaged, by one or more modes of transport. (Note: see Unit Load Device where the dangerous goods are not radioactive materials)

Handling Agent. An agency that 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.

ID number. A temporary identification number for an item of dangerous goods, which has not been assigned a UN number.

Over pack. 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. The complete product of the packing operation consisting of the packaging and its contents prepared for transport.

Packaging. Receptacles and any other components or materials necessary for the receptacle to perform its containment function and to ensure compliance with the packing requirements.

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.

State of Origin. The Authority in whose territory the dangerous goods were first loaded on an aircraft.

Technical Instructions. The latest effective edition of the Technical Instructions for the Safe Transport of Dangerous Goods by Air (Doc 9284–AN/905), including the Supplement and any Addendum, approved and published by decision of the Council of the International Civil Aviation Organization. Nesma Airlines have adopted the use of the IATA Dangerous Goods Regulations which is the equivalent of the ICAO Technical Instructions for the Safe Transport of Dangerous Goods.

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 aircraft container, aircraft pallet with a net, or aircraft pallet with a net over an igloo. (Note: an over pack is not included in this definition; for a container containing radioactive materials see the definition for freight container.)

9.1.2 Policy for the Transport of Dangerous Goods by Passengers and/or Crew

Dangerous Goods may only be carried according with the International Civil Aviation Organization's Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO Technical Instructions), irrespective of whether the flight is wholly or partly within or wholly outside the territory of a State. *Ref. 9.1.11 Provision for Dangerous Goods Carried By Passengers or Crew*

Nesma Airlines have adopted the use of the IATA Dangerous Goods Regulations which is the equivalent of the ICAO Technical Instructions for the Safe Transport of Dangerous Goods.

Every pilot will receive an electronic copy of the IATA Dangerous Goods Regulations on their tablet known as the eFB DGR. The eFB DGR does not contain all sections of the IATA Dangerous Goods Regulations. It has been developed to be used by flight crew, and is aligned with the training requirements of flight crew. Those sections which do not appear in the eFB DGR are considered to be not relevant or required for flight operations nor are they covered in the flight crew training program.

Rules concerning the safe transport of dangerous goods are defined by the ICAO in annex 18 of the Chicago convention and in the "Technical Instructions for the safe transport of dangerous goods by air" DOC9284 AN/905, (Here after referred to as Technical Instructions).

In addition has IATA established the manual "Dangerous Goods Regulations"(Latest edition) in respect with the ICAO rules and defines also procedures and instructions for the transport of dangerous goods. It shall be noted that furthermore national regulations may apply of the country of departure, destination and of the carrier.

The IATA "Dangerous Goods Regulations" (latest edition) specifies:

- What may be carried?
- Responsibility of the shipper and the carrier.
- Under which conditions shipment shall be conducted.

This chapter is established in good faith with the ICAO "Technical Instructions for the safe transport by air of dangerous goods by air" (latest edition) and the IATA "dangerous goods regulations" (latest edition) as background.

In principle dangerous goods shall not be transported by passengers or crewmembers (as in checked baggage in the cargo compartment; or as in carry-on baggage; or as on their person)

9.1.3 Responsibilities

The general transportation requirements of the DGRs state that shippers of DGs must properly declare any such material at the time it is offered for transportation to Nesma Airlines.
Nesma Airlines employees, agents, and contract employees may rely on the certification and information provided by the shipper to determine if the shipment is authorized for air transportation.
Nesma Airlines as air carrier shall review documents tendered with the shipment for any indication that the item(s) is DG. All employees, agents, and contract employees of Nesma Airlines responsible for the acceptance of cargo or baggage shall be provided a list of indicators of undeclared DGs to assist them in their review. Nevertheless
Nonetheless, it must be understood that some shippers may be unaware of the requirements for offering and transporting DGs. Therefore, Nesma Airlines personnel accepting air cargo, packages, and passenger baggage must be especially vigilant in screening all baggage as to the contents and thereby prevent the inadvertent acceptance and transportation of such unauthorized materials.
Any package that displays a DGs marking or label, as shown the in the latest DGRs labeling chart, or otherwise is known or suspected of containing DGs, will not be accepted for Nesma Airlines or loaded aboard Nesma Airlines aircraft.
Nesma Airlines and shipper shall pay extra attention to hidden dangerous goods which may not be obvious to people and which may be inadvertently packed as normal baggage or proposed as usual freight. Typical examples are:

- Camping gear, this may contain flammable gas.
- Diving equipment, this may contain high intensity lamps that can generate extreme high heat when inadvertently switched on.
- Expeditionary/hiking equipment, this may be explosives as “flares” or flammable liquids.
- Frozen fruits, this may be packed in solid carbon dioxide (“dry ice”) for cooling.
- Normal household goods, this may contain special paints that are regarded as dangerous goods.
- Pharmaceuticals, several pharmaceuticals contain chemicals that are dangerous goods.
- Repair kits; these most often contain peroxides, solvents, adhesives, etc.)
- Vaccines, these may be packed in solid carbon dioxide (“dry ice”) for cooling.

9.1.4 General Dangerous Goods aboard Aircraft Not Requesting Air Transport Approval (COMAT)

COMAT is an industry term developed and used by Nesma Airlines and is generally used to describe a wide array of company materials including replacement items of installed equipment and consumable materials. COMAT dangerous goods cannot be loaded abroad Nesma Airlines aircraft. Shipment of DGs COMAT that are offered for transportation to other modes or air carriers must be in full compliance with all DGRs. Employees, agents, and contract employees who prepare and/or offer DGs shipments for transportation must receive additional function - specific training to satisfy all the requirements for shippers per the DGRs.
An approval to transport dangerous goods is not required for goods that are required aboard as:

- Articles and substances that are required to be aboard the aircraft in accordance with pertinent airworthiness requirements and operating regulations or that are authorized by the state of the operator to meet special requirements. For example; the aircraft portable fire extinguishers, first aid kits, lifesaving appliances, portable oxygen supplies.
- Catering and cabin supplies.

9.1.5 Pre Board Inspection

No employee, agent, or contract employee shall load any cargo or baggage containing indicators of DGs aboard our aircraft, onto an aircraft pallet, or Unit Load Device (ULD) unless it can be verified that the contents are not DGs.

9.1.6 Passenger/Crew Dangerous Goods That Are Allowed With Operator Approval, As Checked Baggage Only (In the Cargo Compartment)

The following dangerous goods are permitted on aircraft as checked baggage only, are exempt from the DGRs. And, on the condition that it is approved by the aircraft operator(s).
ICAO and IATA manuals must be reviewed to assure currency of exceptions.

Solid carbon dioxide (Dry Ice)

Solid carbon dioxide (dry ice) in quantities not exceeding 2 kg (4.4 lb.) per person when used to pack perishables that are not subject to the Dangerous Good Regulation, provided the checked baggage (package) permits the release of carbon dioxide gas.
Note: For carbon dioxide, solid (dry ice) in carry-on baggage, see also 9.1.7.
Passengers/crew using this exemption is limited to a maximum of 2 kg for the **combined** carry-on and checked baggage.

Wheelchairs/Mobility aids with Spill able/non-spill able batteries

The air carrier will accept battery-powered wheelchairs/ mobility aids as baggage.
Wheel chairs/mobility aids will be transported with the battery attached, except when otherwise noted.
In no case, may a battery be transported if exhibits evidence of previous leakage or damage.
Wheel chair batteries are either "spill able" or "non-spill able". A non-spill able battery will normally be labeled as such. In the absence of a label, a battery whose caps or cover cannot be removed is considered to be non-spillage; if the caps or cover can be removed, it is considered to be spillage.

A. **Wheelchairs/mobility aids with non-spill able batteries.**
   a battery Wheelchairs or other battery-powered mobility aids with non-spill able batteries may be accepted for carriage with battery attached when properly prepared (the battery is disconnected and terminals and ends of cables are insulated to prevent accidental short circuits), Batteries must be marked on the outside of the battery case, " NON- SPILLABLE" or "NON-SPILLABLE BATTERY".
B. **Wheelchairs/Mobility aids with spill able batteries**
   Wheelchairs or other battery-powered mobility aids with spill able batteries provided that;
   1) The wheelchair or mobility aid can be loaded, stowed, secured and unloaded always in an upright position.
   2) The battery is disconnected, the battery terminals are insulated to prevent accidental short circuits and the battery is securely attached to the wheelchair or mobility aid.

If the wheelchair or mobility aid cannot be loaded, stowed, secured and unloaded always in an upright position, the battery must be removed and the wheelchair or mobility aid may then be carried as checked baggage without restriction.
If this requirement cannot be met, the battery must be removed from the housing by qualified airline personal only, and transported in strong, rigid packaging under the following conditions:

a) Packaging must be leak-tight, impervious to battery fluid and be protected against upset by securing to pallets or by securing them in cargo compartments using appropriate means of securing (other than by bracing with freight or baggage) such as by use of restraining straps, brackets or holders;
b) Batteries must be protected against short circuits, secured upright in their packaging and

c) Surrounded by compatible absorbent material sufficient to absorb their total liquid contents;
d) These packaging must be marked “BATTERY, WET, WITH WHEELCHAIR” or “BATTERY, WET,
e) WITH MOBILITY AID” and be labeled with the “Corrosive” label and with the “Package Orientation” label; and
f) The Pilot in Command must be informed either orally or in writing prior to departure of the location of a wheelchair or mobility aid with an installed battery or the location of a packed battery.

Note: It is recommended that passengers make advance arrangements with each operator and that batteries that are spill able should be fitted with spill-resistant vent caps when feasible.

9.1.7 Passenger/Crew Dangerous Goods Those Are Acceptable With Operator Approval as Carry-On Baggage Only

The following dangerous goods are permitted on aircraft as carry-on baggage only, though with the approval of the operator(s):

Mercury barometer or thermometer

A mercurial barometer or mercurial thermometer carried by a representative of a government weather bureau of similar official agency. The barometer or thermometer must be packed in a strong outer packaging, having a sealed inner liner or a bag of strong leak-proof and puncture-resistant material impervious to mercury, which will prevent the escape of mercury from the package irrespective of its position. The Pilot in Command must be informed of the barometer or thermometer.

Heat producing articles

Heat producing articles, i.e. battery-operated equipment such as underwater torches and soldering equipment, which, if accidentally activated, will generate extreme heat and can cause fire, may be carried in carry-on baggage only. The heat producing component, or the energy source, must be removed so as to

Prevent unintentional functioning during transport.

Goods Acceptable with “Operator Approval” as baggage

The following dangerous goods are permitted on aircraft as checked or carryon baggage with the approval of the operator(s):

1. Medical Oxygen (ECAR 121.574)
   a. Nesma Airlines may allow a passenger to carry and operate gaseous oxygen cylinder for the storage, generation, or dispensing of oxygen when the following conditions are met:
   b. The equipment is:
      – Furnished by Nesma Airlines;
      – Of an approved type;
      – Maintained by Nesma Airlines in accordance with an approved maintenance program;
      – Free of flammable contaminants on all exterior surfaces;
      – Capable of providing a minimum mass flow of oxygen to the user of four liters per minute;
      – Constructed so that all valves, fitting, and gauges are protected from damage; and

- Appropriately secured, and
- The pressure in any oxygen cylinder does not exceed the rated cylinder pressure.
  a) Written statement to show evidence for medical need. (Refer to 8.2.2.5)

c. The equipment is stowed, and each person using the equipment is seated, so as not to restrict access to or use of any required emergency or regular exit or of the aisle in the passenger compartment.

d. No smoking within 10 feet of oxygen storage and dispensing equipment carried in accordance with paragraph (a) of this section.

e. It is not allowed to connect or disconnect oxygen dispensing equipment, to or from a gaseous oxygen cylinder while any passenger is aboard the aircraft.

f. The requirements of this section do not apply to the carriage of supplemental or first- aid oxygen.

2. Carbon Dioxide Cylinder fitted into a Life Jacket
Not more than two small carbon dioxide cylinders per person fitted into a self-inflating life jacket plus not more than two spare cartridges.

3. Insulated Packages Containing Refrigerated Liquid Nitrogen
Insulated packaging containing refrigerated liquid nitrogen fully absorbed in a porous material and intended for transport, at low temperature, of non-dangerous products are not subject to these regulations provided the design of the insulated packaging would not allow the build-up of pressure within the container and would not permit the release of any refrigerated liquid nitrogen irrespective of the orientation of the insulated packaging.

9.1.8 Passenger/Crew Dangerous Goods Acceptable Without the Operator's Approval

The following dangerous goods are permitted on aircraft as baggage without the approval of the Operator:

Medicinal or toilet articles

Non-radioactive medicinal or toilet articles (including aerosols). The total net quantity of all such articles carried by each passenger or crewmember shall not exceed 2 kg (4.4 lb.) or 2 liters, and the net quantity of each single article shall not exceed 0.5 kg (1 lb.) or 0.5 liter. The term “medicinal or toilet articles” is intended to include such items as hair sprays, perfumes, colognes and medicines containing alcohol.

Carbon dioxide cylinders for mechanical limbs

Small carbon dioxide gas cylinders worn for the operation of mechanical limbs.
Also spare cylinders of a similar size if required to ensure an adequate supply for the duration of the journey.

Cardiac pacemakers/Radio-pharmaceuticals

Radio-isotopic cardiac pacemakers or other devices, including those powered by lithium batteries, implanted into a person, or radio-pharmaceuticals contained within the body of a person as the result of medical treatment.

Medical/Clinical thermometer

One small medical or clinical thermometer that contains mercury, for personal use, that shall be in its protective case.

Carbon dioxide, solid (Dry Ice)

Per passenger, and in carry-on baggage only, solid carbon dioxide (dry ice) shall not exceed 2 kg (4.4 lb.) when used to pack perishables that are not subject to these regulations in their carry-on baggage. Or with the approval of the operator in checked baggage, provided the package permits the release of carbon dioxide gas and with the recommendation that the checked luggage is positioned in a vented cargo compartment.

Note: Passengers or crew shall be limited to a maximum of 2 kg for the carry-on and checked baggage combined.

Safety matches or lighter

Safety matches or a lighter with fuel/fluid fully absorbed in a solid and intended for use by an individual when carried on one's person.
However, lighters with a flammable liquid reservoir containing unabsorbed liquid fuel (other than liquefied gas), lighter fuel and lighter refills are not permitted on one's person nor in checked or carry-on baggage.

Note: The “Strike anywhere” matches are forbidden for air transport.

Alcoholic beverages

Alcoholic beverages, when in retail packaging, containing more than 24% but not more than 70% alcohol by volume, in receptacles not exceeding 5 liters, with a total net quantity per person of 5 liters for such beverages.

Note: Alcoholic beverages containing 24% or less alcohol by volume are not subject to restrictions.

Hair curlers

Hair curlers containing hydrocarbon gas, provided that the safety cover is securely fitted over the heating element. These hair curlers must not be used on board the aircraft at any time. Gas refills for such curlers are not permitted in checked or carry-on baggage.
Per passenger or crewmember, only one unit shall be allowed.

9.1.9 Notification of Dg Incidents and Required Reports

A. Incident Notification.

1) Nesma Airlines Shall Immediately Report To The ECAA And Nearest Airport Authority Any Dg Incident That Occurs During The Course Of Transportation (Including loading, unloading, or temporary storage) in which:

a. A person is killed; or

b. A person receives injuries requiring hospitalization; or There is an estimated xxxxx EGP in property damage; or

c. An evacuation of the general public occurs lasting one or more hours or;

d. One or more major transportation highways, railroads etc., or facilities are closed or shut down for one hour or more; or

e. The operational flight pattern or routine of an aircraft is altered; or

f. Fire, breakage, spillage, or suspected radioactive contamination occurs involving shipment of RAM; or

g. Fire, breakage, spillage, or suspected contamination occurs involving shipment of infectious substances (etiologic agents); or I) A situation exists of such a nature (e.g., a continuing danger to life exists at the scene of the incident that, in the judgment of the carrier, it should be reported to the ECAA even though it does not meet the criteria of paragraph l) (a), (b), or (c) of this section.

2) Radioactive Materials (RAM) - in addition to the notification to the ECAA, the carrier will also notify the Atomic Energy Council and the shipper of the RAM involved in the incident.

3) Infectious Substances (etiologic agents) - In addition to the notification to the ECAA, this air carrier will also notify the Center for Disease Control of any infectious substance involved in the incident.

B. Incident Reports

This airline will provide a written report to the ECAA within 30 days of each incident that occurs during the course of transportation (including loading unloading or storage, incidental thereto) in which any of the circumstances set forth above occurs or there has been unintentional release of DG from a package or quantity of DG waste has been discharged during transportation.

C. Report of Discrepancies.

Undeclared Shipments Are Classified As Discrepancies And Must Be Reported To The ECAA. In The Event Of A Discovered Undeclared Shipment, Following Its Acceptance For Transportation Aboard And Aircraft, This Carrier Shall As Soon As Practicable Notify The ECAA And Airport Authority And Provide The Following Information:

1) Name of employee, agent, or contact employee making the report;

2) Company name of the aircraft operator;

3) Specific location of the shipment concerned;

4) Name of the shipper; and

5) Nature of discrepancy.

9.1.10 Classification of Dangerous Goods

Dangerous goods are classified by type of hazard as follows:

Class 1: Explosives

Division 1.1 - Articles and substances that have a mass explosion hazard.

Division 1.2 - Articles and substances having a projection hazard but not a mass explosion hazard.

Division 1.3 - Articles and substances that have a fire hazard and in addition either a minor blast hazard or a minor projection hazard or both, but no mass explosion hazard. These articles can give rise to considerable radiant heat.

Division 1.4 - Articles and substances that present no significant hazard, i.e. they present only a minor hazard in the event of ignition and the effects are largely confined to the package.

Division 1.5 - Very insensitive substances, that are so insensitive that there is very little probability of initiation.

Division 1.6 - Extremely insensitive articles that do not have a mass explosion hazard. Articles concerned demonstrate a negligible probability of accidental initiation. In addition compatibility groups have been defined and are indicated with a letter as A, B, C, etc. See for specifics and further details the IATA and ICAO documentation.

Class 2: Gases

This class comprises; articles charged with compressed gases as for example “Aerosols”, liquefied gases, gases in solution, mixture of gases, etc.

Division 2.1 - Flammable gases.

Division 2.2 - Non-flammable, non-toxic gases.

Division 2.3 - Toxic gases (i.e. gases that are known to be so toxic that they pose a health hazard) Mixture of gases classification:

For the class and division classification, the following principal is used:

Division 2.3 - takes precedence over all other gas divisions.

Division 2.1 - takes precedence over division 2.2.

Class 3: Flammable liquids

This class has no subdivision. It comprises liquids or mixtures of liquids that give off a flammable vapor at temperatures of not more than 60.5 degrees Celsius.

Class 4: Flammable other than liquids

Division 4.1 - Flammable solids, these are solids that are readily combustible or may cause fire through friction.

Division 4.2 - Substances liable to spontaneous combustion, these include substances that may ignite within 5 minutes after coming in contact with air.

Division 4.3 - Substances, which, in contact with water emit flammable gases and are liable to become spontaneously flammable.

Class 5: Oxidizing substances and organic peroxides

Division 5.1 - Oxidizing substances, these are articles that may cause combustion of other material by yielding oxygen.

Division 5.2 - Organic peroxides, these are substances that are thermally unstable and may undergo self-accelerating decomposition. They have one or more of the following properties;

- Burn rapidly.
- React dangerously with other substances.
- Cause damage to eyes.
- Be liable to explosive decomposition.
- Be sensitive to impact or friction.

Class 6: Poisonous (toxic) and infectious substances

Division 6.1 - Toxic substances; substances that are liable to cause death or injury or harm human health if swallowed / inhaled / contacted.

Division 6.2 - Infectious substances; substances known to contain micro- organisms (bacteria, viruses, parasites, etc.) that are known to cause infectious diseases in human or animals.

Class 7: Radioactive materials

No subdivision exists.

Class 8: Corrosive materials

Corrosive materials are substances that can cause severe damage by chemical reaction when in contact with living tissue (as skin) or can materially damage other freight or the means of transport (be it pallet or aircraft).
No further subdivision exists.

Class 9: Miscellaneous dangerous goods

No subdivision exists. The articles of class 9 are substances that may present a danger during air transport but are not covered by any of the other previous classes. Among these are the magnetized materials.

9.1.11 Provision for Dangerous Goods Carried By Passengers or Crew

	The approval of the operator is required	Permitted in or as checked baggage	Permitted in or as carry-on baggage	The pilot-in-command must be informed of the location
△ **Alcoholic beverages**, when in retail packagings, containing more than 24% but not more than 70% alcohol by volume, in receptacles not exceeding 5 L, with a total net quantity per person of 5 L. ***Note:*** *Alcoholic beverages containing 24% or less alcohol by volume are not subject to any restrictions.*	NO	YES	YES	NO
Ammunition, securely packaged (in Div. 1.4S, UN 0012 or UN 0014 only), in quantities not exceeding 5 kg gross weight per person for that person's own use. Allowances for more than one person must not be combined into one or more packages.	YES	YES	NO	NO
Avalanche rescue backpack, one (1) per person, containing cartridges of compressed gas in Div. 2.2. May also be equipped with a pyrotechnic trigger mechanism containing no more than 200 mg net of Div. 1.4S. The backpack must be packed in such a manner that it cannot be accidentally activated. The airbags within the backpacks must be fitted with pressure relief valves.	YES	YES	YES	NO
Baggage with installed lithium batteries non-removable batteries exceeding–0.3 g lithium metal or 2.7 Wh.	FORBIDDEN			
Baggage with installed lithium batteries: – non-removable batteries. Batteries must contain no more than 0.3 g lithium metal or for lithium ion must not exceed 2.7 Wh; – removable batteries. Batteries must be removed if baggage is to be checked in. Removed batteries must be carried in the cabin.	NO	YES	YES	NO
Batteries, spare/loose, including lithium batteries, non-spillable batteries, nickel-metal hydride batteries and dry batteries (see 2.3.5.8) for portable electronic devices must be carried in carry-on baggage only. Articles which have the primary purpose as a power source, e.g. power banks are considered as spare batteries. These batteries must be individually protected to prevent short circuits. Lithium metal batteries: the lithium metal content must not exceed 2 g (see 2.3.5.8.4). Lithium ion batteries: the Watt-hour rating must not exceed 100 Wh (see 2.3.5.8.4). Each person is limited to a maximum of 20 spare batteries. *The operator may approve the carriage of more than 20 batteries. Non-spillable batteries: must be 12 V or less and 100 Wh or less. Each person is limited to a maximum of 2 spare batteries (see 2.3.5.8.5).	NO*	NO	YES	NO
Camping stoves and fuel containers that have contained a flammable liquid fuel, with empty fuel tank and/or fuel container (see 2.3.2.5 for details).	YES	YES	NO	NO
Chemical Agent Monitoring Equipment, when carried by staff members of the Organization for the Prohibition of Chemical Weapons on official travel (see 2.3.4.4).	YES	YES	YES	NO
Disabling devices such as mace, pepper spray, etc. containing an irritant or incapacitating substance are forbidden on the person, in checked and carry-on baggage.	FORBIDDEN			
Dry ice (carbon dioxide, solid), in quantities not exceeding 2.5 kg per person when used to pack perishables not subject to these Regulations in checked or carry-on baggage, provided the baggage (package) permits the release of carbon dioxide gas. Checked baggage must be marked "dry ice" or "carbon dioxide, solid" and with the net weight of dry ice or an indication that there is 2.5 kg or less dry ice.	YES	YES	YES	NO
e-cigarettes (including e-cigars, e-pipes, other personal vaporizers) containing batteries must be individually protected to prevent accidental activation (see 2.3.5.8.2).	NO	NO	YES	NO
Electro shock weapons (e.g. Tasers) containing dangerous goods such as explosives, compressed gases, lithium batteries, etc. are forbidden in carry-on baggage or checked baggage or on the person.	FORBIDDEN			
Fuel cells containing fuel, powering portable electronic devices (e.g. cameras, cellular phones, laptop computers and camcorders), see 2.3.5.9 for details.	NO	NO	YES	NO
Fuel cell cartridges, spare for portable electronic devices, see 2.3.5.9 for details.	NO	YES	YES	NO
Gas cartridges, small, non-flammable containing carbon dioxide or other suitable gas in Division 2.2. Up to two (2) small cartridges fitted into a **self-inflating personal safety device**, intended to be worn by a person, such as a life jacket or vest. Not more than two (2) devices per passenger and up to two (2) spare small cartridges per device, not more than four (4) cartridges up to 50 mL water capacity for other devices (see 2.3.4.2).	YES	YES	YES	NO
Gas cylinders, non-flammable, non-toxic worn for the **operation of mechanical limbs**. Also, spare cylinders of a similar size if required to ensure an adequate supply for the duration of the journey.	NO	YES	YES	NO
Hair styling equipment containing a hydrocarbon gas cartridge, up to one (1) per passenger or crew-member, provided that the safety cover is securely fitted over the heating element. This hair styling equipment must not be used on board the aircraft. Spare gas cartridges for such hair styling equipment are not permitted in checked or carry-on baggage.	NO	YES	YES	NO

Item	The approval of the operator is required	Permitted in or as checked baggage	Permitted in or as carry-on baggage	The pilot-in-command must be informed of the location
Insulated packagings containing refrigerated liquid nitrogen (dry shipper), fully absorbed in a porous material containing only non-dangerous goods.	NO	YES	YES	NO
Internal combustion or fuel cell engines, must meet A70 (see 2.3.5.12 for details).	NO	YES	NO	NO
Lithium Batteries: Portable electronic devices (PED) containing lithium metal or lithium ion cells or batteries, including medical devices such as portable oxygen concentrators (POC) and consumer electronics such as cameras, mobile phones, laptops and tablets (see 2.3.5.8). For lithium metal batteries the lithium metal content must not exceed 2 g and for lithium ion batteries the Watt-hour rating must not exceed 100 Wh. Devices in checked baggage must be completely switched off and must be protected from damage. Each person is limited to a maximum of 15 PED. *The operator may approve the carriage of more than 15 PED.	NO*	YES	YES	NO
Lithium batteries, spare/loose, including power banks, see **Batteries, spare/loose**				
Lithium battery-powered electronic devices. Lithium ion batteries for portable (including medical) electronic devices, a Wh rating exceeding 100 Wh but not exceeding 160 Wh. For portable medical electronic devices only, lithium metal batteries with a lithium metal content exceeding 2 g but not exceeding 8 g. Devices in checked baggage must be completely switched off and must be protected from damage.	YES	YES	YES	NO
Lithium batteries, spare/loose with a Watt-hour rating exceeding 100 Wh but not exceeding 160 Wh for consumer electronic devices and PMED or with a lithium metal content exceeding 2 g but not exceeding 8 g for PMED only. Maximum of two spare batteries in carry-on baggage only. These batteries must be individually protected to prevent short circuits.	YES	NO	YES	NO
Matches, safety (one small packet) or a small cigarette lighter that does not contain unabsorbed liquid fuel, other than liquefied gas, intended for use by an individual when carried on the person. Lighter fuel and lighter refills are not permitted on one's person or in checked or carry-on baggage. ***Note:*** *"Strike anywhere" matches, "Blue flame" or "Cigar" lighters or lighters powered by a lithium battery without a safety cap or means of protection against unintentional activation are forbidden (see 2.3.5.8.4(e)).*	NO	ON ONE'S PERSON		NO
Mobility Aids: Battery-powered wheelchairs or other similar mobility devices with **non-spillable wet batteries, nickel-metal hydride batteries or dry batteries**, (see 2.3.2.2).	YES	YES	NO	YES
Mobility Aids: Battery-powered wheelchairs or other similar mobility devices with **spillable batteries or with lithium ion batteries** (see 2.3.2.3 and 2.3.2.4 for details).	YES	YES	NO	YES
Mobility Aids: Battery-powered wheelchairs or other similar mobility devices with **lithium ion batteries** where the design of the mobility aid does not provide adequate protection for the battery(ies) (see 2.3.2.4.3 for details).	YES	NO	YES	YES
Non-radioactive medicinal or toiletry articles (including aerosols) such as hair sprays, perfumes, colognes and medicines containing alcohol; and **Non-flammable, non-toxic (Division 2.2) aerosols**, with no subsidiary hazard, for sporting or home use (see 2.3.5.1). The total net quantity of non-radioactive medicinal or toiletry articles and non-flammable, non-toxic (Division 2.2) aerosols must not exceed 2 kg or 2 L and the net quantity of each single article must not exceed 0.5 kg or 0.5 L. Release valves on aerosols must be protected by a cap or other suitable means to prevent inadvertent release of the contents.	NO	YES	YES	NO
Oxygen or air, gaseous, cylinders required for **medical use**. The cylinder must not exceed 5 kg gross weight. ***Note:*** *Liquid oxygen systems are forbidden for transport.*	YES	YES	YES	YES
Permeation devices, must meet A41 (see 2.3.5.13 for details).	NO	YES	NO	NO
Radioisotopic cardiac pacemakers or other devices, including those powered by lithium batteries, implanted into a person or fitted externally.	NO	ON ONE'S PERSON		NO
Security-type equipment (see 2.3.2.6 for details).	YES	YES	NO	NO
Security-type attaché cases, cash boxes, cash bags, etc. incorporating dangerous goods, such as lithium batteries and/or pyrotechnic material, except as provided in 2.3.2.6 are totally forbidden. See entry in 4.2–List of Dangerous Goods.	FORBIDDEN			
Specimens, non-infectious packed with small quantities of flammable liquid, must meet A180 (see 2.3.5.11 for details).	NO	YES	YES	NO
Thermometer, medical or clinical, which contains mercury, one (1) per person for personal use, when in its protective case.	NO	YES	NO	NO
Thermometer or barometer, mercury filled carried by a representative of a government weather bureau or similar official agency (see 2.3.3.1 for details).	YES	NO	YES	YES

Note:
The provisions of Subsection 2.3 and Table 2.3.A may be limited by State or operator variations. Passengers should check with their airline for the current provisions.

9.1.12 Dangerous Goods Emergency Procedures

Emergencies and incidents on board an aircraft related to dangerous goods can create additional dangers. In the case of an in-flight emergency, Nesma Airlines OCC is to be notified immediately.

9.1.12.1 Checklist for Dangerous Goods Incidents

The general rules to be observed following a dangerous goods incident in-flight are:

(a) Follow the aircraft emergency procedures, as appropriate, and additionally, try to determine the source of smoke/fumes/fire.
(b) No smoking signs ON.
(c) Consider landing as soon as possible.
(d) Consider turning off non-essential electrical power.
(e) Determine emergency response drill code and use emergency drills chart to help deal with the incident.
(f) If the incident involves the passenger cabin and occupants, use additional Cabin Crew Checklist below and co-ordinate Flight Crew/Cabin Crew actions.
(g) Notify ATC and Nesma Airlines OCC.

9.1.12.2 Cabin Crew Checklist for Dangerous Goods Incidents in the Passenger Cabin

The general rules to be observed following a dangerous goods incident in-flight in the passenger cabin are:

(a) Notify the Pilot In Command.
(b) Identify the item.
(c) In case of fire, use standard procedures but check use of water.
(d) Determine emergency response drill code and use emergency drills chart to help deal with the incident.
(e) In case of spillage or leakage.
  (1) Don rubber gloves, smoke hoods or masks as necessary.
  (2) Move passengers away from area and distribute wet towels/cloths.
  (3) Place suspect items in polythene bags.
  (4) Stow polythene bags.
  (5) Treat affected seats and covers in the same manner as dangerous goods;
  (6) Cover spillage on carpet floor;
  (7) Regularly inspect items stowed away and contaminated furnishings.

9.1.12.3 Actions after Landing

The Pilot in Command is to ensure the following actions are taken on landing following a dangerous goods incident in-flight:

- **(a)** Passengers and Crew are disembarked before any cargo compartment doors are opened. The emergency services should be in attendance before any cargo door is opened.
- **(b)** Ground handling personnel are informed of the nature of the emergency.
- **(c)** An appropriate entry is made in the Aircraft Technical Log.
- **(d)** A Nesma Airlines is completed.

9.1.12.4 General Notes

Crewmembers and ground handling personnel should observe the following precautions when handling dangerous goods incidents:

9.1.12.4.1 Fire

In general, water should not be used on a spillage, or when fumes are present, since this may spread the spillage or increase the rate of fuming;

9.1.12.4.2 Spillage or Leakage

The hands should always be protected before touching suspicious items. Smoke hood, smoke mask, and portable oxygen equipment should be used where appropriate. Gas-tight breathing equipment should always be worn when attending an incident involving fire, fumes, or smoke.

9.1.12.4.3 Smoke Filled Passenger Cabin

The use of therapeutic masks with portable oxygen bottles to assist passengers in a smoke or fume-filled passenger cabin is not recommended since considerable quantities of fumes or smoke would be inhaled through the valves or holes in the mask. A more effective aid is the use of wet towels or cloth held over the mouth.

9.1.13 Dangerous Goods Training.

1. **Requirements.**
   Each employee, agent, and contract employee of Nesma Airlines who performs any assigned duties and responsibilities for acceptance, handling, storage, and transportation of cargo, baggage, and COMA shall be familiar with the company policy regarding the non-acceptance of DGs, local procedures, and the requirements for official notification of any incident or accident involving dangerous goods.
   Nesma Airlines shall not use an individual to perform the above stated duties unless the individual h satisfactorily completed an initial course of study and an oral or written test regarding dangerous goods. All incorrect answers shall be reviewed with the trainee until proficiency is achieved.
   In addition, within 24 months, the individual must have received either initial training or annual recurrent training and satisfactorily completed an oral or written test. All incorrect answers shall be reviewed with the trainee until proficiency is achieved.
   Nesma Airlines shall maintain a record of the satisfactory completion of the initial and recurrent training for each individual. These records will be made available at the location where the personal perform such duties, and will be maintained for as long as the employee is performing these duties.
2. **Training Curriculum (ECAA approved)**
   The list below will be covered during the initial and recurrent training of each employee, agent, and contract employee of Nesma Airlines. The material will be covered in such scope and depth as to provide sufficient knowledge of applicable regulations and procedures to safely accomplish the duties. This training will be considered to comply with all requirements for the acceptance, handling and transportation of DGs. This carrier will ensure that materials and regulations used in its training curriculum are cum and valid at the time of the training.

DG General Recognition Training

- **A.** Company Policy and Training Requirements
- **B.** Applicable Regulatory Requirements
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  - **1)** Shipping Papers
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  - **8)** Consumable Materials
- **H.** Dangerous Goods COMAT.
  - **1)** Identification and Recognition.
  - **2)** DGs onboard aircraft.
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4) Consumable Materials.
5) Specific DG COMAT Exceptions (if any)
6) Facility Storage, Safe Movement, and Handling Requirements:
   a) Specific Hazards and
   b) Precautionary Measures
7) Proper disposal Procedures for DG COMAT
   a) Environmental precautions
   b) Transportation precautions

9.1.14 Notification to Captain

a) The Notification to the captain (NOTOC) is used to inform the PIC of DGSL carried, Nesma Airlines do not transport Dangerous Goods, only batteries for Personal mobility aids classified as DGR shall be transported and mentioned in NOTOC.
b) Station is responsible for providing DGSL information in legible written, printed or digital form and transmitting it to PIC who charged with load planning task. PIC shall produce LIR taking into consideration DGSL information, their compatibility and segregation criteria.
c) The information contained in the NOTOC shall be made available to the person charged with aircraft loading and supervision task. The person shall:
d) Verify that DGSL are not damaged or leaking.
e) Ensure the correct positioning of DGSL as per the LIR and NOTOC.
f) Report actual loading position.
g) Signs the NOTOC.
h) Deliver the NOTOC to PIC for signature.
i) The NOTOC must be issued in adequate number of copies, in order to provide information to all concerned and for file retention.
j) DGSL information shall be made available to the next downline airport before the flight arrives.

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Security

Chapter 10

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Chapter 10 Security

10.1 Security Instructions and Guidance

10.1.1 General

This section refers in general terms to the precautions and procedures applicable to Flying Staff, and may be supplemented by information in Aircrew Circulars. Any incident, which has a bearing on security, is to be reported to Director of Operations and Security Manager.

10.1.2 Co-Operation with Airport Authority

Nesma Airlines Staff are to comply with security procedures required by airport authorities at airports in regular use by Nesma Airlines. Corporate Security will ensure that our procedures are compatible with local regulations.
In the event of operation or diversion to an aerodrome where there is no Nesma Airlines agent, the Captain is to liaise with the local authorities to ensure the safety and well-being of his passengers and aircraft.

10.1.3 Nesma Airlines Security Policy

Nesma Airlines Security Policy expresses the clear and genuine commitment to have a Security Management System (SEMS) that provide our organization with a structured approach that manages the security as an integral part of its overall business and consider it as a fundamental operational priority.
We are commit to:

- Comply with legislation and regulations, bulletins and security directives issued by the civil aviation authority and the civil aviation law No. (28) Of 1984 and as amended by law No.
  (136) of 2010 as well as the legislation of international organizations in the field of aviation security and with other applicable regulations and standards of Nesma Airlines;
- The establishment of security objectives and security performance standards;
- Imperatives for including operational security in the description of duties and responsibilities of senior and front line management;
- The provision of resources necessary for the successful implementation of Nesma Airlines security policy;
- The adoption of industry best practices for security management;
- The promotion of security awareness and the establishment of a security culture;
- The promotion of a reporting system that encourages the reporting of inadvertent human error and/or intentional acts of non-compliance;
- Continual management review and improvement of the SEMS and security culture;
- The development of objectives for the measurement of security performance;
- Communication processes that ensure a free flow of information throughout the organization and communicate the security policy throughout the organization;
- Periodic review of the policy to ensure continuing relevance to the organization;
- Provide the needed protection to company in order to enable its function, by means of keeping the security and safety of its clients, employees and equipment in consistence with the national laws and regulations concerning the aircraft registered in it, via the used legislations, during the presence of the company’s aircraft in the national airports, or in air, and when the company aircraft are in another country’s territory, or in another range of aviation, the program is thus abiding to the rules of the other country.

10.1.4 Duty Operations Staff

Station Manager and/or Dispatcher on duty are responsible for informing all Aircraft Captains and Pursers of any security matter related to the Flight Crews' current operation and/or duties

10.1.5 Captain and Pursers Responsibilities

The Captain is the Nesma Airlines designated In flight Security Coordinator, is fully responsible for the safety of the aircraft, its load, passengers and all crewmembers aboard and ensuring that security procedures at the aircraft and pertinent to the particular flight have been completed prior to departure, during transits and before leaving the aircraft after flight.

- The PIC will coordinate with the other crewmembers, in cases of sabotage and hijacking and shall notify the other crewmembers of the nature of any threat and acts in accordance with company policy; he initiates the required aircraft searches.
- Acts of unlawful interference should be mentioned to the crew by the PIC at every pre-flight briefing.
- In case of arrested hijacker on board; the PIC will advise the Airport Authority, who will decide on what to do with the hijacker.
- If the aircraft falls under the control of one hijacker or more, then the PIC will assume full responsibility for the fate of the aircraft.
- In case of a security problem on board during the flight, all crewmembers will offer any possible assistance to the Pilot in Command or his delegate.
- If the PIC approves the admission of anyone into the cockpit as per of ECAA Rules, the Purser shall be informed and he will inform the rest of the crewmembers.
- Outside Egypt and during layovers, assigns a cabin crewmember to keep the crew baggage under continuous supervision.
- He is a member of the crisis management team for threats involving his aircraft, he organizes and coordinates the activities of his crew and liaises with authorities.
- The PURSERS must report to the Captain that a Cabin Security check has been completed before passengers aboard the aircraft. The check should consist of a visual inspection of the flight deck, galley, toilets and cabin and a visual inspection of the interior of the aircraft. The objective of these checks is to ensure that there are no unauthorized personnel or prohibited items on board the aircraft. Advice on requirements and procedures at particular stations can be provided by the Security Department.

10.1.6 Identification Cards

Each employee must wear Nesma Airlines Identification Card (ID card) along with the Airport Security Pass issued (if applicable) for the duration of his employment. Flying crews are required to visibly display their Identification Card when on duty within the restricted zone at an airport.
It is the individual's responsibility to ensure his card remains valid and that he is familiar with its conditions of issue and use. All reasonable care is to be taken to prevent loss or theft of an ID or Security passes, particularly when OFF duty, due to the security implications of misuse. This is even more serious if other identifying documents such as passports and licenses are lost or stolen at the same time. Loss or theft of an ID or Security passes should be reported to the Nesma Airlines Security and Flight Operations Departments as soon as possible. If away from base the incident should be reported to the Captain and, if possible, to the Police and a Police Report obtained; then to be reported to Nesma Airlines Security and Flight Operations Departments as soon as possible.

10.1.7 Crew Baggage Security

All crew baggage should carry an identification label giving full name and rank of the crewmember. Baggage tag supplies are to be protected in locked storerooms and counter supplies are kept under observation and secured. Crewmembers must not leave their baggage unattended at all time. Crewmembers must not accept the carriage of sealed parcels from third parties. Any sealed package belonging to a crewmember shall at all times be carried by the crewmember concerned onto the aircraft personally and shall not be entrusted to any other crewmembers.
The individual crewmember is responsible for the handling and security of his personal baggage. Adherence to the following procedures is required:

- Keep your bags locked when you are not using them.
- Maintain security of your entire carry-on bag.
- Before leaving hotel, make sure all items in your bags belong to you and have not been tampered with.
- Keep your bags in view at all times in public areas such as lobbies, boarding lounges, restaurant, restrooms, hotel or terminal buildings.
- Never accept anything for carriage, including letters or envelopes, given by strangers, fellow employees or acquaintances.

10.1.8 Security Measures

The Three categories of security measures are as follows:

1. Standard Security Measures (SSM) - These are the basic security measures which must be applied at all times.
2. Enhanced Security Measures (ESM) - These are the enhanced security measures which should be applied in addition to the standard security measures. They are required when the general threats against Nesma Airlines increases and when Corporate Security instructs that they should be implemented.
3. High Risk Security Measures (HRSM) - The high risk security measures are to be applied in addition to the standard security measures and the enhanced security measures, when there are VVIP flight or when the Corporate Security judges that there is a threat directed against a specific flight.

10.1.9 Access to Aircraft

10.1.9.1 Ramp Areas

Only authorized persons are allowed in the vicinity of Nesma Airlines aircraft or equipment.
- Nesma Airlines Staff or appointed agents in ramp areas must be vigilant at all times; any suspicious behavior is to be challenged, the suspect reported to the airport authorities, and, where possible, kept under observation until the arrival of security staff. All Nesma Airlines staff in ramp areas or in the airport restricted zone must wear an ID and Airport Security passes.

10.1.9.2 Persons with Statutory Right of Access

ECAA Flight Operations Inspectors and Surveyors, Customs, Immigration and Police Officers and Nesma Airlines Security Inspectors may board Nesma Airlines aircraft at any time in Egypt or overseas to carry out their official duties. All such personnel carry an identity document issued by their controlling authority and which they must be asked to produce.

10.1.9.3 Cockpit Security

Refer to security manual for complete procedures.

- Cockpit door must be locked after closure of the last passenger door
- Cockpit door may be opened after the first external passenger door has been opened
- Follow leaving or accessing the cockpit procedure
- Visits to flight deck by passengers is not allowed
- Use of jump seats by ticketed persons is not allowed
- Cockpit doors and surrounding bulkhead are reinforced and made resistant to forced entry
- Cockpit door is lockable from inside the cockpit with bar/bolt locking device, or electrically closed.
- Pilots can monitoring the entire area outside the flight crew compartment door to identify persons requesting entry and detect suspicious behavior or potential threat by using CCTV system (if installed).

Locked Flight Deck Door during normal Operations

Situation	Procedures
Boarding	The flight deck door must be closed and locked at latest after closure of last external passenger door.
Taxing	When cabin is secure, the PURSERS will call the PIC through the INTERPHONE to inform PIC that the cabin is ready for takeoff.
Take off	The flight deck door must be closed and locked
Climb	Flight deck door must be closed and locked until seat belt signs switched off or authorized by PIC. Seat belt signs will generally not be switched off below 10,000 ft.
Cruise flight deck service	When seat belt signs have been switched off, Cabin Crew should approach flight deck after contacting flight deck through the INTERPHONE.
Physical needs	It has to be ensured that time of absence of one cockpit crewmember is as short as possible and another cabin crew is seated in the cockpit. Forward galley area clearance must be ensured by cabin crew before opening cockpit door.
Visit to the flight deck by cabin crewmembers	It deems essential, especially during night flights, that cabin crewmembers visit the flight deck frequently. PIC / Captain has to brief cabin crew respectively.
Descent / Approach	- Seat belt signs shall be switched on at the top of descent. The flight deck door must not be opened after the seat belt sign is switched on, except when opening is authorized by PIC / Captain. Upon reaching 10,000 ft. Sterilized Cockpit Policy and Procedures in effect. - After landing gear down on final approach, PM will announce on the Interphone for cabin crew to be seated for landing.
On blocks	Flight deck door may be opened after disembarkation of last passenger or if any external aircraft door is subsequently opened for disembarkation, except when necessary to permit access by authorized persons.

Abnormal situation in cabin e.g. unruly passenger, passenger smoking, reported concerns of passengers or concerns of crewmembers	Cabin crew must inform flight crew about any situation in cabin that is considered as an abnormal situation. **Note:** Cabin crew should not be intimidated by locked flight deck door.
Unruly passenger	• During a passenger disturbance at any threat level, the flight deck door must be kept locked until the situation is definitely under control. • Purser's signs unruly (disruptive) passenger form when advised by the PIC. • Contact to the flight deck shall be by interphone. • Different procedure to be followed in the event of hijacking. Procedure to be briefed by PIC to cabin crew prior to departure of flight.
Pilot incapacitation	• Standard procedure for incapacitation. • The decision to open the flight deck door for safety reasons rests with the remaining flight crew.

Note: When the terms "contact, inform, communicate and approach" used for cockpit security procedures, it shall imply the use of INTERPHONE and the code (password) which has been agreed upon during flight briefing.

10.1.9.4 Admission to Cockpit

For all Nesma Airlines Flights, No person may be admitted unless this person is a company crewmember (active crewmember), CAA inspector, assigned persons to perform duty in the cockpit, and any other person properly authorized, e.g. maintenance personnel, ATC controllers. And the area outside the flight deck door must be monitored prior to permitting authorized personnel to access to or egress from the flight deck

Flight deck Security Door System Procedure

On all flights, the Flight deck door shall be closed and locked from the time all external doors are closed following embarkation until any such door is opened for disembarkation, except when necessary to allow routine access or permit access and way out by authorized persons. This will prevent any unauthorized person from taking control of the aircraft**.**

When Flight Crew wishes to exit the Flight deck (initiated from the Flight deck to Cabin):

The forward Cabin Crew shall ensure that there is no unauthorized person(s) in the forward galley/toilet area and no passengers standing on the aisle from the galley area up to row number 2 in the cabin and cabin curtain shall be closed

When the above requirement is met the forward Cabin Crew will confirm to the Flight deck Crew via interphone that it is safe to exit the Flight deck.

One Cabin Crewmember will enter the Flight deck and remain until the Flight deck Crewmember has returned.

When Flight deck Crew wants to access the Flight deck, one Cabin Crewmember shall be on guard watching down the aisle until the Flight deck Crewmember access the Flight deck and close the door.

When Cabin Crew wishes to access the Flight deck (Initiated from Cabin to Flight deck):

The forward Cabin Crew shall ensure that there is no unauthorized person(s) in the forward galley/toilet area and no passengers standing on the aisle from the galley area up to row number 2 in the cabin.

When the above requirement is met, the Cabin Crewmember concern will follow the Flight deck access procedure and ensure it is safe to access the Flight deck.

The Second Cabin Crewmember will stand guard in the forward galley area looking towards the cabin to stop any movement from the passengers beyond the row 2.

Once 2nd Crew has been granted, the Cabin Crewmember will access the Flight deck and close the door behind them.

Any Crewmember exiting the Flight deck will check outside using the spy hole from the Flight deck and once everything is cleared exit the Flight deck and close the door behind.

Note:

- At any time during the Flight deck door opening procedure, if any passenger refuses to follow these instructions, and/or if security of the Flight deck cannot be ensured, the Cabin Crewmember standing guard shall raise an alarm as appropriate. All possible measures shall be taken by Crewmembers to prevent unauthorized access to the Flight Deck.
- In the event of suspicious activity or security breaches (e.g. hijacking) raises in the cabin, the communication between the cabin crew and the flight crew shall be through the interphone only.

  If CDSS (Cockpit Door Surveillance System) is inoperative for any unforeseen reason or a communication failure between the cockpit and cabin through the interphone, the following procedure shall be applied for flight deck entry/admission and communication between cockpit and cabin:

- PIC shall assign – in coordination with purser or his deputy – one cabin crew to stay in the cockpit.
- The assigned cabin crew shall:
  - Follow Flight deck Security Door System Procedure as described above.
  - Be the communication/reporting link between flight crewmembers and the rest of cabin crew in passenger compartment.
  - Strictly adhere to sterile cockpit policy as described in OM-A 8.3.12.

10.1.9.5 Unattended Aircraft

No air bridge, powered Jet-way, or any other means of direct access from terminal or pier to aircraft may be in position against Nesma Airlines aircraft unless under surveillance by Nesma Airlines staff or handling agents or security guards. When aircraft are left unattended on the ramp, they should be parked with all doors, hatches and windows closed and steps and ground equipment withdrawn except when parked within the restricted zone and subject to the surveillance mentioned above.

10.1.9.6 Night Stops

At normal planned night stops where adequate Station staff and security facilities exist, the Captain's responsibility for the safety of his aircraft is delegated to the Nesma Airlines Station Manager (or senior staff member or agent) after it has been safely positioned for unloading. At unplanned stops and at Stations where the staff is insufficient or unsuitable to accept responsibility, the Captain is to take all possible precautions for the safety of the aircraft, if necessary detailing Air crewmembers to guard it.

10.1.9.7 Aircraft Visits by the Public

The public are not generally admitted to the airside of an airport for the purpose of viewing aircraft for which Nesma Airlines is responsible. An exception may be made for a public relations and/or sales promotion visit authorized by Corporate Security in conjunction with the aircraft Captain, if appropriate. Visitors are to be accompanied at all times by a responsible staff member and display an I.D pass issued by the Airport Authority.

10.1.10 Passengers

10.1.10.1 Personal Searches

All passengers, their hand baggage, and any duty free items are to be searched before boarding the aircraft; the use of electronic metal detectors is approved for this purpose. Local security screening and boarding procedures must not permit passengers to by-pass this personal search. Deportees are subject to the same requirements and procedures in respect of personal and hand baggage search as other passengers.
Any article considered a "security risk" is to be taken from a passenger and not loaded on any aircraft. At the discretion of security staff and with the consent of the Pilot in Command, certain items may be pre-boarded but only if those items can be secured in the aircraft hold and are not accessible from the cabin.

10.1.10.2 Diplomatic Immunity

Members of Foreign Diplomats and members of certain international organizations (e.g. United Nations Organization) enjoy diplomatic privileges, including immunity from compulsory personal search, and in many cases immunity from the compulsory search of their personal baggage. This can include spouses and children traveling with any such person.
Diplomatic Immunity is subject to reciprocal agreements with other countries.
Sealed diplomatic bags may be carried in the passenger cabin without examination of contents, provided station staff is satisfied with the authenticity of their seals and the courier's credentials, and the Pilot in Command has been informed. Under no circumstances may an airline insist on the courier being separated from his bag.

10.1.10.3 Passengers Failing to Board after Check-In

The Direction concerning carriage of hold baggage requires that a check be carried out prior to departure to confirm that all passengers who have checked in baggage for carriage in the hold have boarded the aircraft. Whenever the final head count determines that a passenger has not boarded, the flight may not depart with the missing passenger's baggage on board, and:

1. immediate steps are to be taken to identify the passenger and the reason for not boarding the aircraft;
2. All hold baggage belonging to that passenger is to be located and OFF loaded. In certain circumstances this may necessitate the off-loading of all baggage for passengers' positive personal identification in order to locate the baggage of the passenger who failed to board;
3. Any baggage off loaded in these circumstances is to be removed to a designated safe area and dealt with in accordance with local security regulations.

10.1.10.4 Passenger Baggage Identification

When Passenger Baggage Identification is considered necessary, the following procedures must be adopted:

- If the aircraft has already been loaded, the holds must be emptied of passenger baggage. The Pilot in Command should ensure that no baggage is left behind in the holds.
- Sufficient baggage handlers should be made available and all baggage must be placed on the tarmac in parallel rows beyond the wings of the aircraft. If the weather is severe and there is sufficient space to perform this passenger/baggage identification under cover, this should be arranged.
- There should be sufficient gaps in the rows and space between them to enable the passengers to walk between the rows to identify their baggage.
- Before the passengers leave the aircraft, a clear announcement should be made, by the PURSERS, over the public address system informing them that they will be obliged to identify their own baggage. They should be instructed to take their flight coupon/boarding card with baggage tags with them and to leave cabin baggage on board the aircraft.
- If possible, there should be one set of steps for the passengers to disembark from and another set of steps for them to re-board after identifying their baggage.
- The crew must control the flow of passengers leaving the aircraft and ensure that there are no more than ten passengers on the tarmac at one time.
- Ground staff must ensure that the identification is carried out in an orderly manner and that when a passenger has identified his baggage, the baggage tags correspond with the baggage tags on the ticket cover/boarding card.
- As the bags are identified, they should be marked with a sticker, chalk or crayon and immediately placed in a container or trolley or loaded directly on to the aircraft. Ground staff must monitor passengers to ensure that no item of hold baggage is taken back on board the aircraft by the passengers and that no item is removed from the hold baggage and taken on board the aircraft.
- Whenever this process leaves a bag unidentified, the baggage tag number and the name on the unidentified baggage should be noted and an announcement made over the public address system for the owner to come forward to identify the remaining baggage on the tarmac.
- Any unclaimed baggage must be removed to a designated safe area and dealt with in accordance with local security regulations.

Note: The passengers should always be taken to the baggage; under no circumstances should the baggage be taken on board the aircraft for identification.

10.1.10.5 Rush Baggage

Rush Baggage is baggage, which has been mishandled due to reasons beyond the passengers control and shall be delivered to the passenger.
Rush baggage can be sent under the following conditions:

- It must be screened
- It must be ensured that the passenger has already traveled. Rush Baggage must be stored at the airport in secure storage area.

10.1.10.6 Hand baggage

Flying crew and ground staff are to make a careful check, particularly at transit and terminal Stations, that passengers who have completed their flight have left no bags or packages on the aircraft. If an item cannot be identified, do not touch it. Clear the area and call Security. On no account must a suspicious object be touched or moved.

10.1.10.7 Firearms & Other Prohibited Weapons.

10.1.10.7.1 Legal provisions and Regulations.

The carriage of firearms on board aircraft by law enforcement officers and other authorized persons must be governed by laws of the States involved, thus is covered by the Egyptian Civil Aviation Regulation (ECAR) - Airplane Operator Security - Part 108 Para. 209;

10.1.10.7.2 Acceptance Procedures

Reference Security Manual chapter 5
Nesma Airlines policy not allows boarding armed persons on board its flights,

Bodyguards to government VIPs

With the approval of Nesma Airlines, the following procedures should be implemented:

- **a)** In case of VIPs (minister or other), whether Egyptian or foreigner, the guards should submit the firearms to the Nesma Airlines in-flight {Pilot In-command}.
- **b)** Firearms shall be placed in the cockpit with the pilot in command, while the ammunition shall remain off the firearms.
- **c)** The firearm shall be handed over, in case of Egyptian, Foreign ministers or VIPs immediately after opening the aircraft door in the mean time of the VIPs going through the exit door.
- **d)** Prior to the departure of the flight pilot-in-command and all crewmembers should be advised of the seat location and the number of each armed person on board the aircraft.

10.1.10.7.3 Protection on the Ground.

With the approval of Nesma Airlines, the following procedures should be implemented:

- **e)** Prior to acceptance Nesma Airlines staff must be assured that the weapon is not loaded;
- **f)** The weapon must be transported in a sturdy container to prevent any possible damage during the flight;
- **g)** The 5 kg allowance for more than one person must not be combined into one or more packages;
- **h)** Weapons and ammunition must be stowed in an area that is inaccessible to any person while the aircraft is in flight and should not be carried on the flight deck or retained by any member of crew;
- **i)** pilot-in-command must be notified when weapons and ammunition are carried on the aircraft;
- **j)** Transit and transfer stations must be advised and should ensure the integrity of such items;
- **k)** At the final destination, security procedures must be implemented to return the weapons and/or ammunition to passenger;
- **l)** Police and customs authorities supervise firearms destined from abroad;
- **m)** In case of the carriage of firearms on board Nesma Airlines aircraft from aboard, Nesma Airlines security General Department must be notified by a telex about the consignment in order to secure its arrival and delivering it to the consignee, the security General Department must notify both police and customs authorities.

10.1.10.8 Left Behind By Disembarking Passengers from Transit Flights

During the examination of the areas in the cabin of the aircraft, no passengers shall be on board, unless the aircraft is in transit.

Where an aircraft is in transit, the aircraft security search may be performed to ensure any items left behind by disembarking passengers from transit flights are removed from the aircraft or otherwise addressed appropriately before the departure of the aircraft whilst passengers remain on board provided that:

- **a)** The passengers area in possession of their cabin baggage when the examination is performed, and
- **b)** passengers remaining on board should be asked to positively identify their belongings, perhaps by placing them on their laps, while the security check or search is performed
- **c)** The passengers are under supervision in order to prevent movement through the aircraft when the search is being performed.
- **d)** Any articles found are treated as suspect and appropriate measures are taken to remove them from the aircraft

10.1.11 Unruly Passengers

10.1.11.1 General

Individual passengers or groups of passengers with the potential to behave in a disorderly manner generally fall into the following categories;

- Those who disregard repeatedly the Instructions of the crew or Nesma Airlines Ground staff;
- Those who behave abusively in general;
- Those who refuse to follow the company regulations (no smoking, use of electronic equipment, etc.).
- Those related to the use of excessive amounts of alcohol and the use of both prescription and non-prescription drugs.

10.1.11.2 General Policy

Unruly behavior at check-in, boarding gate, lounges or on board the aircraft, conflicts with our goal to be a safe and secure airline and lowers the level of customer satisfaction felt by other passengers. It also places additional and often unacceptable burdens on crewmembers and ground staff. Nesma Airlines policy, outlined below, applies to all passengers regardless of status perceived or otherwise.

- Not to tolerate any physical or verbal assault by passengers on Nesma Airlines employees whilst they are on duty or away from their home base whilst on company business.
- Not to tolerate any disorderly or unruly behavior by passengers or any person on board our aircraft.

To empower crews and ground staff to take reasonable steps to prevent disruptive and unruly behavior and, where necessary, to deal with it as effectively as practicable including refusal to carry passengers who have the potential for creating disturbances

- On board the aircraft and who therefore could endanger the flight safety or any person.
- To empower crews to refuse further alcohol to passengers who appear to be intoxicated or on the verge of becoming so on board Nesma Airlines aircraft.
- To support crews and ground staff taking such action.
- To encourage the police to prosecute unruly passengers in appropriate cases particularly where there have been assaults on Nesma Airlines staff.
- To assist and support crewmembers and ground staff who are required, after an incident, to give witness statements to the police or to appear in court proceedings when Passengers are prosecuted.
- To provide appropriate training to crew and ground staff in dealing with conflict and its aftermath.
- To deny future carriage to unruly passengers who remain a threat to employees or Nesma Airlines.

10.1.11.3 Nesma Airlines Conditions of Carriage

Nesma Airlines may refuse carriage or onward carriage of any passenger if, in the exercise of its reasonable discretion, Nesma Airlines finds it necessary for any of the following reasons:

- To ensure the safety of the aircraft or its occupants;
- To prevent violation of any applicable laws, regulations, or orders of any State or country to be flown from, into or over;
- The conduct, age, mental or physical state of the passenger is such as to require special assistance from Nesma Airlines (unless prior arrangements are made), or cause any risk or hazard to himself or to other persons or property;
- Passenger causes discomfort or makes himself objectionable to other passengers or property;
- Passenger has failed to observe the instructions of Nesma Airlines staff.

10.1.11.4 Captain Authority

The Tokyo Convention Act 1963 confers powers upon an aircraft Pilot In Command in respect of offences and certain other acts committed on board an aircraft. Refer to Tokyo Convention Countries in the current chapter.

Failure to obey the lawful commands of the Captain (for example, observe the seat belt sign) is a criminal offence.

If at any time between 'doors closed' and 'doors opened' the Captain has reasonable grounds for believing that any person on board the aircraft has done or is about to do anything that may jeopardize:

- The safety of the aircraft or persons or property on board; or
- The good order and discipline on board.

The Captain may take all reasonable measures including restraint to:

- Protect the safety of the aircraft;
- Protect persons or property on board;
- Maintain good order and discipline on board;
- Enable him to deliver such person to competent authorities or to disembark him in accordance with provisions of the Tokyo Convention.

The aircraft Captain may authorize the assistance of, Security, other crewmembers and may request or authorize, but not order, the assistance of passengers to restrain, any person whom he is entitled to restrain.

Additionally, any crewmember or passenger may without the Captain authority, take similar measures if he believes these to be immediately necessary to protect the safety of the aircraft, its occupants or contents.

10.1.11.5 Smoking

Failure to obey the "No Smoking Sign" is a threat to safety and an offence under Egyptian Law.

10.1.11.5.1 Passenger Smoking in the Cabin

If the cabin crew observe a passenger smoking in the cabin they will immediately inform him to refrain from doing so. However, if the same passenger repeats the offence the PURSERS must obtain his name, seat number, final destination and pass this information to the Captain who in turn will inform dispatch who will relay this information to Commercial Department who will cancel the passenger's onward travel arrangements on Nesma Airlines aircraft.

10.1.11.5.2 Passenger Smoking in the Toilet

If the cabin crew observe a passenger smoking in the toilet the PURSERS will immediately obtain his/her name, seat number, final destination and pass this information to the Captain who in turn will inform dispatch who will relay this information to the Commercial Department who will cancel the passenger's onward travel arrangements on Nesma Airlines aircraft.
Note: Please do not hesitate to inform dispatch as soon as possible by means of Radio, Station Manager, Telex, Fax, etc.

10.1.11.6 Unruly Passenger Report

In the event that a passenger causes disruption in the cabin by refusing to follow instructions from either the Captain or the PURSERS, a "unruly Passenger Repot" must be filled. An Air Safety Report must be raised noting the following details:

- Passenger full name.
- Passenger Passport details – number, nationality, address (If possible.)
- Seat number.
- Any further onward sectors.
- Description of the incident.
- Name and staff number of Crew involved.

10.1.11.7 Handling Unruly Passengers

Introduction:

Cabin Crews are in a unique position in dealing with the unruly passenger problem as they are not able to escape the situation or to call for the authorities for assistance on board during flight. The emphasis on unruly behavior of passengers should be one of prevention and with strong emphasis in doing so from the curb at the airport through to the passenger cabin of the aircraft in order to best mitigate incidents and when possible to keep the unruly behavior on the ground.

Definition of Unruly/Disruptive Passenger:

A passenger who fails to respect the rules of conduct at an airport or on board an aircraft or to follow the instructions of the airport staff or crewmembers and thereby disturbs the good order and discipline at an airport or on board the aircraft.
LEVELS OF THREAT:
It is important to follow the authorities' regulations, This to facilitates communication and understanding of crewmembers and ground personnel on the level of seriousness that the on-board situation has reached.
The ICAO's levels of threat are as follows:
Level 1 — Disruptive behavior (verbal);
Level 2 — Physically abusive behavior;
Level 3 — Life-threatening behavior (or display of a weapon);
Level 4 — Attempted or actual breach of the flight crew compartment.
Level 1 and 2 are for the most part behaviors that would be considered safety hazards for example: Smoking, alcohol-related or intoxication, delaying flight by refusing to comply with instructions, not turning off portable electronic devices as per instructions.
On the other hand Level 3 and 4 behaviors are very serious security threats that also impact flight safety.

Examples of levels of threat:

LEVEL 1	DISRUPTIVE BEHAVIOR (VERBAL)
MINOR (Notification Card Shall be given Ref. CCM CH. 11)	
• Behavioral indicators include but are not limited to: • The use of unacceptable language towards a crewmember: swearing or use of profane language. • Unacceptable behavior towards a crewmember: communicating displeasure through voice tone or rude gesture, provoking an argument or making unreasonable demands (e.g. refusal to give up on a denied request). • A display of suspicious behavior: e.g. agitated or numb; distant and unresponsive behavior. • Passenger not following crew instructions or challenging authority. • Violation of a safety regulation.	
LEVEL 2	PHYSICALLY ABUSIVE BEHAVIOR
MODERATE (Unruly Passenger Warning Form Shall be issued CCM Ref. CH. 11)	
Behavior includes but is not limited to: • Physically abusive behavior towards a crewmember: openly or aggressively hostile action that includes physical act or contact. • Obscene or lewd behavior towards a crewmember: actions of an overtly sexual, lecherous or lascivious nature. • Verbal threats: threatening a crewmember or another passenger with physical violence or bodily harm on board or while about to board aircraft, or making threats in an attempt to board aircraft. • Tampering with any emergency or safety equipment on board the aircraft. • Deliberately damaging any part of the aircraft or any property on board the aircraft.	
LEVEL 3	LIFE THREATENING BEHAVIOR
SERIOUS (Unruly Passenger Incident Report Shall be issued Ref. CCM CH. 11)	
Behavioral indicators include but are not limited to, actions creating a fear of imminent death such as: • The threat, display or use of a weapon • Physical or sexual assault with intent to injure (Violent, threatening, intimidating or disorderly behavior	

LEVEL 4	ATTEMPTED OR ACTUAL BREACH OF THE FLIGHT DECK
FLIGHT DECK (Unruly Passenger Incident Report Shall be issued Ref. CCM CH. 11)	
An incident which constitutes a security threat and which includes but is not limited to: • An attempted or unauthorized intrusion into the flight deck. • A credible threat of death or serious bodily injury in an attempt to gain control of the aircraft. • The display, use or threat to use a weapon to breach the flight deck. • Sabotage of or the attempt to sabotage an aircraft. • Actions that render the aircraft incapable of flight or that are likely to endanger its safety of flight. • Any attempt to unlawfully seize control of the aircraft.	

Cabin Crew Actions:

1) The seatbelt sign be turned on so that all passengers are seated when issuing the notification warning card.
2) request another Cabin Crewmember or airline employee (deadheading or on staff travel) to witness the issuance of the notification warning card
3) If the passenger is unable to read the card a Cabin Crewmember can read the card to the passenger
4) The operator may issue notification warning cards in diverse route languages in order to communicate the information in the passenger’s language

Note: A notification warning card would never be issued for Level 3 or 4 interferences due to the nature and severity of the threat.

Restraining Devices:

1) Crew need to be aware that a situation can escalate at any moment and sometimes without warning.
2) Applying restraining devices should be used when all conciliatory approaches have been exhausted.
3) Once restraints have been used, they should remain on the passenger for the duration of the flight even if he/she promises good behavior.
4) Able Bodied Passengers (ABPs) can assist Cabin Crew in restraining the unruly passenger(s)
5) Cabin crew should never relinquish control of the cabin to either perpetrators or ABPs, even if they are air carrier employees or law enforcement officers.
6) Cabin crew should control the amount of force used by ABPs in order to restrain or subdue a perpetrator and make sure it is not excessive.
7) If the Cabin Crew cannot control the disturbance the flight crew should relay this information to the applicable persons on the ground and land as quickly as possible.

Police Involvement:

Where practicable, the following information should be relayed to the police before landing through air traffic control services:

- Nature of the incident
- Identity of the offender and the complainant
- Time, date and location of incident
- If the offender and/or the complainant has sustained any injury requiring medical attention
- If the complainant is prepared to institute proceedings against the offending passenger
- The location where the aircraft is going to park at the airport. (In the case of a difficult or violent passenger, the police may require the aircraft to be parked on a remote stand.)

When the police attend the parked aircraft, they will likely require:

- All other passengers not involved in the incident to disembark (some authorities prefer to immediately embark and remove the offender prior to passenger deplaning)
- A briefing of the allegation by the crewmembers involved in the incident
- An interview with the complainant
- Particulars of the complainant
- Details of all other persons involved in the incident who may give corroborative evidence
- Details of time, date and place on the aircraft where the offence(s) took place
- A record of "first person" conversation with the offender and crewmembers involved in the incident, which should be recorded in written notes made at the time or shortly after the incident

Depending on local criminal procedure, the police may require the complainant to be present at the time that the allegation is put to the offender.
The Role of the Pilot in Command:

1) the Pilot in Command is aware of the Powers and Immunities bestowed upon them by the Tokyo Convention 1963 to assess and deal effectively with unruly passenger behavior on board and underline the fact that the organization will give them full backing anytime these Powers are legally used.
2) With a locked flight deck door the flight crew must rely on the Cabin Crew to assess and manage unruly passenger situations in the cabin. Pilots should consider restraint whenever they assess that a situation will in any way affect the safety of the aircraft, its passengers and Cabin Crew, and/or at the advice of the Cabin Crew.

Mandatory Reporting and Required Documentation for Prosecution:

1) Nesma Airlines have procedures to ensure that all unruly passenger incidents are reported and documented in an effective manner, not only to gain an understanding of the incidents
2) The Pilot in Command should advise air traffic control services (ATC) whenever a serious passenger disruption has taken place during the flight and request to be met at the gate by local law enforcement authorities and a representative of the air carrier if they consider that criminal prosecution should be pursued.
3) The crew should gather contact information from all passengers who witnessed the incident as their testimony might be required in later legal proceedings
4) The Purser should ascertain the name of the police officer investigating the allegation; his/her contact particulars and where they are stationed.
5) A report should be submitted giving details of the incident.

10.1.11.7.1 At Check-in.

If a person appears at the check-in counter and is in what appears an intoxicated state or acting strangely, his condition and actions will be reported to the ground supervisor before he/she is accepted onto the flight, allocated a seat and before the hold-stowed baggage is accepted for carriage.
The following aspects will be considered when refusing a person carriage at check-in due to what appears to be his/her state of intoxication:

a) The person's condition may not be associated with intoxication, he/she may be suffering from some chronic illness or physical or neurological disability with similar symptoms to a person affected by intoxicating liquor;
b) If the person contests the decision taken by Nesma Airlines, it may be necessary to have the person's physical condition examined by a medical practitioner. If the person is examined, a certificate should be obtained of the medical practitioner's finding;
c) A report setting the details of the refusal to carry should be submitted by staff members who initiated and confirmed the refusal. The names of others who may give additional information regarding such refusal should be included;
d) A copy of that report should be filed.

10.1.11.7.2 At the Boarding Gate

A passenger's state of insobriety may not be recognized until his arrival at the boarding gate. His condition could well have changed from the point of check-in to being called to board the flight. A passenger availing himself of early check-in or subject to delay in departure time may account for an advanced state of insobriety.
The following aspects will be considered when the person is refused carriage at the boarding gate due to what appears to be a condition making him/ her unfit to fly:

- **a.** Action should be taken on all the points set out in the section 'At Check-in';
- **b.** Hold stowed baggage of the passenger who has been refused carriage should be removed from the flight;
- **c.** The passenger should be re-united with his hold stowed baggage;
- **d.** Duty free purchases should be reported to Customs;
- **e.** The passenger should be escorted back through the Immigration line to the landside of the terminal;
- **f.** The flight purser of the subject flight should be informed of the passenger's removal from the flight;
- **g.** Arrangements should be made for the passenger's name to be removed from the passenger manifest.

10.1.11.7.3 In Flight

When an incident comes to the notice of cabin crew staff member he/she will:

- **a.** Report the incident to the cabin crew supervisor;
- **b.** Ascertain the underlying causes of the incident;
- **c.** Identify any persons traveling with the offending passenger;
- **d.** Identify any remedial responses that may be introduced;
- **e.** Move, if appropriate, the offending passenger to another seat location;
- **f.** Have another member of cabin crew speak with the offending passenger (a crewmember of the opposite gender can often assist in quieting the situation);
- **g.** If the passenger continues with unruly or disruptive behavior, inform the pilot-in-command of the flight, who may advise the use of restraint equipment;
- **h.** Keep the pilot-in-command informed on the progress of solving the situation.

10.1.11.7.3.1 In Flight Security Guards (Sky Marshals)

Nesma Airlines is not hiring In Flight Security Guards (not mandatory by regulations), the flight crews have been trained to anticipate trouble and handle riotous passengers.

10.1.11.7.4 Security Measures That Must Be Implemented By Cabin Crew against Unruly Passenger In-Flight

Cabin crew records any case of unruly passenger in the unruly passenger report

a. Inform the pilot-in-command with incident;

b. Ensure that no alcohol is served to the unruly passenger;

c. Prevent unruly passenger from entering the flight deck;

d. If the passenger be unruly once again during the cabin crew will implement the following procedures:

- ➢ Us of restraint equipment to capture unruly passenger, and when using handcuffs should not be shackled to any part of the aircraft including seats, tables, etc.;
- ➢ Change the seat of unruly passenger to be seated as far to the rear of the passenger cabin as is possible but not in a lounge area or next to/ directly across from an exit;
- ➢ They should be accompanied at all times and kept under surveillance, including visits to the lavatory;
- ➢ When served food should not be provided with metal utensils or a knife.

e. The Captain should contact the local authorities at the arrival airport to advice the police to receive the unruly passenger and make a written report at the police station if needed;

f. Unruly passenger should be the last passenger to leave the aircraft.

10.1.12 Searching and Guarding of Aircraft

10.1.12.1 General

Aircraft Checking, Searching and Guarding procedures are necessary to protect Passengers, Aircrew and Aircraft operating on all services and on the ground before, between and after flights.
Responsibility for ensuring these procedures are undertaken to the required standards rests with Nesma Airlines. Access to the aircraft must then be guarded and controlled by either security staff or operating crew until departure.
On flights operating in the absence of a specific threat, provided that the aircraft has remained in the Air side or has been sealed post previous flight and that the seal has not been broken, a security check must be made by the Operating Crew and confirmation of cabin security check completion be reported to the Captain by the PURSERS. Again, access must be controlled until departure.

10.1.12.2 Routine Checking

10.1.12.2.1 Flight Deck and Exterior

The aim of checking pre-flight is to ensure that the aircraft has not been interfered with in a manner, which would jeopardize its safety.
Checking of aircraft flight deck is directly concerned with the safe operation of the aircraft and only flight deck crew and designated airline staff are competent to check this area. The Captain or his representative in the course of ensuring that the aircraft is airworthy should generally check the exterior of the aircraft.
Before the aircraft undertakes the first flight of the day, and if circumstances dictate on turnarounds, flight crews when inspecting the aircraft exterior, should be mindful of security considerations.
Additionally all easily accessible quick release panels should be inspected. These measures are sufficient to meet the risk of interference with aircraft in the absence of a specific threat.

10.1.12.2.2 Aircraft Interior

The passenger cabin, toilets, galley and interior cargo holds are directly concerned with the safe operation of the aircraft and shall be checked by cabin staff and/or Maintenance Engineers who are familiar with the aircraft type. Cleaning staff not directly employed by Nesma Airlines should be subject to supervision. Cabin crews are required to complete security checks pre-passenger boarding, during turnarounds and on return to base.
Post-flight checks must include the passenger cabin, toilets, galley areas and are undertaken to ensure that passengers who have disembarked have left nothing on board which will hazard the aircraft.
As passengers will not normally have had access to the flight deck, cargo and external areas of the aircraft – these should not normally require a check.
Basic responsibility for the security of aircraft rests with Nesma Airlines. The objective of the search is to look for something that is out of place, cannot be accounted for and should not be there.

10.1.12.3 Aircraft Searches

Aircraft are searched at the beginning of each operating day before coming to service, (refer to 13.2 Security Forms), on layovers, and when a well-founded suspicion exists that the aircraft may be the object of an act of unlawful interference, or the aircraft was left unattended for 6 hours or more (refer to 13.2.2 Aircraft Security Check List). If a cooling period has been set, no attempt shall be made to unload, inspect the dead load or search the aircraft until the time limit has elapsed

Aircraft are also searched in connection with the carriage of prominent passengers, or following the cooling off period after a sabotage threat, or when unauthorized persons entered the aircraft Searches of high-risk aircraft should be conducted by trained security personnel assisted by aircraft crew and engineering staff.

10.1.12.3.1 Search Technique

To promote competent security searches use the aircraft security search checklist "10.3.3". Cockpit crew search the cockpit and exterior of aircraft paying special attention to wheel wells, engines, outflow valves and access panels, cockpit seats, pedestal area, aircraft library, oxygen masks stowage, ceiling side and rear walls, entire floor, third crewmember position, inside first aid. Cabin crew search their own working areas and Station engineer searches cargo holds and access panels.

For detecting explosives, airframe, including holds, are to be searched by trained security staff who may use dogs where available, or by operating crew, each crewmember will be responsible for his/her own work area and a comprehensive check of the aircraft interior, including passengers cabin areas, seats, overhead luggage compartments, lockers, toilets, galleys and carts, trash receptacles, storage bins, blankets and pillows will be required. Have the passengers identify their cabin baggage by zone. Report area clear

On all occasions it remains the Flight Crews' responsibility to security search those areas directly concerned with the flight safety of aircraft including the flight deck and the airframe exterior.

When the inspection is completed, the aircraft should not be left unattended.

10.1.13 Procedures for Unattended Aircraft

- Keep all parked aircraft under observation at all times
- Keep all external doors closed, and all stairs and loading bridges removed from aircraft
- All access points must be protected by the use of covers and destructible paper stick-on seals
- Apron floodlighting should be provided
- The use of irregularly timed patrols and posted security guards
- The use of Closed Circuit Television "CCTV" (if any).

10.1.13.1 Sealing of Aircraft

When aircraft are left unattended away from their normal operating base, if possible, the Flight crew should liaise with the handling agent and arrange for the aircraft to be sealed. The relevant seal numbers must be entered into the technical log. When the aircraft is re-attended, the aircraft technical log is to be annotated when tags are removed. If the aircraft seal has been breached, a full check by crew or search by trained security staff must be undertaken.

10.1.13.2 Positive Searching and Guarding for High Risk Sectors

There may be occasions whereby a flight will be considered a High Risk Sector due to perhaps VVIP passenger movement or if a flight is assessed by Nesma Airlines Security Manager as being under a specific threat. On such occasions, contact may be made by Security Manager and specific guidance given.

10.1.13.3 Pre-Flight Search of Aircraft

A thorough and in-depth search of the aircraft must be made after the aircraft has been catered and cleaned (refer to "Preflight" check list in "Forms" Section) and before the passengers aboard the aircraft.
The search shall be carried out by the crew of the aircraft under the supervision of a member of the flight crew and/or with the assistance from technical personnel. The result of each search must be reported to the aircraft Captain before departure.
At transit stations where passengers leave the aircraft, passengers remaining on board should be asked to identify their personal belongings to ensure that no suspect items have been left on-board.

10.1.13.4 Hold Baggage

All accompanied hold baggage must be x-ray screened by airport authority or searched by hand. After search, the hold baggage must be kept under surveillance whilst it is being transported to the aircraft for loading.

10.1.13.5 Guarding of Aircraft

Arrangements are made with the Special Security and Protection Unit to have the aircraft guarded at all times whilst it is on ground. This also applies to all airports en-route. Similarly, an aircraft, which has been checked, shall be guarded until crew arrival.

Particularly stringent control of access to the aircraft must be carried out and personnel with no legitimate business relevant to the flight should not be allowed near the aircraft.

If there is any doubt about the identity or authority of anyone attempting to board the aircraft, the law enforcement agencies and the Airport Manager must be informed immediately.

The aim is to:

1. Prevent unauthorized persons gaining access to the aircraft i.e. checking credentials of those persons seeking access to the aircraft;
2. To prevent weapons or explosive devices being placed on an aircraft after it has been searched or checked.

At most airfields, security guards will 'guard' the aircraft post search until the time of departure. All crewmembers will accept responsibility for stopping and reporting this to the Captain or Nesma Airlines representative any person suspected of endeavoring to take on board any weapon or potential explosive.

If the Captain is not satisfied that access to an aircraft has been controlled post search, he may require a full security re-search before the aircraft may depart on High Risk flight. Where an aircraft has been checked, crews must ensure that no persons have access to the interior other than authorized persons, operating crewmembers, persons acting on the course of a statutory duty or departing passengers.

10.1.14 Crew Security

All operating crews will be briefed before flight on personal security measures to be taken in areas considered by Nesma Airlines to carry a security check. This may be either a written or verbal brief by the PIC.

10.1.15 Inadmissible and Deportee Passengers

Inadmissible Passenger (INAD) is defined as a person who is refused admission to a State by authorities of that State, or who are refused onward carnage by a State authority at a point of transfer due failure to comply on the required travel documents such as no visa, expired, forged visa or passport

Entry means the normal permission granted by the respective authorities to a passenger having arrived from another country to move freely about in the country.
Permission or refusal of entry is normally decided immediately at the airport of arrival by the immigration authorities. Permission or refusal may, however, be delayed in exceptional cases when higher authorities, consulates or courts are involved.

Deportee: is defined as a person who had legally been admitted to a country by its authorities or who had entered a country illegally and who at some later stage is formally ordered by the authorities to be removed from that country

The deportees are classified as follows:

a. **Deportee Accompanied (DEPA):** is a deportee who is escorted in the aircraft cabin by authorized government escort personnel. The category falls under judicial cases such as jail passengers.
b. **Deportee Unaccompanied (DEPU):** is a deportee who is not escorted in the aircraft cabin by authorized personnel during the flight. The category falls under administrative cases against the state.

Note: Difference between an inadmissible passenger and a deportee: The deportee has already entered the country and is then proclaimed undesirable by the authorities.

Note: At some airports, the local procedure will require the airport police to escort the DEPU to the aircraft door. In such cases, the Flight Crew shall be advised by the Ground Staff prior to passenger boarding. The Flight Crew shall be briefed about the categories of the passenger to ensure that no further action is required by the Crew.

Nesma Airlines Policy:

Nesma Airlines accept INAD and DEPUs on board same flight. Carrying Accompanied deportees (DEPA) is subject to special flights contracts and special arrangements, the PIC has the authority to accept 5 DEPAs if their carriage is considered not carrying risk.
NESMA AIRLINES has the right to refuse the transportation of such passengers if their carriage poses risk to the safety of the aircraft or its occupants.
At all times, it is the prerogative of the Commander to refuse to carry any inadmissible passenger, deportee or person in custody or to impose any additional restrictions as considered necessary

When such category of passengers is traveling must be sure that:

- **a.** Ensure that Nesma Airlines representative in/out stations, captain, purser are notified when such categories of passenger are traveling;
- **b.** Inform Security department (through the station manager) of such transportation in advance by telex or telephone;
- **c.** Take special procedures when carry such category;
- **d.** Know all reasons for deportation or refused admission;
- **e.** Screening of deportees and prohibited immigrants to establish if they are likely to be a danger;
- **f.** Briefing of escorts with prisoners and mentally ill persons, to ensure they know what to do in the event of an emergency;
- **g.** In-flight and transit security procedures to be checked;
- **h.** Keep passengers under surveillance between check-in point and boarding gate.
- **i.** The following information is provided to the originating operator, as well as subsequent operators:
  - Name and sex of the person identified as the deportee; reason for deportation (nature of crime);
  - Willingness or unwillingness to travel by air;
  - Whether the person has attempted to escape custody;
  - Whether the person has any history of violence;
  - Whether the person has a history of self-harm;
  - Whether members of the person's family are booked on the same flight;
  - Whether the person is likely to be the target of harm during the transportation;
  - Identity of escorts (if required);
  - The mental and/or physical state of the person;
  - wanted status of the person (by any other authority);
  - Other information that would allow an operator to assess the risk of endangering the security of the flight;
  - Special conditions and precautions for transport of the person.

10.1.15.1 Factor which could make inadmissible or deportee passengers a security risk

- **a.** A major objection on the part of the individual to be returned to another country;
- **b.** The mental or physical state of the individual, which may require special attention or care;
- **c.** The nature of any criminal act already committed by the individual;
- **d.** If the individual is wanted by the police of any other State;
- **e.** If the individual personally objects to carriage by air;
- **f.** Ensure when accepting of mentally ill persons, prisoners, deportees and inadmissible passengers are pose no danger or security risk to the flight, according to Appendix – D (ref. security manual)

10.1.15.2 Security Procedures for Aircraft Safety to Accept Passengers Subject to Judicial or Administrative Proceedings

- **a.** Full security checks of the individual and his/her baggage prior to embarkation;
- **b.** Notify captain and purser of his seat number;
- **c.** Individual should be boarded before all other passengers and disembarked after all other passengers have left the aircraft;
- **d.** They should be seated as far to the rear of passenger cabin as possible, but not in a lounge area or next to/directly across from an exit;
- **e.** When serving food, should not be provided with metal utensils.

10.1.16 Bomb or Sabotage Threats

a. Paralyze the aviation system. Despite the fact that most bomb threats are hoaxes, initially they must all be taken seriously. It is the ability to effectively analyse each threat and treat it accordingly that can limit the impact of a bomb threat on an air carrier or an airport. It should be the prerogative of the receiving carrier to determine if a call or other communication is a threat that should be taken seriously or simply a hoax.

b. The Nesma Airlines Security General Department had developed a bomb threat plan, which would also incorporate a search and evacuation plan. A coordinator should be named to oversee bomb threats. The coordinator is usually the Head of Security of the station. The coordinator will act as the assessor of the bomb threat and must be available 24 hours a day.

c. Generally, bomb threats are made by telephone. All Nesma Airlines staff members are in a position to receive a bomb threat. Therefore, all Nesma Airlines employees should receive basic training and instructions on how to receive a bomb threat.

d. Bomb threat assessment should be conduct by the authority.

10.1.16.1 Classification and evaluation of bomb messages and threat

A bomb message can be defined as:

Messages are received in the following manner; Information or warning claiming knowledge that a dangerous device, such as a bomb, has been or will be placed in or on aircraft or airline/airport facilities.

- By telephone.
- In person; and
- In writing.

The person receiving the message should:

a. Write down the exact wording of the message immediately;

b. Complete as far as possible a form, copy appended as (appendix A);

c. Repeat the message to the caller to the whenever possible and ask for confirmation and the reason for the threat.

The exact message volunteered by the caller (before any discussion or interruption) is described as the initial information.

10.1.16.1.1 Oral threat

When an oral threat is received directly:
The coordinator should be informing to inform the airport authority.
Information received from a person, other than the person actually making the threat

- Be evaluated in the same manner as a threat by telephone or a threat received directly.
- The person supplying the information should be identified and that person's credibility assessed.

10.1.16.1.2 Written Threat

A written threat considered as initial information and is evaluated in the same way as a threat by telephone.
The following procedures must take in attention when receive a bomb warning:

- **a.** Each bomb warning by telephone, written message or other means of communication alleging that an unlawful act will occur at an airport or in the air must be considered serious. Each case should be thoroughly investigated to safeguard the public;
- **b.** All threats should be reported immediately. Appropriate individuals are familiar with a specific reporting format (Appendix A).

Threat received by a handwritten or typed note:

- **a.** The document and all material received with the threat should be carefully preserved for examination by the policing authorities.
- **b.** Unnecessary handling or other careless acts will only make the task of tracing the originator more difficult, if not possible.

The person receiving a bomb threat directly or overhears one made should have training on:

- **a.** Notify coordinator personnel immediately;
- **b.** Keep the person making the threat or indicating knowledge of a threat of unlawful seizers under surveillance until relieved by coordinator or security personnel;
- **c.** Note the age, height, weight, sex, colouring of eyes, skin and hair, clothing and any unusual characteristics such as lameness, twitching, or any peculiarities of gait of the person under surveillance;
- **d.** If the person making the threat leaves the scene, note the transportation used, such as bus, taxi, or private car; if the letter, note the make, model, colour and license number; if bus or taxi is used, note the name of the company and any numbers on the vehicle.

10.1.16.2 Understanding a Bomb Threat

- **a.** A threat must be viewed for what it is, a statement expressing an intention to commit an act of violence against a certain target. Although that is the case, a telephone call does not convey an explosive device along the telephone line into the inner workings of Nesma Airlines office or a terminal. Such threats can also be in the form of an anonymous note or graffiti on an internal or external wall of building;
- **b.** Generally, a bomb threat is designed to disrupt operations and alarm members of the workforce. An assessment process, enable a Co-coordinator and his team to declare the threat as 'specific' or 'non-specific'**,** needs to be part of the crisis management plan.

10.1.16.3 Characteristics of Bomb Threats

Bomb threats my directed against:

- Aircraft on the ground or in the air;
- Airport installations, facilities and buildings; or navigation aids on or in the immediate vicinity of the airport;

10.1.16.4 Receipt of Bomb Threats

a. Telephoned bomb threats may be received by airports, airlines and cargo agents either directly from the people issuing the threats or from intermediaries, for example the media, press agencies, etc. In either case, recipients should try to obtain as much information as possible about the threat in order to facilitate assessment of it and identification of the person issuing it;

b. To facilitate the collection of information, airlines and airports should install tape recording facilities on appropriate exchanges and/or telephones. When a bomb threat has been recorded, the tape should be retained as evidence. Also, since a bomb threat can be received by any employee and any company phone, each phone should have nearly a copy of a Bomb Threat Report Form (Appendix A) which should be filled out by the person taking the phone call.

10.1.16.5 Staff Instruction and Training

a. Staff who are likely to receive bomb threat calls, telephone switch board operators, Nesma Airlines ticket sales staff, should be briefed on the action they should take before taking up their duties, and the responses required from them should be incorporated into appropriate staff instructions;

b. They should be provided with checklists to facilitate their reactions. Coordinators should be similarly aware of the response required and of the need to relay information about bomb threats to the authority.

10.1.16.6 Action by Recipient of a Bomb Threat

Any person receiving a bomb threat directly by telephone should:

- listen carefully and make a note of the actual words used by the caller;
- Either take action to trace the call or alert a colleague in order that they may do so;
- Take such action as may be necessary to tape record the call, where this is not done automatically;
- Prolong the call to obtain as much information as possible;
- Ask the caller the following questions:

WHERE is the bomb?

(Asked first so that that an evacuation can be planned)

WHEN will it go off?

(So that a time factor is known for the evacuation)

WHA T does it look like?

(To help in recognition of the device during a search)

WHO are you?

(To see if the caller is from a credible group)

WHY are you doing this?

(To build up a better picture of the incident and keep the caller on the line to assist in tracing the call)

Note 1: The questions should be posed as open questions rather than as leading ones. For example, ask, "Where exactly is the bomb?" rather than, "Is the bomb in the hold of the aircraft?"

Note 2: The order in which the questions are asked is important as the caller may hang up before all the questions can be asked

- If possible, test the credibility of the caller by making up a non-existent flight number, flight time or location and asking the caller whether that is the one to which he or she is referring;
- Inform a coordinator who should inform, the security general manager and the police or security services.

People receiving calls from intermediaries should:

- Ask for, and make written note of, the precise time at which the threat was issued and the
- Exact words used by the caller;
- Ask whether the intermediary obtained answers to any of the questions detailed above, and about the origin of the call and the caller's identity.

The recipient of a written bomb threat will preserve the message and deliver it to the coordinator with precise information about its discovery. Messages discovered in flight will be immediately referred to the pilot-in-command.
Coordinators should interview the recipient of any call or message in order to complete the Bomb Threat Report Form and relay it without delay to the Bomb Threat Assessor.

10.1.16.7 Bomb Threat Assessment in the Air

Written bomb threats discovered on board aircraft in flight are likely to be spurious, but each one should be considered on its merits in order to assess the risks involved. Where the pilot-in-command is authorized to assess threats, Nesma Airlines provides them with guidance to enable them to assess the risks and decide upon a course of action (Appendix B – Response to bomb threats against aircraft). They should consider the following:

- The circumstances surrounding the threat to determine if it originated before the aircraft's departure or during the flight. The pilot-in-command should consider whether the threat could have been discovered during the pre-flight search of the aircraft, or at an earlier stage in the flight;
- The precise wording of the threat, to determine whether it suggests there is a credible reason for the threat having been given. A threat is most likely to be genuine if there is a reason for it, such as a desire to avoid the casualties that would result from an explosion. It is likely that a person issuing such a threat will seek to ensure that it gets through and that there is time to react to it. Where no clear reason for the threat can be adduced, the threat is less likely to be genuine;
- Whether there is any person on board (e.g. a political figure or other well-known person) who might attract a threat;
- Whether there are passengers on board who might be responsible for a threat (e.g. a potentially disruptive passenger, deportee or inadmissible, young people or rowdy passengers);
- Whether Nesma Airlines Integrated Operation Crisis Control Centre (IOCCC) can be contacted by radio, to establish whether this is an isolated incident or one of a series of similar events affecting Nesma Airlines ;
- If the pilot-in-command has any doubts about the incident, he should seek information through IOCCC about the current threat to Nesma Airlines interests at the airport of departure, with a view to establishing whether there are credible motives for attacking the aircraft or disrupting the flight and the quality of security measures at airport of departure. Nesma Airlines should therefore develop procedures for making such information available to the pilot-in- commands with the least possible delay.

10.1.16.7.1 Notification of Authorities/ Agencies

a. The Egyptian Civil Aviation Ministry Security Sector should be notified of the threat and the subsequent assessment declaration;
b. Police should be informed of the threat call.
c. The government aviation authority should inform airport operators, within rang of the aircraft in flight under threat that should be prepared to receive an aircraft under 'specific' threat conditions.

10.1.16.7.2 Bomb threats in flight

a. In the event of a bomb threat in flight, responsibility for the decisions taken rests with the pilot-in-command. In dealing with a bomb threat directed against an aircraft in flight, it may be necessary for some or all of the following actions to be taken:
- Evaluation of the threat;
- Response/decision, including whether reaction will be overt or covert;
- Conduct of search procedures in flight;
- Evaluation of possible effects of pressurization or pressure equalization;
- Establishment of the order of search (e.g. public areas first);
- Arranging of search assignments for flight crew;
- Announcement of the threat by the pilot-in-command to the passengers;
- Arranging for possible passenger participation in search;
- Establishment of emergency procedures once a suspect explosive device is located; and
- Determination of flight routing, and landing and deplaning procedures.

b. Further guidance on actions to be taken in the event of a bomb threat in flight can be found in the security manual chapter 14.

10.1.16.7.3 In-Flight Search Procedures

a. Nesma Airlines operational procedures to undertake a search in flight include directions on how the search should be accomplished. The procedure contained within a search plan held by the pilot-in-command;(see form 710)

b. Flight, cabin crew and trained to respond to such bomb incidents in flight and the identification of suspicious items.

c. Cabin crew involved in:
- Cabin search procedures for suspicious objects;
- Isolating suspicious items and, if able, moving the item(s) to a location where the possible detonation would cause least harm to the aeronautics of the aircraft; and
- Having passengers identify their cabin baggage and other items that might otherwise be considered suspicious items.

d. It is important that an airborne aircraft under specific threat, lands at the nearest suitable airport. Priority will be given to disembarking passengers at the soonest possible opportunity.

10.1.16.7.4 Measures To Minimize Effects of Explosives In Flight

e. Tests have shown that an in-flight explosion need not necessarily cause an aircraft to crash. The greatest danger occurs when the explosion occurs directly adjacent to a critical structural part of the airframe or in the vicinity of fuel tanks, fuel lines, control runs, hydraulic and electronic compartments and components;

f. However, while an uncontrolled explosion in the passenger cabin will not necessarily destroy an aircraft, it may cause serious injury, particularly to those persons in close proximity to the point of detonation;

g. A suspect explosive device may be placed in the recommended "Least Risk Bomb Location" – 3R door for the affected aircraft. Details of actions which should be taken for a suspect explosive device on an aircraft and further information on "Least Risk Bomb Locations" can be found in (Appendix – B) form

10.1.16.7.5 Post Landing Procedures

a. The aircraft under threat should be directed to a Bomb Search Area, identified in the Airport Security Program. If the threat is such that there would be insufficient time to taxi the aircraft or the pilot-in-command determines that an emergency evacuation is necessary, evacuation will be captioned at the earliest possible moment;
b. Priority will be given to the disembarkation of passengers and crew and removing them from the area of danger before the aircraft is searched;
c. If a non-emergency evacuation is called for, consideration should be given to directing passengers to carry off and check their hand baggage to facilitate an aircraft search. Disembarking passengers should be held, wherever possible, in the sterile area until the aircraft search is complete. This may avoid the necessity to re-screen passengers when the aircraft is declared 'clean' and can be re-boarded;
d. The movement and accommodation of evacuated passengers should be arranged through the airport administration or, if applicable, Nesma Airlines local based on the airport. Consideration should be given to briefing the passengers by the captain of the flight or other senior person within Nesma Airlines, on the reason for the search and its eventual outcome;
e. Although the procedure is largely dependent upon the provision of "Yes" or "No" answers to a series of questions, the assessor must also take account of other factors that may bear upon the credibility of the threat including,

10.1.16.8 Specific Threats to Aircraft on the Ground

a. Certain action should be taken by Nesma Airlines Security General Department or, where applicable, the pilot-in-command of a flight if he is on the flight deck, when a threat is received against an aircraft parked at a terminal or taxiing before take-off;
b. Those actions are:
   - Disembark all passengers and crew;
   - Move the threatened aircraft to the bomb search area;
   - When the threatened aircraft cannot be moved, the passengers and crew must be disembarked and an area of 100 meters must be cleared of all people other than those involved in the search;
   - Other aircraft parked in the vicinity must be moved at least 100 meters from the area where the search is undertaken;
   - Closed off fuelling hydrants. Remove fuel tenders from the area of threat.

10.1.16.8.1 Searching the Aircraft

a. Searching of the aircraft, including baggage, is the responsibility of Nesma Airlines and/or its handling agent;
b. Responsibility for determining the extent of the search rests with the Nesma Airlines designated representative and/or the pilot-in-command;
c. Passengers and crew may be called upon to identify hold-stowed baggage that has been removed off the aircraft;
d. Assistance may be forthcoming from law enforcement agencies in the supply of manpower and equipment to help with the search. Explosive-detecting dogs will be appropriate in the inspection and search of bags and cargo;
e. If a suspect device is located, the device should be identified to the appropriate authority within the police or military.

10.1.16.8.2 Non Specific Threats to Aircraft

a. If a bomb threat is declared 'non-specific', details of the threat will be reported to:
   - The aviation authority where the incident took place;
   - The Egyptian Civil Aviation Ministry – security Sector; and
   - To the Airport Police Authority, responsible for law enforcement, at the location where the threat was received.
b. Nesma Airlines administration will decide, as a matter of corporate policy, if the pilot-in-command should be told of a non-specific threat.

10.1.16.8.3 Aircraft on the Ground before Loading

When a bomb warning is associated with an aircraft on the ground security staff, the captain of the aircraft and/or Station Manager and the airport authorities should be announced.

10.1.16.8.4 Emergency Procedures On The Ground

If the suspect aircraft is at a loading position, Nesma Airlines representatives or Station Manager with Nesma Airlines Security Officer or the pilot-in-command should:

- **a.** Immediately arrange for passengers and crewmembers to disembark and, if desirable in conformity with the airport security plan, off-load baggage, and stores. Passengers and crewmembers should be isolated until cleared by a screening process;
- **b.** Move the aircraft, passengers, aircraft crew, baggage, and stores by separate means of conveyance to the isolated parking position for screening and search;
- **c.** Isolate the aircraft a period of time (at least until the concrete time for explosion is off);
- **d.** Consider the actual wording and nature of the threat, and base upon the result of those considerations, arrange appropriate action which may include baggage, already checked in, but not loaded on the aircraft, to be inspected/screened and searched if necessary, and then to be protected until loaded on the aircraft after it has been declared safe;
- **e.** Screen passenger (and their baggage) holding tickets for the flight who check in after the threat has been received, and hold them in a separate area until the crewmember, passenger, aircraft and contents have been inspected/screened, searched and declared safe;
- **f.** In consultation with the organization responsible for this type of incident management, make the decision as to when the aircraft is safe to continue;
- **g.** As each sub-division or compartment of the aircraft is searched and found clean, it should be conspicuously marked with tape or chalk to avoid duplication of effort;
- **h.** Accompanied baggage should be stored separately from both unaccompanied baggage and passengers until claimed by each individual owner. Passengers should then be requested to proceed individually with their baggage to the search area. For the protection of personnel, the search area should include blast protection between individual baggage search positions. By separating these positions with barricades, only the minimum number of personnel need be exposed to the potential hazards of an explosion during search operations;
- **i.** Passengers awaiting search must be kept at a safe distance from the area and the baggage, cargo and stores storage areas;
- **j.** Similar procedures should be applied to crewmembers and their baggage;
- **k.** Upon discovery of a suspicious item, the baggage should be left as found and should not be touched. The airport security officer should be notified immediately, so that the bomb disposal personnel may deal with the suspect item without delay. Consideration should be given to towing the aircraft to a safe area to minimize the risk to the public, other aircraft and terminal facilities;
- **l.** After the suspect item is declared safe, inspection procedures should be completed to ensure that no secondary sabotage device or substance is on the aircraft;
- **m.** In the event of an explosion, first aid to injured personnel should be rendered immediately, followed by established damage control procedures. After the effects of the explosion are under control, the search should be continued to ensure that no secondary sabotage device or substance is on the aircraft;
- **n.** The owner of the suspect baggage or any passenger refusing to permit search of his or her baggage should be referred to the supporting policing authority officers;

o. As each item of baggage is declared safe, it should be marked and sealed (for example, by the use of tape) to preclude duplication of search effort and opening by the passenger prior to boarding the aircraft after it has been declared safe;

10.1.17 Hijacking/Unlawful Seizure of Aircraft

10.1.17.1 Characteristics of Hijacks

a. Aircraft hijacks usually occur in the air, frequently soon after the aircraft has taken off. Aircraft however have also been seized on the ground;

b. Hijackers may be politically motivated, in pursuit of a crime, or mentally disturbed; they may be in possession of firearms, explosives, inflammable liquids or replica or simulated weapons; they may simply claim to be in possession of weapons;

c. The only priority for any intervention in the case of hijacking is to guarantee the safe release of passengers and crew. Any other objectives such as arresting the perpetrators or limiting damages to the aircraft or the infrastructure should only be secondary objectives;

d. In any case of unlawful seizure, the safest place can be is on the ground. If the plane is in the air, the pilot must land the plane as soon as possible. If the plane is on the ground, all efforts should be made to keep it from going airborne. When on the ground, the aircraft should be sent to a predetermined isolated parking position;

e. Authorities should make every effort to end the situation through negotiation. The use of force should only be considered as a solution when all non-violent options have been exhausted;

f. Finally, if the seizure requires the use of force, it should be guaranteed that the best available law enforcement until with the best possible equipment will be completing the mission. The primary option plan should be well rehearsed to avoid or minimize any injury or death.

10.1.17.2 The Objective

a. The primary objective must be the safe of passengers and crew. This is probably best achieved by crews complying with the initial demands of the hijackers, thus avoiding conflict in the aircraft. This does not mean submission or surrender; it is often possible to persuade hijackers to modify their original demands at a later stage.

10.1.17.3 Aircraft Crews in an Unlawful Seizure Situation

a. The attitude adopted by an aircraft crew towards hijackers and any relationship set up may be vital to the successful termination of the incident. Personal contact is important, especially in the case of a single hijacker and only one crewmember should deal with him/her. Any relationship thus established could be invaluable in achieving the primary concern, the safe release of the passengers and crew. In all cases, the hijacker should be discouraged from dealing directly with the aircraft Pilot In Command and efforts should be made to keep him out of the flight deck altogether;

b. In attempting to establish rapport with the hijacker, an interest should be shown in his/her problems and he/she should be encouraged to talk. However, there are several things that should be avoided which may be summarized under the following points:
- Do not antagonize or argue with the hijackers - especially on political matters;
- Do not 'talk down' to them or appear to be superior;
- Avoid making them feel cornered and ensure only one crewmember approaches at a time;
- Do not refer to insanity or mental disorders;
- Do not become mentally aligned with the hijacker; and
- Do not consider any physical action against the hijacker without first discussing with the Captain.

c. There are occasions when complete honesty with the hijackers is the best policy, for example when operational problems exist, such as fuel shortages, or when airfields are closed to the aircraft. Explaining such problems fully is most likely to get their co-operation. Consideration should also be given by the crew to explaining operating procedures, so that suspicion does not subsequently fall on them. When the crew has to oppose the hijackers, wishes, blame should be put on outside authorities so that their resentment may be transferred to them. These measures will force the hijackers to think for themselves and make the decisions, thus helping to tire them out. If a weapon or device has not been produced, the crew should ask to see one. In doing so, it may result in the termination of a hijacking where the hijacker is not in possession of a weapon or dangerous device and will, if produced, provide the crew with information that can be relayed to the ground.

d. The flight crew should pass as much information as possible to Air Traffic Control, setting the transponder at 7500. Hijackers may try to prevent the use of radio, but use should be insisted upon and maintained if at all possible. The internal public address system should be used, if permission has been granted, to inform and reassure the passengers, instructing them to remain seated and co-operate with the hijackers and cabin crew. It is the aircraft Pilot In Command's responsibility to organize and co-ordinate the activities of his crew, liaising with the authorities as best he can. In-flight negotiations with the hijackers should be confined to the safe conduct of the aircraft to the required destination.

e. It may be that the hijackers' plans are only revealed in piece-meal fashion and are operationally impossible, or too dangerous. In this event, the crew will have to try and talk them out of their intentions. In instances where airfields have been closed to the aircraft, or in cases of severe fuel shortage, appeals may have to be made on humanitarian grounds. In such circumstances, it may be necessary to give an assurance that a fuelling stop is all that is required at a particular airfield. After landing, the aircraft may be directed to a remote part of the airfield, crews should detach themselves from any negotiations, if possible, and putting the hijackers in direct contact with the ground authorities and making the hijackers do their own thinking. Questions from the ground authorities should not be answered on the hijackers, behalf and opinions should not be expressed by the crew as to any likely result of actions made on the ground. If it is necessary for a crewmember to leave the aircraft to assist with fuelling or for any other reasons, the aircraft Pilot In Command should ensure that permission is given by the hijacker and in any prolonged absence the hijacker should be kept informed.

f. The cabin crew should aim to keep the passengers as quiet and as comfortable as possible. If movement is not restricted, the passengers should be kept informed of the situation and morale will be maintained by keeping them occupied as far as possible. If possible, they should be cautioned against taking any individual initiative.

g. It may be necessary to negotiate with the hijackers to obtain agreement for the passengers to move to and from the toilets. Special attention should be given to the old, the sick, and persons with small children. If possible, any medically-qualified passengers should be identified in order to assist in cases of illness.

10.1.17.4 Contingency Procedures on Ground

a. After landing the aircraft, acceptance of taxing instructions to unfamiliar areas of the airport to which the aircraft may be directed;

b. Advising hijackers to accept fixed (secure) landline communications with the aircraft;

c. Encouraging the hijackers to speak directly to the authorities on the ground rather than use the crew as intermediaries;

d. Crews should be prepared for the incident to be protracted. Once the ground amenities as toilet servicing should be requested, plus fresh supplies of food and water. The aircraft cabin should be kept clean and tidy, and where delays are expected passengers should be allocated their own cups and cutlery;

e. Endeavoring to establish the number of hijackers (being aware there may be some who have not made their presence generally known) and their weapons. Every effort should be made to pass this information, and any details, which identify persons or equipment, to the authorities;

f. In all cases, the crew should be vigilant and observant. If possible, any relevant information obtained should be passed over the radio by member of the flight crew, or by a released crewmember. Such information should contain as many details of the hijackers, and their weapons as possible, also the state of the aircraft and the location of the crew and hostages. Apparently insignificant details may subsequently prove vital and assist the ground authorities to terminate the incident successfully.

g. Proposing the release of as many passengers as possible, especially the sick, the elderly and children;

h. Escaping from the aircraft when this can be achieved without undue personal risk and is not likely to result in repercussions to other hostages;

i. Informing the hijackers of aircraft un-serviceability or crew sickness or exhaustion as a means of encouraging aircraft or acceptance of another a replacement crew;

j. Normally it is safe on the ground and every effort should be made to avoid getting airborne again. However, deliberate immobilization of the aircraft should only be done in such a manner as to appear that the crew is above suspicion;

k. In all hijack incidents, the government of the country of landing will undoubtedly be the prime negotiator. Other governments may be involved and play critical roles. Delays may be considerable and where deadlines have been set, these may be passed without incident. While the situation may be difficult and frustrating, crews should Endeavour to be patient. Each deadline that can be successfully passed is a positive step towards a satisfactory conclusion of the incident.

10.1.17.5 Debriefing Information and Media Releases

a. After all hijacking incidents there is a need to debrief the crew, including the preparation of statements to be used in any subsequent legal action or investigation. Invariably, there will be exposure to press, radio and television;

b. It is imperative not to give information, which may assist any future hijacking attempts, or make statements, which may prove useful to the hijackers in their subsequent defence. It must be remembered that this can easily be done in the relief and reaction when the incident is over. Obtain prior advice from the ground authorities and/or Nesma Airlines representatives before facing the media.

10.1.17.6 Incident Reporting

a. Crew Debriefing on an Incident of Unlawful Interference/ Seizure;

b. After occurrence of unlawful interference against an aircraft or any unlawful acts against civil aviation, a written report should be conduct.

10.2 Appendices

10.2.1 Legal Aspects

10.2.1.1 General Conditions of Carriage of Passengers and Baggage.

An Air Carrier may refuse carriage or onward carriage of any passenger for the following reasons:-

- **a)** When flight safety is likely to be jeopardized,
- **b)** In order to prevent violation of any applicable laws, regulations or orders of any state or country to be flown from, into or over,
- **c)** When the conduct, age, mental or physical state of the passenger are such that he may;
  - ➢ Require special assistance of the Carrier (unless prior arrangements are made),
  - ➢ Cause discomfort or make him-self objectionable to other persons,
  - ➢ Involve any hazard or risk to himself or to other persons or to property, or
- **d)** When the passenger has failed to observe the instructions of the carrier.

10.2.1.2 Tokyo Convention And Its Countries (Refer To 10.1.11.4. For Captain Authority)

- **A.** When a PIC has reasonable grounds to believe that a person:
  - Has committed, or is about to commit, on board the aircraft, an offence,
  - Is acting in a manner that may jeopardize the safety of the aircraft or persons or property therein, or good order and discipline on board. He may impose upon such person reasonable measures (including restraint), which are necessary to:-
    1. To protect the safety of the aircraft, or of persons or property therein, or
    2. To maintain good order and discipline on board, or
    3. To enable him to deliver such person to competent authorities or to disembark him in accordance with provisions of the Tokyo Convention.
- **B.** The PIC may require or authorize the assistance of other crewmembers and may request or authorize, but not require, the assistance of Sky Marshals to restrain any person whom he is entitled to restrain.
- **C.** Any crewmember or passenger may also take reasonable preventative measures without such authorization when he has reasonable grounds to believe that such action is immediately necessary to protect the safety of the aircraft, or persons or property therein.
- **D.** The PIC may:
  - In so far as it is necessary for the purpose of subparagraph 1 or 2 under Paragraph A above, disembark in the territory of any state in which the aircraft lands any person who he has reasonable grounds to believe has committed or is about to commit on board the aircraft an act contemplated in subparagraph 2 under paragraph A above.
  - Deliver to the competent authorities of any Contracting State (Tokyo Convention) in the territory of which the aircraft lands any person who he has reasonable grounds to believe has committed on board the aircraft an act, which, in his opinion, is a serious offense according to the Penal Law of Egypt.

Tokyo Convention Countries;

Afghanistan	Democratic Republic of the Congo	Lebanon	Rwanda
Albania	Denmark	Lesotho	Saint Lucia
Algeria	Djibouti	Liberia	Saint Vincent and the Grenadines
Angola	Dominican Republic	Libyan Arab Jamahiriya	Samoa
Antigua and Barbuda	Ecuador	Liechtenstein	Saudi Arabia
Argentina	Egypt	Lithuania	Senegal
Armenia	El Salvador	Luxembourg	Serbia and Montenegro
Australia	Equatorial Guinea	Madagascar	Seychelles
Austria	Estonia	Malawi	Sierra Leone
Azerbaijan	Ethiopia	Malaysia	Singapore
Bahamas	Fiji	Maldives	Slovakia
Bahrain	Finland	Mali	Slovenia
Bangladesh	France	Malta	Solomon Islands
Barbados	Gabon	Marshall Islands	South Africa
Belarus	Gambia	Mauritania	Spain
Belgium	Georgia	Mauritius	Sri Lanka
Belize	Germany	Mexico	Sudan
Benin	Ghana	Monaco	Suriname
Bhutan	Greece	Mongolia	Swaziland
Bolivia	Grenada	Morocco	Sweden
Bosnia and Herzegovina	Guatemala	Mozambique	Switzerland
Botswana	Guinea	Myanmar	Syrian Arab Republic
Brazil	Guyana	Nauru	Tajikistan
Brunei Darussalam		Nepal	Thailand
Bulgaria	Haiti	Netherlands	The former Yugoslav Republic of Macedonia
Burkina Faso	Holy See	New Zealand	Togo
Burundi	Honduras	Nicaragua	Tonga

Cambodia	Hungary	Niger	Trinidad and Tobago
Cameroon	Iceland	Nigeria	Tunisia
Canada	India	Norway	Turkey
Cape Verde	Indonesia	Oman	Turkmenistan
Central African Republic	Iran(Islamic Republic of)	Pakistan	Uganda
Chad	Iraq	Palau	Ukraine
Chile	Ireland	Panama	United Arab Emirates
China	Israel	Papua New Guinea	United Kingdom
Colombia	Italy	Paraguay	United Republic of Tanzania
Comoros	Jamaica	Peru	United States
Congo	Japan	Philippines	Uruguay
Cook Islands	Jordan	Poland	Uzbekistan
Costa Rica	Kazakhstan	Portugal	Vanuatu
Côte d'Ivoire	Kenya	Qatar	Venezuela
Croatia	Kuwait	Republic of Korea	Viet Nam
Cuba	Kyrgyzstan	Republic of Moldova	Yemen
Cyprus	Lao People's Democratic Republic	Romania	Zambia
Czech Republic	Latvia	Russian Federation	Zimbabwe
Democratic People's Republic of Korea			

10.2.1.3 ECAR 121.575 (Alcoholic Beverages)

a) (Reserved).

b) No certificate holder may serve any alcoholic beverage to any person aboard any of its aircraft who:

1. Appears to be intoxicated; and

2. Has a deadly or dangerous weapon accessible to him while aboard the aircraft.

c) No certificate holder may allow any person to board any of its aircraft if that person appears to be intoxicated.

d) Each certificate holder shall, within five days after the incident, report to the ECAA the refusal of any person to comply with this section, or of any disturbance caused by a person who appears to be intoxicated aboard any of its aircraft.

10.2.2 Aircraft Search Checklist In Case Of Bomb Threat

Searchers to look for anything:-

- That should not be there
- That cannot be accounted for
- That is out of place

AIRCRAFT INTERIOR

- Seats, including pouches, cushions, and underside of seats
- Entire floor, including area forward of rudder pedals and beneath all flight deck seats
- Ceiling, side and rear Walls
- Life-jacket stowage
- Crew coatroom and luggage stowage area
- Table and drawer of third crewmember's position
- Inside first-aid kit

COMPANIONWAY FLIGHT DECK

- Walls, ceiling and floor
- Coatroom
- Baggage racks — entire area with baggage removed
- Compartments above baggage rack and coatroom
- Drinking fountain, cup dispenser, cup disposal compartment and drain valve access
- Area above and along sidewall of stowage compartment, forward side of forward toilet
- Area around rudder/brake pedals
- Log book and flight manual stowage
- Crew oxygen mask stowage
- Life-jacket stowage

FORWARD ENTRANCE

- Stairway including underside
- Connection of stair to fuselage, as well as shelf at this point
- Escape chute stowage
- Cabin attendant seat, life-raft stowage and seat back
- Forward windscreen and storage unit, including compartments
- Oxygen mask compartment
- Ceiling and wall
- Fire extinguisher stowage

FORWARD COMPARTMENT

- Coatrooms and enclosed mask and vest stowage
- Flight attendants' and passengers' seats (including underside of seats)
- Passenger berth
- Ceiling, floor and walls
- Crew and passenger life vest stowage
- Portable oxygen stowage cupboard
- Seats (pouches and oxygen mask compartment)
- Table between rear lounge chairs and its compartment
- Escape chute stowage
- Literature containers

FORWARD GALLEY

- ❑ Remove all containers, food boxes and ovens, if not already done
- ❑ Open and inspect all galley compartments, bar and refrigerator
- ❑ Inspect containers removed from galley
- ❑ Oxygen mask stowage
- ❑ Galley service door (tape stowage; hinge recess)
- ❑ Escape chute stowage
- ❑ Compartments above service doors

FORWARD TOILETS

- ❑ Remove soiled and waste material not already removed
- ❑ Remove containers under sinks, inspect contents and areas around sink
- ❑ Inspect towel compartment
- ❑ Tissue dispenser
- ❑ Toilet
- ❑ Mirror and compartments
- ❑ Walls, ceiling and floor
- ❑ Door
- ❑ Oxygen mask stowage
- ❑ Access to drinking fountain
- ❑ Waste water receptacle

MAIN CABIN

- ❑ Seats (pouches, oxygen mask stowage, cushions and underside of seats)
- ❑ Pillow racks, blankets and hand rail
- ❑ Floor — do not remove carpet unless presence of foreign object is suspected
- ❑ Side walls, including windows and curtains
- ❑ Bulkheads and foot recesses and oxygen mask stowage
- ❑ Ceiling
- ❑ Light recesses
- ❑ Compartments at aft end of each hand rail
- ❑ Compartments behind rear cabin seats
- ❑ Stretcher equipment stowage above hat rack
- ❑ Demonstration life vest stowage
- ❑ Emergency escape rope compartments
- ❑ Escape chute stowage
- ❑ Main door and recess with door closed
- ❑ Magazine racks
- ❑ Life raft stowage
- ❑ Life vest pouches
- ❑ Passenger berths
- ❑ Oxygen cabinet
- ❑ Cargo tie-down stowage
- ❑ Literature containers
- ❑ First-aid kit, only if unsealed
- ❑ Passenger oxygen service units — drop them down and inspect
- ❑ Oxygen and CO; cylinder stowage drawers, forward sides of 1 and 3 galleys and aft toilets
- ❑ Over wing emergency exit release covers

- ❑ Aft entry door cabin attendant's seat
- ❑ Drinking fountain, cup dispenser, cup disposal compartment and drain valve access at floor
- ❑ Portable emergency exit lights — remove light and inspect

REAR GALLEY AREA

- ❑ Flight attendants' seat
- ❑ Galley — remove all containers
- ❑ Open and inspect all compartments
- ❑ Walls, ceiling and floor
- ❑ Compartments in front bulkhead
- ❑ Inspect containers removed from aircraft
- ❑ Diplomatic mail locker
- ❑ Galley service door hinge recess
- ❑ Escape slide stowage (each door)
- ❑ Aft entrance door hinge recess
- ❑ Life raft stowage
- ❑ Oxygen bottle ceiling stowage

AFT TOILETS

- ❑ Remove soiled and waste material
- ❑ Remove and inspect container under sink
- ❑ Inspect sink and area around sink
- ❑ Towel container
- ❑ Tissue dispenser
- ❑ Toilet seat and lid
- ❑ Mirror and compartments
- ❑ Flight attendants' seat
- ❑ Door
- ❑ Walls, ceiling and floor
- ❑ Oxygen mask stowage
- ❑ Access to drinking fountain
- ❑ Waste water receptacle

AIRCRAFT EXTERIOR

- ❑ Fuselage (the areas behind/in the following doors and opening should be checked)
- ❑ Random
- ❑ Ground pneumatic connector panel
- ❑ Cabin compressor air-inlets
- ❑ Cabin compressor access panels
- ❑ Doppler navigation antenna door
- ❑ Cabin compressor air-outlet
- ❑ Heat exchanger control access panels
- ❑ Heat exchanger outlet guide vanes
- ❑ Radio rack air-outlet
- ❑ Beacon-holder (beacon removed)
- ❑ Security locker and contents
- ❑ Flashlights (check batteries)
- ❑ Seals of first-aid kits for proper condition
- ❑ Seals of life raft panels for proper condition

- ❑ Accessory compartment door
- ❑ Auxiliary tank fuel sump doors
- ❑ Cabin pressure safety valves
- ❑ Aft waste. water service panel
- ❑ Cabin pressure regulator valve
- ❑ Aft waste system service panels
- ❑ Access door to stabilizer-mechanism
- ❑ Tail cone access door
- ❑ Aft potable water service panel
- ❑ Aft cargo doors
- ❑ Forward cargo doors
- ❑ Forward potable water service panel
- ❑ Ground air conditioning connector door
- ❑ External power fuser door
- ❑ External power receptacle

PACK compartment

- ❑ Entire compartment, especially area of hollow spaces and cavities

Accessory compartment

- ❑ Entire compartment as well as all installations

Cargo compartments

- ❑ Forward cargo compartment, especially area underneath hinge snap-panel of cargo door floor covering
- ❑ Waste water tank compartment
- ❑ Flight-kit boxes
- ❑ Aft cargo compartment (especially area of cargo door hinge joints)
- ❑ Hold 5

Landing gear wheel wells and gears

- ❑ Nose wheel well — area behind access and zip-fastener panels
- ❑ Entire main wheel wells and zone of wing roots LH +RH
- ❑ Gears, wheels — tires, rims, brakes and parts such as struts, (beams, arms, actuators, frames and trucks)

Wings

- ❑ Trailing edge flap sections
- ❑ Snap-covers to fuel X-feed" tube
- ❑ Snap-covers to fire-extinguisher bottles
- ❑ Pressure refueling adapters
- ❑ Inspection snap-covers
- ❑ Fuel vent opening

Engines and pylons

- ❑ Engine air-intake, exhaust and fan-duct
- ❑ Engine oil and pneumatic heat exchanger air-inlet scoop
- ❑ Engine oil refill cover
- ❑ Engine heat exchanger air-outlet door
- ❑ Constant speed drive oil refill cover
- ❑ Open engine cowl doors and fan cascade vanes

- Cowl doors and pylons

10.3 Biochemical & Biological Weapons

10.3.1 Introduction

a. The emergency of biological agents and toxins, commonly known as 'biochemical& biological weapons' and their possession by terrorist organizations and States supporting terrorism, has created an additional concern for the safety of civil aviation. 'Bio-terrorism' is the subjective term for that which is implied by this new threat;
b. Although many of the world's diseases of past centuries have been eradicated through intensive immunization and quarantine, many still exist in test tubes at laboratories throughout the world. Microbiological and infectious diseases such as anthrax, smallpox, plague, botulism and nerve gasses are still produced under controlled conditions;
c. While the threat of having biochemical agents used against civil aviation has certainly increased in the last couple of years, it is important to note that there has never been an attack on a commercial aircraft using biochemical agents. Airlines and airports should take on a commercial aircraft using biochemical agents. Airlines and airports should take this into consideration when establishing or upgrading current measures.

10.3.2 Methods of Unlawful Exposure

The unlawful introduction of biological agents and toxins to civil aviation would require undetected delivery to a predetermined target. This could be by way of:

- Delivery by an individual of an innocuous package onto an aircraft or inside a terminal;
- Delivery by post office mail or courier mail to a person to whom it is addressed;

10.3.3 Crew Responsibilities

a. Crewmember responsibilities include the development and maintenance of occupational health and safety policies, the awareness and recognition of suspect substances and the provision of medical attention and decontamination procedures;
b. The responsibility requires the crewmember, when he has knowledge that a hazard exists, to inform employees of such a hazard.

10.3.4 Identification

a. A suspicious substance or package must be considered potentially hazardous until proven otherwise. A substance or package, not normally found in the workplace and which meets certain criteria, should alert a crewmember

b. A suspicious package may have some or all of the following special characteristics:
   - Excessive postage;
   - Oily stains or discoloration;
   - Marked with restricted endorsements such as 'Personal', 'Private' or 'Confidential';
   - No return address;
   - Excessive weight;
   - Excessive tape or staring.

c. A suspicious substance may be a white, tan or being collared powder with consistency and texture of talcum powder;

d. There are several substances of like description that may be found in the galley of an aircraft, such as coffee sweetener and powdered milk substances. Common sense must prevail under these circumstances;

e. Crewmember involved in the receipt of packages and letter mail should be aware of the dangers that may be associated with incoming postal and courier services;

f. It is essential that people exposed to biochemical toxins be identified to the proper authority. Symptoms relating to exposure to the toxin that generate a virus-like condition, may take several days to fully develop. Several of the viruses are contagious and will, at the direction of the proper authority, require strict quarantine.

10.3.5 Crew Action

10.3.5.1 Discovery of A Suspicious Substance on An Aircraft In Flight

Do not try to clear up the substance;

- **a.** Inform the pilot-in-command;
- **b.** Ventilation on the aircraft should be turned down to minimum;
- **c.** If passengers or crew makes body contact with the substance, hands and forearms should be washed repeatedly;
- **d.** Wear protective equipment – gloves and mask;
- **e.** Immediately cover the substance with anything, preferably a wet blanket;
- **f.** Isolate the area to a radius of three meters;
- **g.** Move passengers away from the location of the substance;
- **h.** Stop all activities in this area that would disturb the substance;
- **i.** Change clothing that may have been contaminated and place in a sealed bag;
- **j.** Endeavour to assess the possible extent of contamination;
- **k.** Make a list of persons who may have been contaminated by the substance;
- **l.** Give a detailed description of the substance to the pilot-in-command and the authorities.

Note: Flight Crew Check List For In-Flight Chemical / Biological Weapons Form No.760 To Be Implemented In Case Of A Suspicious Substance On An Aircraft In Flight Discovered (Ref. 13.34).

10.3.5.2 Discovery of A Suspicious Package/Envelope on An Aircraft In Flight

- **a.** Do not shake or empty the contents or the envelope or package;
- **b.** Advise the pilot-in-command;
- **c.** Wear protective equipment – gloves and mask;
- **d.** Cover the item with anything (wet blanket) to minimize leakage and spreading;
- **e.** Isolate the area, move passengers;
- **f.** Ensure that nobody touches, moves or otherwise disturbs the item;
- **g.** Make a list of persons who were in the area where the suspicious item was found;
- **h.** Give a detailed description of the substance to the pilot-in-command and the authorities;

Note: Flight Crew Check List for In-Flight Chemical / Biological Weapons Form No.760 to Be Implemented In Case Of A Suspicious Substance on An Aircraft In Flight Discovered **(Ref. 13.34)**

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Safety Management System

Chapter 11

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Chapter 11 Safety Management System

11.1 Application of Safety Management System

Nesma Airlines
نسما للطيران

Corporate Policy Statement

The quality of our management system is essential for our business functions. Our commitment is to ensure measuring and evaluating on a continuing basis, and making changes that improve the management system and the culture. Ideas for improvement may come from internal and external sources; therefore we are constantly monitoring all sources and willing to make changes as necessary to keep the management system refreshed and strongly focused on improving operational safety and security performance.

All levels of management and all employees are accountable for the delivery of this highest level of performance, starting with the Accountable Executive

We are committed to:

- Comply with all applicable regulations and the company standards;
- Provide the necessary resources to satisfy operational safety and security outcomes.
- Ensure continual improvement of quality, safety and security management systems;
- Ensure continual improvement of operational performance;
- Preform regular review of performance-based indicators by senior management;
- Preform regular analysis of malfunctions or undesirable operational results;
- Preform continuous training of the Nesma airline's employees to reach the highest levels of efficiency in the implementation of the company operations.
- Implement the team work in all areas to perform the company operations with high efficiency.
- Promote the safety and security awareness as Nesma airlines primary goal is safety and security.
- Follow-up of corrective actions and their effectiveness in improving operational performance.
- Use the good practices to minimize and eliminate risks.
- Optimum use of safe personal protective equipment.
- Communicate all our policies throughout the organization.
- Review all company policies every 2 years to ensure continued relevance to the company standards.
- Inform the operational personnel throughout the organization of their responsibility to comply with the applicable laws, regulations and procedures in all locations where operations are conducted. In the event of willful or negligent disobedience to those rules, regulations, policies, and/or procedures, the personal concerned shall become subject to disciplinary, legal or penal action however nothing contained shall prevent personal from exercising their own best judgment during any situation for which the company standards make no provisions or in an emergency.

Nesma Airlines
نسما للطيران

Accountable Executive
FoR

Revised Mar. 2022

Nesma Airlines
نسما للطيران

Corporate Safety Policy Statement

Safety is one of our core business functions, we are committed to developing, implementing, maintaining and constantly improving strategies and processes to ensure that all our aviation activities take place under an appropriate allocation of organizational resources, aimed at achieving the highest level of safety performance and meeting regulatory requirements, while delivering our services.

All levels of management and all employees are accountable for the delivery of this highest level of safety performance, starting with the Accountable Executive

Our commitment is to:

- support the management of safety through the provision of all appropriate resources that will result in an organizational culture that fosters safe practices, encourages effective safety reporting and communication, and actively manages safety with the same attention to results as the attention to the results of the other management systems of the organization;
- ensure that the management of safety is a primary responsibility of all managers and employees;
- clearly define, for all staff, managers and employees alike, their accountabilities and responsibilities for the delivery of the organization's safety performance and the performance of our safety management system;
- establish and operate hazard identification and risk management processes, including a hazard reporting system, in order to eliminate or mitigate the safety risks of the consequences of hazards resulting from our operations, to achieve continuous improvement in our safety performance;
- ensure that no action will be taken against any employee who discloses a safety concern through the hazard reporting system, unless such disclosure indicates, beyond any reasonable doubt, gross negligence or a deliberate or willful disregard of regulations or procedures;
- comply with and, wherever possible, exceed, legislative and regulatory requirements ensure that sufficient skilled and trained human resources are available to implement safety strategies and processes;
- ensure that all staff are provided with adequate and appropriate aviation safety training, are competent in safety matters, and are allocated only tasks commensurate with their skills;
- establish and measure our safety performance against realistic safety performance indicators and safety performance targets;
- continually improve our safety performance through continuous monitoring and measurement, regular review and adjustment of safety objectives and targets, and diligent achievement of these;
- ensure that externally supplied systems and services to support our operations are delivered meeting our safety performance standards.

Revised Mar. 2022

Nesma Airlines
نسما للطيران

Accountable Executive

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11.1.1 Introduction of Safety Management System (SMS Manual)

11.1.1.1 General

This chapter sets out the standards for a safety management system (SMS) for Nesma Airlines that is the holder of the AOC under ECAR PART 121. In order to achieve our production objectives; the management of Nesma Airlines requires managing many business processes. Safety is one such business process. Safety management is a core business function just as financial management, HR management, etc. The Safety Management System is a systematic approach to managing safety, including the necessary organizational structures, accountabilities, policies.

Five core aspects of SMS are:

- Top management commitment.
- Responsibility and accountability of all employees.
- Clearly communicated expectations of zero accidents.
- Auditing and measuring performance for improvement.
- Responsibility of all employees.

11.1.1.2 SMS to Be Consistent With Other Requirements

SMS shall be consistent with:

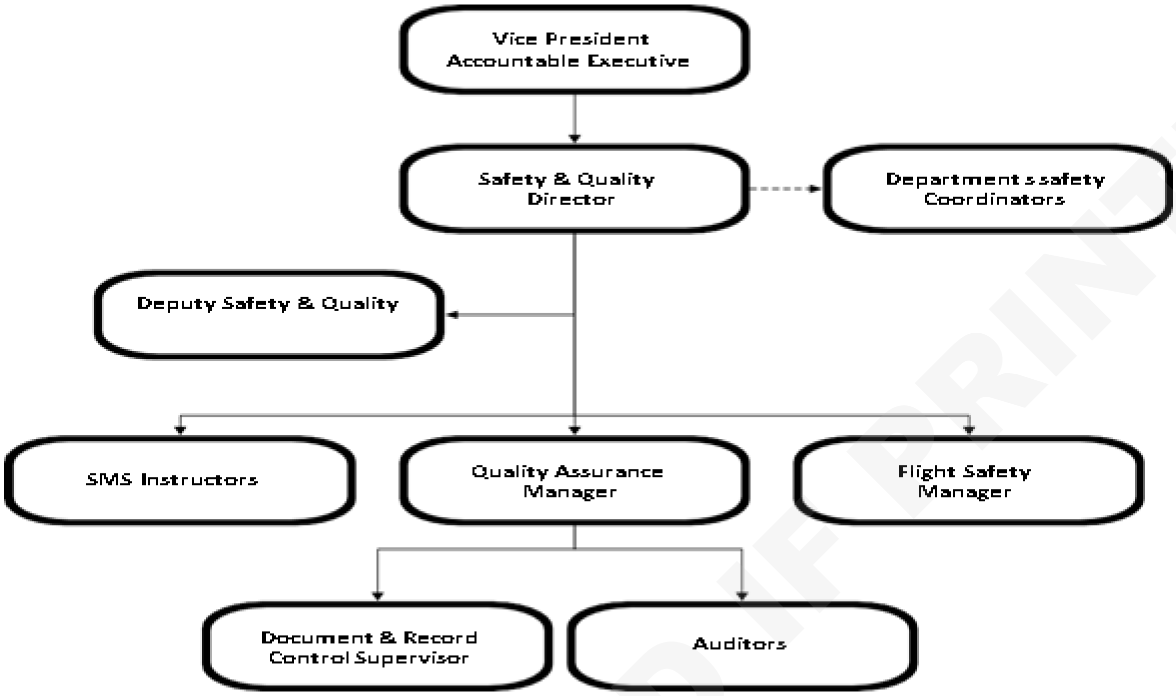
a. Egyptian Civil Aviation Regulations, any other applicable Advisory circulars and International requirements (ICAO, IOSA …)
b. The organization's safety aims and risk management objectives; and
c. The requirements of Nesma Airlines operations manual and maintenance control manual.

11.1.1.3 Accessibility

The SMS has been documented, and kept in a form (SMM) that is readily accessible to all members of Nesma Airlines.

11.1.1.4 Organization Structure

11.1.1.4.1 Safety and Quality Department Organization Chart



11.1.1.5 Responsibilities and Accountabilities

11.1.1.5.1 Safety Department Organization

I. The Safety & Quality directorate is managed by the Safety & Quality director who reports directly to the Accountable Executive. The Safety & Quality Directorate includes a flight Safety manager and a Safety & Quality auditor and Flight safety Assistant ,

II. Nesma Airlines shall allocate appropriate resources to adequately staff and equip the Safety & Quality Directorate. As operational activities, such as routes and fleet size change, these resources will be; supplied as needed.

III. To assist the safety &Quality director, the Accountable Executive may assign additional personnel to the safety & Quality Director, either full-time or as an additional duty to any employee. When such appointments are made, these employees will report to the safety& Quality director.

11.1.1.5.2 Accountable Executive

11.1.1.5.2.1 Safety Accountability

The Accountable Executive accountable to Nesma Airlines management board for safe management of the company and the services provided

11.1.1.5.2.2 Safety Responsibility

In discharging this accountability, the Accountable Executive is responsible for:

- Authorizing a safety policy that indicates Nesma Airlines safety objectives and its commitment to safety
- Ensuring a safety management system is implemented at Nesma Airlines
- Assuming the leadership role to ensure commitment throughout the company, particularly at senior management level, to the safety management policy intent and safety management system requirements
- Ensuring that Nesma Airlines executives and staff are aware and held accountability for their safety performance and,
- Ensuring that Nesma Airlines safety management system and operation performance are evaluated for effectiveness on a regular basis.

11.1.1.5.3 Safety & Quality Director

11.1.1.5.3.1 Safety Accountability:

The Safety Manager is accountable to the Accountable Executive for:

- Providing advice and assurance relating to safety issues and performance, internal and external safety management as per SMS
- Establishment & Maintenance of safety policy and safety management system.
- Establishing safety standards,
- Establishing a system for the safety management education and safety awareness.
- Establishing a safety audit and surveillance system,
- Effective interface with the ECAA regarding safety matters,
- Establishing industry liaison on safety matters,
- Establishing safety relations with international bodies
- Disseminating public communications on safety issues;
- Authorized to Manage, develop, implement and maintain Nesma airlines ERP

11.1.1.5.3.2 Safety Responsibilities:

In discharging these accountabilities, The Quality & Safety Director is responsible for the following:

- Developing and maintaining a safety management policy.
- Controls and directs performance of operations & Maintenance Safety, in order to ensure compliance with regulatory requirements and company safety standards
- Responsible for the day-to-day operation and oversight of SMS operation throughout the organization.
- Establishing and maintaining a safety management system including arrangements for identifying, reporting ,tracking and correcting safety issues and for the initiations of preventive action when: necessary
- Undertaking safety audits of all operational and maintenance and corporate aspects of SMS Undertaking on-going review of safety management system to evaluate its effectiveness and ensuring that improvements are made where required ;
- Overseeing the performance of the company's safety management activities and providing advice on potential improvements to safety performance ,
- Reviewing and reporting on compliance with safety management policies, plans, systems and procedures, ensuring safety issues are reported in a timely manner,
- Implement emergency response planning;
- Overseeing hazard identification systems, for example: (Occurrence investigations & Incident reporting systems & Data analysis programs).
- Coordinating the regulatory authority's Mandatory Occurrence Reporting (MOR scheme).
- Acting as a coordinator for Company Flight Safety Committee, arranging its meetings and keeping records of such meetings.
- Assisting with the investigation of accidents and conducting and coordinating investigations into incidents.
- Enhance safety culture among all flight crews using all available safety recourses such as: bulletins, circulars, flight safety magazine and direct contact with personnel involved.
- Planning and controlling the flight Safety budget

- Selecting the most appropriate risk mitigation measures for those risks deemed unacceptable; coordinating safety committees.
- Investigates all maintenance and operations occurrences to determine the root causes and appropriate courses of action.
- The investigation will be documented to allow for tracking.
- All investigation reports will be reviewed during Safety Committee meetings.
- Responsibilities concerning Quality Management.

11.1.1.5.4 Flight Safety Manager

The Flight Safety Manager is reporting to the Safety& Quality Director.

11.1.1.5.4.1 Safety Responsibility

- Provides safety & regulatory oversight of all flight operation practices, facilities, and training.
- Addresses flight operation concerns assigned by Internal Evaluation
- Manages, maintains the FDM program (AIRFASE) and develop required analysis and reports
- Investigate flight safety concerns to determine the cause and appropriate courses of action.
- Reviews voluntary & occurrence reports for safety related issues and/or trends.
- Coordinate with operations director, chief pilot, and training manager for recommended reactions related to AIRFASE extracted events flight safety issues.
- Ensure safety issues are addressed. , documented and tracked Works on operations activities to identify hazards and apply the needed risk assessment.
- Performs safety audits of flight operations, data will be documented and evaluated to identify any areas of concern.
- Updating the Quality & Safety director for all flight safety status.
- Participates in Nesma Airlines safely committees and events,
- Continuous coordination with the Nesma Airlines chief inspector.

11.1.1.5.5 Flight Safety Assistant

Reporting to Quality and Safety Director and Flight Safety Manager on all aspects and provide safety recommendations.

11.1.1.5.5.1 Safety Responsibility

- Assist the Safety Department in technical / operational matters and maintain safety databases.
- Perform monitoring and surveillance of normal operations to ensure adherence to standard procedures and prepare reports for actions.
- Develop safety audit checklists and Perform planned safety audits and random checks (inspections) to ensure safety compliance of all operating departments.
- Performing random ramp inspections of safety and emergency equipment's and procedures to ensure their serviceability.
- Apply FDA program by :
  - ➢ Extracting all In-flight accidences recorded according to the Airbase program.
  - ➢ Review all In-flight DFDR downloads recorded data.
  - ➢ Analyzing extracted all In-flight and determines accidences.
  - ➢ Perform analysis reports and provide recommendations.
- Review flight occurrences reported through Air Safety Reports for follow up and closure
- Preparing of quarterly statistical report giving summary of general findings and escalating violations and significant trends to the attention of the Flight Safety Manager
- Maintaining safety library and safety records of all the findings
- Involvement in publishing Safety bulletins

11.1.1.5.6 All Crewmembers

All crewmembers must perform all assigned duties with safety in mind. Each crewmember is responsible and personally accountable for:

- Performing only those technical functions for which they are trained.
- Observing and following established safety and health policies, practices, procedures and operational requirements as per SMM.
- Notifying management of unsafe conditions directly or through anonymous procedures.
- Operating only that equipment on which they have been trained and are qualified to operate.
- Using required personal protective equipment as trained.
- Availing themselves of safety and health training.
- Keeping work areas free of recognized hazards.
- Reporting injuries, illnesses, damage, incidents, and accidents in accordance with Nesma Airlines policy and procedure.
- Every crewmember is expected to accept responsibility and accountability for their actions. Each will have an opportunity to participate in developing safety standards and procedures by communicating their safety concerns and suggestions to management. All must demonstrate concern for the safety of passengers and for others in the Nesma Airlines organization.
- All personnel must be familiar with not only the safety policies and programs in SMM, but also those found in the Nesma Airlines Flight operations manual and all other manuals applicable to an crewmember’s given job function. The safety policies and programs for each department of Nesma Airlines will be disseminated to crewmembers during initial and recurrent training classes provided by the applicable departments. By adhering to established rules and procedures, each crewmember, from the Accountable Executive to the front line, can help collectively achieve Nesma Airlines goal of maintaining a maximum level of safety.
- All personnel performing safety related work are required to be mentally, as well as physically fit, for duty. Those personnel that do not meet this requirement will immediately cease those duties and notify their supervisor. Supervisors aware of, or made aware of, an crewmember performing safety related work that is not mentally, as well as physically fit, for duty will immediately have that crewmember cease those duties.

11.1.1.5.7 Safety Committee

Safety Committee is the primary responsibility of every member and is a prime concern of Safety Department. Therefore, it shall be conceived that one of the primary functions discovery and reporting of safety problems.
Safety Committee dedicated to the improvement of Safety Members meet regularly to exchange safety information and to examine ways to improve safety and to avoid incidents and accidents. One of the main tools of the flight safety committee is the outcomes and statistics which is analyzed and discussed through the committee and with line managers on regular basis meetings.
The effectiveness of flight safety within Nesma Airlines depends upon trust, with matters relating to aviation safety being openly and freely discussed.
Details of accidents, serious incidents and any safety concern which may be discussed at this meeting are to be regarded as confidential.
The Safety Committee provides a method of obtaining agreement for action on specific safety related issues.

11.1.1.5.7.1 Safety Committees Objectives*:*

1. Oversees maintenance & operational safety
2. Review & Discuss Accidents, Incidents and Irregularities.
3. Review & Discuss Safety Audit Recommendations.
4. Find system defects and assure Implementation of corrective action and ensures that corrective action is achieved within agreed timescales.
5. Performs hazard identification, Risk assessment & mitigation to reduce the risk of accidents and incidents.
6. Assesses the impact on safety of operational changes;
7. Study accidents to determine corrective action that can be taken to prevent recurrence.
8. Records should be kept of committee meetings so that activity can be followed up and management kept informed of progress.
9. Risk assessment of new routes, equipment or procedures.
10. Review and resolution of any safety matters that may be brought before the committee.
11. Set safety goals that focus on lowering occurrences level,
12. Investigates and analyses any subject concerning safety.
13. The committee will manage to meet at a minimum twice a year
14. Safety committee shall regularly review all corrective actions arising from safety activities in order to monitor their effectiveness in preventing accidents and incidents. More corrective actions maybe add when necessary.
15. Review outcomes of flight data analysis program (Airbase) in order to ensure Nesma Airlines risk profile.
16. Reviews the effectiveness of previous safety recommendations; and safety promotion.

11.1.1.5.7.2 The Committees Will Be Attended By:

1. General Manager (Accountable Executive) the Committee chairman
2. Safety & Quality Director
3. Director of Operations.
4. Technical Director.
5. Flight Safety Manager.
6. Chief Pilot.
7. Chief Inspector
8. In-Flight Services Manger may be invited if involved in agenda items
9. Ground Handling Manager may be invited if involved in agenda items
10. Others who may be invited if involved in agenda items

11.1.1.5.8 Emergency Response

The SMS include procedures:

- **a.** To identify the potential for accidents, incidents and emergency situations arising out of operations authorized by Nesma Airlines and
- **b.** To respond to those accidents, incidents and situations.

11.1.1.5.9 Document Control

The SMS include procedures for controlling all safety-related documents.
The document control procedures shall ensure that all safety-related Documents are:

- **a.** Authorized by Nesma Airlines;
- **b.** Regularly updated; and
- **c.** Available for use by personnel to whom they apply.

11.1.1.5.10 Record Control

The SMS include record control procedures to ensure that relevant records:

- **a.** Are kept for the period for which they are required; and
- **b.** Are adequate for the purposes for which they are required.

11.1.1.6 Hazard Identification Processes

11.1.1.6.1 Introduction

Nesma Airlines have a hazard identification program that is implemented and integrated throughout the organization, to include:

- **I.** A combination of reactive and proactive methods for safety data collection;
- **II.** Processes for safety data analyses that identifies existing hazards and predict future hazards to aircraft operations.

To ensure all hazards are identified to the extent possible, hazard identification processes are necessarily formalized, coordinated and consistently applied on an on-going basis in all areas of the organization where there is a potential for hazards that could affect aircraft operations.

To be effective, reactive and proactive processes are used to acquire information and data, which are then analyzed to identify existing or predict future (i.e. potential) hazards to aircraft operations. Nesma airlines has developed and maintains a formal process for collecting, recording, acting on and generating feedback about hazards in operations, based on a combination of reactive, proactive and predictive methods of safety data Collection, Examples of processes that typically yield information or data for hazard identification include:

- Reporting system;
- Investigation of accidents, incidents, irregularities and other non-normal events;
- Flight data analysis (AIRFASE)
- Observation of flight crew performance in line operations and training;
- Quality assurance and/or safety auditing;
- Safety information gathering or exchange (external sources).

Processes are designed to identify hazards that might be associated with organizational business changes e.g. addition of new routes or destinations.

The strategy that Nesma Airlines adopts for its SMS will reflect its corporate safety culture and range from purely reactive, responding only to accidents, through to strategies that are highly proactive in their search for safety problems. Safety objectives shall be published and distributed.

11.1.1.6.2 Reactive Safety Method:

- This methodology involves analysis of past outcomes or events. Hazards are identified through investigation of safety occurrences. Incidents and accidents are clear indicators of system deficiencies and therefore can be used to determine the hazards that either contributed to the event or are latent.
- The reactive approach tends to be marked by the following characteristics:
  - **a)** Management's safety focus is on compliance with minimum requirements.
  - **b)** Safety measurement is based on reportable accidents and incidents with such limitations in value as:
    - ➢ Any analysis is limited to examining actual failures.
    - ➢ Insufficient data is available to accurately determine trends, especially those attributable to human error.
    - ➢ Little insight is available into the "root causes" and latent unsafe conditions, which facilitate human error.
  - **c)** Constant "catching up" is required to match human inventiveness for new types of errors.
- The reactive safety method tools are included but not limited to:
  - **a.** Accident/Incident reports

- **b.** Air Safety reports
- **c.** Cabin Crew Air safety reports
- **d.** Mandatory Occurrence reports
- **e.** Industry accident reports
- **f.** State safety reporting systems;

11.1.1.6.3 Proactive Safety Method:

- This methodology involves analysis of existing or real-time situations, which is the primary job of the safety assurance function with its audits, evaluations, employee reporting, and associated analysis and assessment processes. This involves actively seeking hazards in the existing processes.
- Nesma Airlines pursuing a proactive method for safety management believes that the risk of accidents can be minimized by identifying vulnerabilities before they fail and by taking the necessary actions to reduce those risks. Consequently, they actively seek systemic unsafe conditions using such tools as:
  - **a)** Hazard (voluntary and confidential hazards reports) and incident reporting systems that promotes the identification of latent unsafe conditions;
  - **b)** Safety surveys to elicit feedback from front-line personnel about areas of dissatisfaction and unsatisfactory conditions that may have accident potential;
  - **c)** Operational non-routine surveillance and/or audits of all aspects of operations to identify vulnerable areas before accidents, incidents or minor safety events confirm a problem exists.

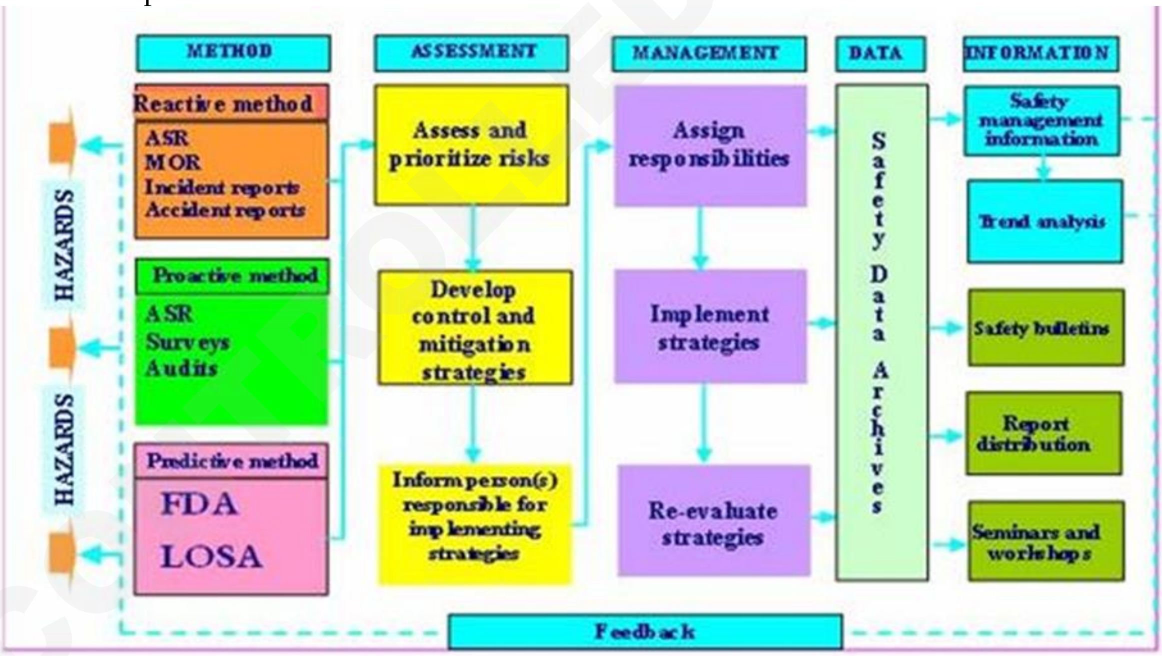


Figure 1 Safety Management System Process

11.1.1.6.4 Reactive Processes

11.1.1.6.4.1 Occurrence and Hazard Reporting

Every event is an opportunity to Nesma Airlines to learn valuable safety lessons. The lessons will only be understood, however, if the occurrence is analyzed so that all staff, including management, understands not only what happened, but also why it happened. This involves looking beyond the event and investigating the contributing factors.
To achieve this, Nesma Airlines maintains procedures for the internal reporting and recording of occurrences, hazards and other safety related issues. The collection of timely, appropriate and accurate data will allow Nesma Airlines to react to information received, and apply the necessary corrective action to prevent a recurrence of the event.
The key to accomplish this, Nesma Airlines have a reporting system that meets the needs of all staff who will be using it – all staff. As such, personnel input into the development of the system are vital. A safety reporting system is worthless if no one uses it.
Nesma airlines non-punitive discipline policy and a real and demonstrated Commitment by management to achieve the company's safety goals will help to foster the development of a reporting culture within Nesma Airlines.

11.1.1.6.4.2 Nesma Airlines' Safety Reporting Systems Encompass The Following Elements:

- **a)** System for reporting hazards, events or safety concerns.
- **b)** System for analyzing data, safety reports and any other safety related information.
- **c)** Method for the collection, storage and distribution of data.
- **d)** Corrective action and risk reduction strategies.
- **e)** On-going monitoring.
- **f)** Confirmation of the effectiveness of corrective action.

11.1.1.6.4.3 Reporting Hazards, Events and Safety Concerns

Nesma Airlines has developed Hazards, Events and safety concerns forms to allow for a full description of the event.

11.1.1.6.4.4 Why Report?

All events require appropriate investigation in order to:

- **a)** Establish their root cause, that is the underlying initial contributing factor(s) that caused the event, and identify actions to minimize the chance of recurrence;
- **b)** Satisfy any regulatory requirements for reporting and investigation as ECAR 39 (MOR)
- **c)** Provide a factual record of the circumstances of the event or hazard to allow others to learn from the situation; and
- **d)** Categorize the underlying causes and establish the appropriate remedial and continuous improvement action.

11.1.1.6.4.5 What Should Be Reported?

Any event or hazard with the potential to cause damage or injury should be reported. Examples of these issues are:

- **a)** Excessive duty times
- **b)** Crews rushing through checks
- **c)** Inadequate tool or equipment control
- **d)** Unruly passengers
- **e)** Emergency exit paths blocked
- **f)** Incorrect or inadequate procedures, and a failure to adhere to standard procedures.
- **g)** Poor communication between operational areas
- **h)** Lack of up to date technical manuals
- **i)** Poor shift changeovers
- **j)** Runway incursions
- **k)** Lack of adequate training and recurrent training.

11.1.1.6.4.6 When Should A Hazard Report Be Submitted?

Any individual involved directly or indirectly in the flight activities of the flight department (i.e. cockpit, cabin, dispatchers, maintenance, employees, personnel, and others providing aviation related products/services) must report any observed hazard. If a hazard is recognized and unable to be observed via normal procedures, the observer shall complete a hazard report and submit it to the Safety manager.

A Hazard Report or Flight Operations Incident Report shall be submitted when any situation, practice, procedure, or process is observed which either a recognized safety concern is, Considered unusual from an operational or procedural standpoint, or Considered deficient from a safety standpoint, and which, in the submitter's opinion, possesses a foreseeable potential for injury or illness to persons or damage or loss of property if not addressed in a timely manner.

Any safety concern that would be of interest to others that are involved in like activities should be reported. Hazard Report is not required for hazards which are able to be resolved locally, however, when a hazard is likely to be duplicated in other department workplaces a Hazard Report should be submitted for the benefit of other affected employees

11.1.1.6.4.7 How A Hazard Shall Be Reported?

At Nesma Airlines, the reports are acted upon in a timely manner by the Flight Safety Manager.

Available Forms:

1. Air safety report (ASR)
2. Confidential / Hazard / human factor Report
3. Voluntary Report
4. Cabin crew Report

Nesma Airlines reporting system maintains confidentiality between the person reporting the hazard and the Flight Safety Manager. Any safety information distributed a hazard report must be de- identified.

Nesma Airlines reporting system maintains confidentiality between the person reporting the hazard and the Safety and Quality Director11.1.2. Hazard, Confidential Human Factors Report:

- All safety reports shall be submitted to the Safety and Quality Department;
- Upon receipt of a Hazard Report the Safety and Quality Director will conduct an investigation to determine the validity of the report as well as to gain additional information concerning the report's subject matter. Any hazardous situations or equipment shall be either placarded or removed from service until the hazardous situation is corrected. The submitter, if identified, will be advised of the result of the investigation. If a Hazard Report identifies a problem that is outside the scope or authority, the originator will be offered assistance in routing the information to the appropriate person responsible.
- Upon validation of a Hazard Report, the Safety & Quality Director shall identify and notify the individual(s) assigned responsibility for the affected workplace(s). The contents of the Hazard Report and the investigation results will be provided along with recommendations for corrective/preventive action. Appropriate action and a target date for elimination or reduction of the hazardous situation will then be determined.
- Final corrective action shall be documented on the Hazard Report form and the completed form returned to the Safety & Quality Director. The Hazard Report originator will then be notified through a personal contact by the Safety & Quality Director of the final disposition of the matter.
- Nesma airlines decisions concerning risk acceptability should be made by management and they should be kept informed of all high-risk considerations. Hazards that were not adequately disposition should be communicated to management for resolution.
- Safety and Quality Director is responsible for investigation of the report and for the confidentiality of the report. Anyone submitting a safety report must receive acknowledgement and feedback within 10 working days after the investigation. The de-identified safety report and recommendations should be made widely available for the benefit of all staff

11.1.2 Voluntary Reporting System

This reporting is voluntary in nature which means it is submitted without any administrative requirement.
Nesma Airlines the top management encourages all employees and gives them the incentive to report voluntarily any hazard or Event. (Reporting Underlining Errors or Unintentional Violations) .In Nesma Airlines The reported information shall not be used against the reporter, The Voluntary Reporting system is non-punitive and extend protection to the source of information to encourage the reporting of such valuable information.

11.1.3 Cabin Safety

Nesma Airlines Cabin safety is aimed to minimizing risks to the occupants of the aircraft. By reducing or eliminating hazards with the potential for creating injuries or causing damage, the range of threats to the aircraft and its occupants include:

- **a)** In-flight turbulence;
- **b)** Smoke or fire in the cabin
- **c)** Decompression;
- **d)** Emergency landings;
- **e)** Emergency evacuations
- **f)** Unruly passengers.

Cabin crews are providing assistance to passengers during an emergency. Following a major aviation accident, investigative attention will likely focus initially on flight operations as guided by the evidence .For example:

- **a)** Incorrect loading of passengers (e.g. weight and balance considerations)
- **b)** Failure to properly secure the cabin and galleys for take-off, landing and in turbulence
- **c)** Delayed reaction to warnings (e.g.in-flight turbulence)
- **d)** Inappropriate response to events in the cabin (e.g. electrical short-circuits, smoke, fumes)
- **e)** Failure to report significant observations (e.g. fluid leaks, wings contaminated by ice) to the flight crew.

11.1.3.1 Procedures Include, But Are Not Limited to The Following

Passenger boarding; seat assignment; stowage of carry-on baggage; emergency exit accessibility and availability; passenger safety briefing; service equipment storage and use; emergency medical equipment storage and use (oxygen, first aid kit, etc.); handling of medical emergencies; non-medical emergency equipment storage, use (fire extinguishers, protective breathing equipment, etc.)

11.1.3.2 In-Flight Emergency Procedures

(Smoke, fire, etc.); cabin crew announcements; turbulence procedures (including securing the cabin); handling unruly passengers; emergency evacuations; and routine deplaning.

11.1.3.3 Hazard and Incident Reporting

Cabin crew must be able to report hazards, incidents and safety concerns as they become aware of them without fear of embarrassment, disciplinary action. Cabin crew, their supervisors and the Safety &Quality Manager should have no doubts about:

a) The types of hazards that should be reported;
b) The appropriate reporting mechanisms;
c) Their job security (following the reporting of a safety concern); and
d) Any safety actions taken to follow-up on identified hazards.

11.1.4 Safety Oversight

Safety oversight for cabin safety shall achieve by program of:
Aircraft inspections (e.g. emergency exits, emergency equipment, galleys);

a) Pre-flight (ramp) inspections;
b) In-flight cabin inspections (e.g. passenger briefings, crew briefings and use of checklists) Nesma Airlines internal safety audit program should include the cabin crew department. The audit process should include a review of all cabin operations as well as an audit of cabin safety procedures, training, cabin crew's operating manual, etc.

11.1.5 Safety Reporting Culture

Use of the following outlined principles helps to overcome the natural resistance to safety reporting & improves Safety reporting culture at Nesma Airlines:

11.1.5.1 Trust

- Persons reporting hazards or incidents must trust that the receiving organization the company will not use the information against them in any way. Without such confidence, people will be reluctant to report their mistakes or other hazards they have noticed.
- Trust begins with the design and implementation of the reporting system. Employee input into the development of a reporting system is therefore vital.
- Nesma Airlines believes that positive safety culture in the organization generates such kind of trust necessary for a successful incident reporting system. Specifically, the culture must be error-tolerant and just. In addition, incident reporting systems need to be perceived as being fair in how they treat unintentional errors or mistakes. (Most people do not expect an incident reporting system to exempt criminal acts or deliberate violations from prosecution or disciplinary action.) Nesma Airlines considers such a process to be an example of a "just culture".

11.1.5.2 Non-Punitive (Refer To Corporate Safety Reporting Policy)

- Non-punitive reporting systems are based on confidentiality. Before employees will freely report incidents, At Nesma Airlines Top management committed that reported information would not be used punitively against them. The person reporting the incident (or unsafe condition) must be confident that anything said will be kept in confidence.
- Reporting anonymously is not the same as confidential reporting. Most successful reporting systems have some type of call-back capability in order to confirm details or obtain a better understanding of the occurrence. Reporting anonymously makes it impossible to "call back" to ensure understanding and completeness of the information provided by the reporter.

There is also a danger that anonymous reporting may be used for purposes other than safety.

11.1.5.3 Inclusive Reporting Base

- Early voluntary incident reporting systems were targeted at flight crew. Pilots are in a position to observe a broad spectrum of the aviation system and are therefore able to comment on the system's health. Nonetheless, incident reporting systems that focus solely on the perspective of flight crew tends to reinforce the idea that everything comes down to pilot error. Taking a systemic approach to safety management requires that safety information be obtained from all parts of the operation.
- Incidents reporting systems, collecting information on the same occurrence from different perspectives facilitates forms a more complete impression of events. Relying on only one perspective; may not provide a complete understanding of the event.

11.1.5.4 Independence

Voluntary reporting to the Quality & Safety Director benefits from a trusted "third party" managing the system. Quality & Safety Director receives, processes and analyses the incident reports and feeds the results back to the safety committee, and any information received will be used for safety purposes only; as part of Nesma Airlines safety management system.

11.1.5.5 Ease of Reporting

The task of submitting incident reports should be as easy as possible for the reporter. Reporting forms should be readily available so that anyone wishing to fill a report can do so easily. Forms should be simple to compile, have adequate space for a descriptive narrative and should encourage suggestions on how to improve the situation or prevent a reoccurrence. To simplify completion, classifying information, such as the type of operation, light conditions, type of flight plan, and weather, can use a "tick-off" format.

11.1.5.6 Acknowledgment

The reporting of incidents requires time and effort by the reporter and should be appropriately acknowledged. The reporter naturally expects feedback about actions taken in response to the reported safety concern.

11.1.5.7 Promotion

The (de-identified) information received from an incident reporting system should be made available for all employees in a timely manner. This could be done in the form of monthly newsletters or periodic summaries. Ideally, a variety of methods would be used with a view to achieving maximum exposure. Such promotional activities may help to motivate people to report additional incidents.

11.1.6 Types of Incident Reporting Systems

In general, an incident involves an unsafe, or potentially unsafe, occurrence or condition that does not involve serious personal injury or significant property damage, i.e. it does not meet the criteria for an accident. Even though; Nesma Airlines is required – as an operator to report the occurrence to ECAA.

11.1.6.1 Mandatory Incident Reporting Systems

- In a mandatory system, Nesma Airlines is required to report certain types of incidents. This necessitates detailed procedures outlining who shall report and what shall be reported. The number of variables in aviation operations is so great that it is difficult to provide a comprehensive list of items or conditions which should be reported. However, the rule should be: "If in doubt - report it."
- Since mandatory systems deal mainly with "hardware" matters, they tend to collect more information on technical failures than on the human performance aspects. To help overcome this problem, Nesma Airlines developed voluntary incident reporting systems that aimed at acquiring more information on the Human Factors aspects of occurrences.
- Following is a listing of the types of occurrences or safety events to be reported to ECAA under the company's incident reporting system. The list is neither exhaustive nor in any order of importance:
  - Any system defect which adversely affects the handling or operation of the aircraft;
  - Warning of smoke or fire, the activation of toilet smoke detectors or galley fires;
  - An emergency is declared;
  - The aircraft is evacuated by means of the emergency exits/slides;
  - Safety equipment or procedures are defective, inadequate or used;
  - Serious deficiencies in operational documentation;
  - Incorrect loading of fuel, cargo or dangerous goods;
  - Significant deviation from SOPs;
  - A go-around is carried out from below 1 000 ft above ground level;
  - An engine is shut down or fails at any stage of the flight;
  - Ground damage occurs;
  - A take-off is rejected after take-off power is established;
  - The aircraft leaves the runway or taxiway or other hard standing;
  - A navigation error involving a significant deviation from track;
  - An altitude excursion of more than 500 ft occurs;
  - Un-stabilized approach under 500 ft;
  - Exceeding the limiting parameters for the aircraft configuration;
  - Communications fail or are impaired;
  - A stall warning occurs;
  - GPWS activation;
  - A heavy landing check is required;
  - Hazardous surface conditions, e.g. icy, slush and poor braking;
  - Aircraft lands with reserve fuel or less remaining;
  - A TCAS RA event;
  - A serious ATC incident, e.g. near mid-air collision, runway incursion and incorrect clearance;
  - Significant wake turbulence, turbulence, wind shear or other severe weather;

- Crew or passengers become seriously ill, are injured, become incapacitated or deceased;
- Violent, armed or intoxicated passengers, or when restraint is necessary;
- Security procedures are breached;
- Bird strike or Foreign Object Damage (FOD); and
- Any other event considered likely to have an effect on safety or aircraft operations.

11.1.6.2 Voluntary Incident Reporting Systems

Nesma Airlines shall introduce voluntary incident reporting systems to supplement the information obtained from mandatory reporting systems. In such systems, the reporter, without any legal or administrative requirement to do so, submits a voluntary incident report. In a voluntary reporting system, the reported information should not be used against the reporters, i.e. such systems must be non-punitive to encourage the reporting of such information.

11.1.6.3 Confidential Reporting Systems

Confidential reporting systems aim to protect the identity of the reporter. This is one way of ensuring that voluntary reporting systems are non-punitive. Confidentiality is usually achieved by de-identification, often by not recording any identifying information of the occurrence. One such system returns to the user the identifying part of the reporting form and no record is kept of these details. Confidential incident reporting systems facilitate the disclosure of human errors, without fear of retribution or embarrassment, and enable others to learn from previous mistakes.

11.1.7 Proactive Safety Assessment

For a safety management system to transition from a reactive to a proactive, Nesma Airlines actively seeks out potential safety hazards and evaluates the associated risks. This can be achieved through a safety assessment. A safety assessment allows for the identification of potential hazards and then applies risk management techniques to effectively manage the hazard.

Nesma Airlines safety assessment system should encompass the following basic elements:

- System for identifying potential hazards
- Risk management techniques
- On-going monitoring/quality assurance.

11.1.8 Assessment Frequency

A safety assessment should be undertaken, at a minimum:

a) During implementation of the safety management system.
b) When major operational changes are planned.
c) If the organization is undergoing rapid change, such as growth and expansion, offering new services, cutting back on existing service, or introducing new equipment or procedures.
d) When key personnel change.

11.1.9 Information Sources for Determining Potential Hazards

The following list details some of the possible resources:

a) **Company Experience:** Existing safety reports detailing events.
b) **Minutes of safety meetings:** committee meetings can also reveal potential areas of concern.
c) **Line management:** line manager will have perceptions of the greatest hazards.
d) **Workplace opinions:** This can be achieved through focus groups, consulting employee representatives.
e) **Audit Reports:** internal audit system should contain a record of audit reports and remedial action plans.
f) **Corporate hazard analysis:** Records of previously conducted formal hazard analyses.
g) **Safety data recording systems:** Mandatory occurrence reporting (MOR)

11.1.10 Active Monitoring Techniques

There are several active monitoring methods that can be employed in safety assessment, these include:

a) Inspections: Usually achieved by inspection on activities against planned methods of procedures.
b) Audits: Usually achieved by independent review of an organization's systems personnel, facilities, etc.
c) Review – Provides an overview of the processes involved in a work area or system

11.1.11 Flight Data Analysis (FDA) Program

11.1.11.1 Flight Data Analysis (FDA)

It is the predictive tool for identification of hazards, FDA program may be used for detecting exceedance or safety events, such as deviations from flight manual limits, all the data gathered in an FDA program shall be kept in a central safety database. (For further details concerning FDA Program refer to SMM).

11.1.11.2 Using the FDA Program

a) Typically, FDA data are being used in five areas:
- Exceedance detection;
- Routine measurements;
- Incident investigations;
- Continuing airworthiness.
- Linked databases (or integrated safety analysis).

b) Nesma Airlines is Utilizing AirFase software program flight Profile is created and provided by AIRBUS,

11.1.11.3 FDA Database Is Backed Up On Monthly Basis

A backup copy is securely saved at Nesma Airlines Information Technology Division building while another copy is saved at Nesma Airlines Safety and Quality Department. Data Retention is for 5 years**.**

11.2 Safety Risk Assessment and Mitigation Process

11.2.1 Risk Management.

Not all risks can be eliminated, nor are all believable risk mitigation measures economically feasible. The risks and costs inherent in aviation necessitate a rational process for decision-making. Daily, decisions are made in real time, weighing the probability and severity of any adverse consequences implied by the risk against the expected gain of taking the risk.

This process is known as "Risk management". As shown in figure 2

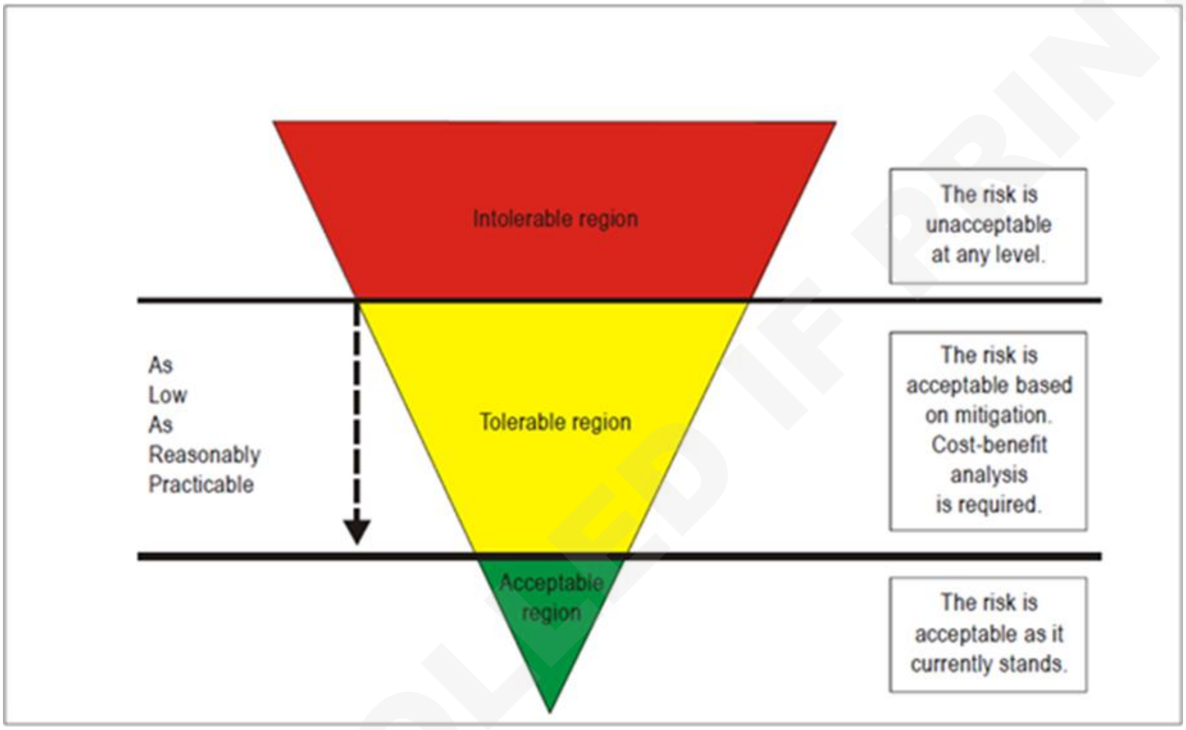


Figure 2 Risk management

Risk management facilitates the balancing act between assessed risks and viable risk mitigation. Risk management is an integral component of safety management. It involves a logical Process of objective analysis, particularly in the evaluation of the risks. The process for risk management is summarized in the flow chart in Figure 3 as the figure indicates; risk management comprises three essential elements: hazard identification, risk assessment and risk mitigation. The concepts of risk management have equal application in decision-making.

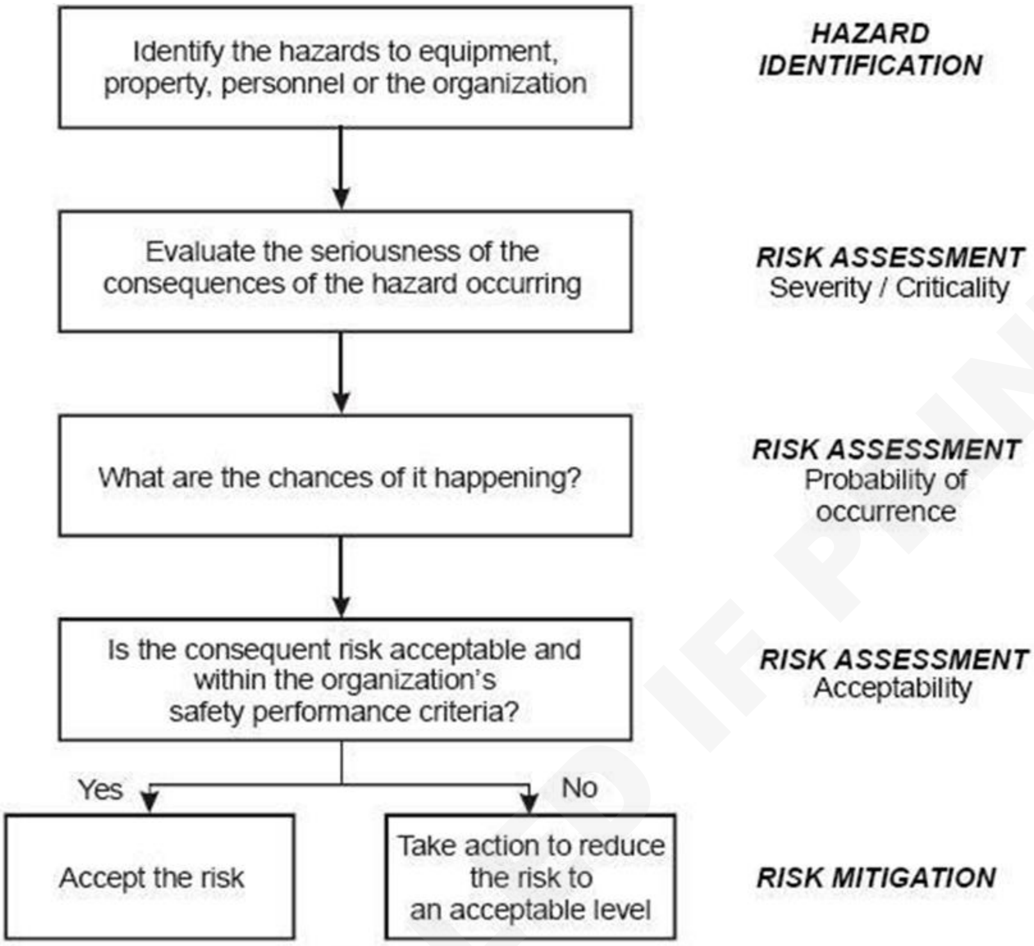


Figure 3: Risk management process

11.2.2 First Fundamental – Risk Management

What is it the identification? Analysis and elimination or mitigation to an acceptable level of risks that threaten the capabilities of an organization.
What is the objective? Aims at a balanced allocation of resources to address all risks and viable risk control and mitigation.
Why is it important a key component of safety management systems? Data-driven approach to safety resources allocation, thus defensible and easier to explain.

11.2.3 Second Fundamental - Risk Probability

Probability: The possibility that a situation of danger might occur as shown in figure 4
Questions for assessing the probability of an occurrence:

- **a)** Is there a history of occurrences like the one being assessed, or is the occurrence an isolated event?
- **b)** What other equipment, or similar type components, might have similar defects?
- **c)** What number of operating or maintenance personnel must follow the procedure (s) in question?
- **d)** How frequently is the equipment or procedure under assessment used?
- **e)** Are there organizational, management or regulatory implications that might generate larger threats to public safety?

11.2.4 Third Fundamental – Risk Severity

Severity

- The possible consequences of an unsafe event or condition, taking as reference the worst foreseeable situation. As shown in figure 5
  Define the consequence(s) in terms of: Property, Health, Finance, People and Environment. Questions for assessing the severity of the consequences of an occurrence:

How many lives are at risk?

- Employees, Passengers and Bystanders

What is the likelihood of environmental impact?

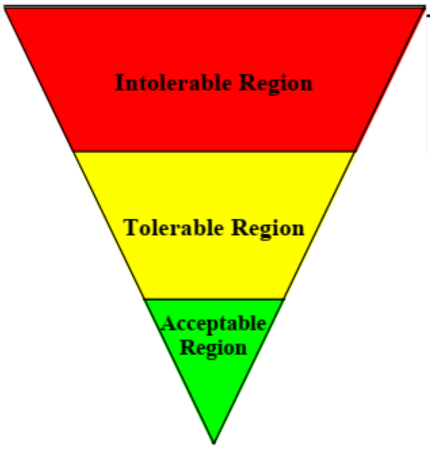
- Spill of fuel or other hazardous product.

What is the likely extent of property or financial damage?

- Direct operator property loss
- Damage to aviation infrastructure

11.2.5 Fourth Fundamental - Risk Assessment and Tolerability

Using the risk analysis matrix. It is possible to standardize the qualitative risk assessments, and categorize the hazard using the tolerability as mentioned in SMM chapter 2



SUGGESTED CRITERIA	ASSESSMENT RISK INDEX	SUGGESTED CRITERIA
Intolerable Region	5 B, 5 C, 5 D, 5 E, 4 C, 4 D, 4 E, 3 D, 3 E	Unacceptable under the existing circumstances
Tolerable Region	5 A 4 B 3 C 2 D, 2 E	Acceptable based on risk mitigation. It may require management decision
Acceptable Region	3 A, 3 B 2 A, 2 B, 2 C 1 A, 1 B, 1 C, 1 D, 1 E	Acceptable

RISK PROBABILITY	**RISK SEVERITY**				
	NEGLIGIBLE	MINOR	MAJOR	HAZARDOUS	CATASTROPHIC
	(A)	(B)	(C)	(D)	(E)
FREQUENT (5)	**5 A**	**5 B**	**5 C**	**5 D**	**5 E**
OCCASIONAL (4)	**4 A**	**4 B**	**4 C**	**4 D**	**4 E**
REMOTE (3)	**3 A**	**3 B**	**3 C**	**3 D**	**3 E**
IMPROBABLE (2)	**2 A**	**2 B**	**2 C**	**2 D**	**2 E**
EXTREMELY IMPROBABLE (1)	**1 A**	**1 B**	**1 C**	**1 D**	**1 E**

Figure 7risk tolerability

11.2.6 Fifth Fundamental – Risk Control / Mitigation

Mitigation*:* Measurestoeliminatethepotentialhazardortoreducetheriskprobability or severity.

Risk mitigation = Risk control

Mitigate: To make milder, less severe or less harsh

Risk mitigation – Defences

As part of the risk mitigation, determine:

- **a)** Do defences to protect against such risk (s) exist?
- **b)** Do defences function as intended?
- **c)** Are the defences practical for use under actual working conditions?
- **d)** Is a staff involved aware of the risks and the defences in place?
- **e)** Are additional risk mitigation measures required?
  - Recalling the three basic defences
  - Technology
  - Training
  - Regulations

Avoidance: Theoperationoractivityiscancelledbecauserisksexceedthebenefitsof continuing the operation or activity. E.g.

Regularoperationsintoanaerodromesurroundedbycomplexgeographyandwithout the necessary aids are cancelled.

Reduction: The frequency of the operation or activity is reduced, or action is taken to reduce the magnitude of the consequences of the accepted risks. E.g.

Regularoperationsintoanaerodromesurroundedbycomplexgeographyandwithout the necessary aids are continued based upon the availability of specific aids and application of specific procedures.

Segregation of exposure: Action is taken to isolate the effect so frisks or build-in redundancy to protect against it, i.e., reduces the severity of risk.

Note: Figure 8 showing risk mitigation and Figure 9 showing risk mitigation process

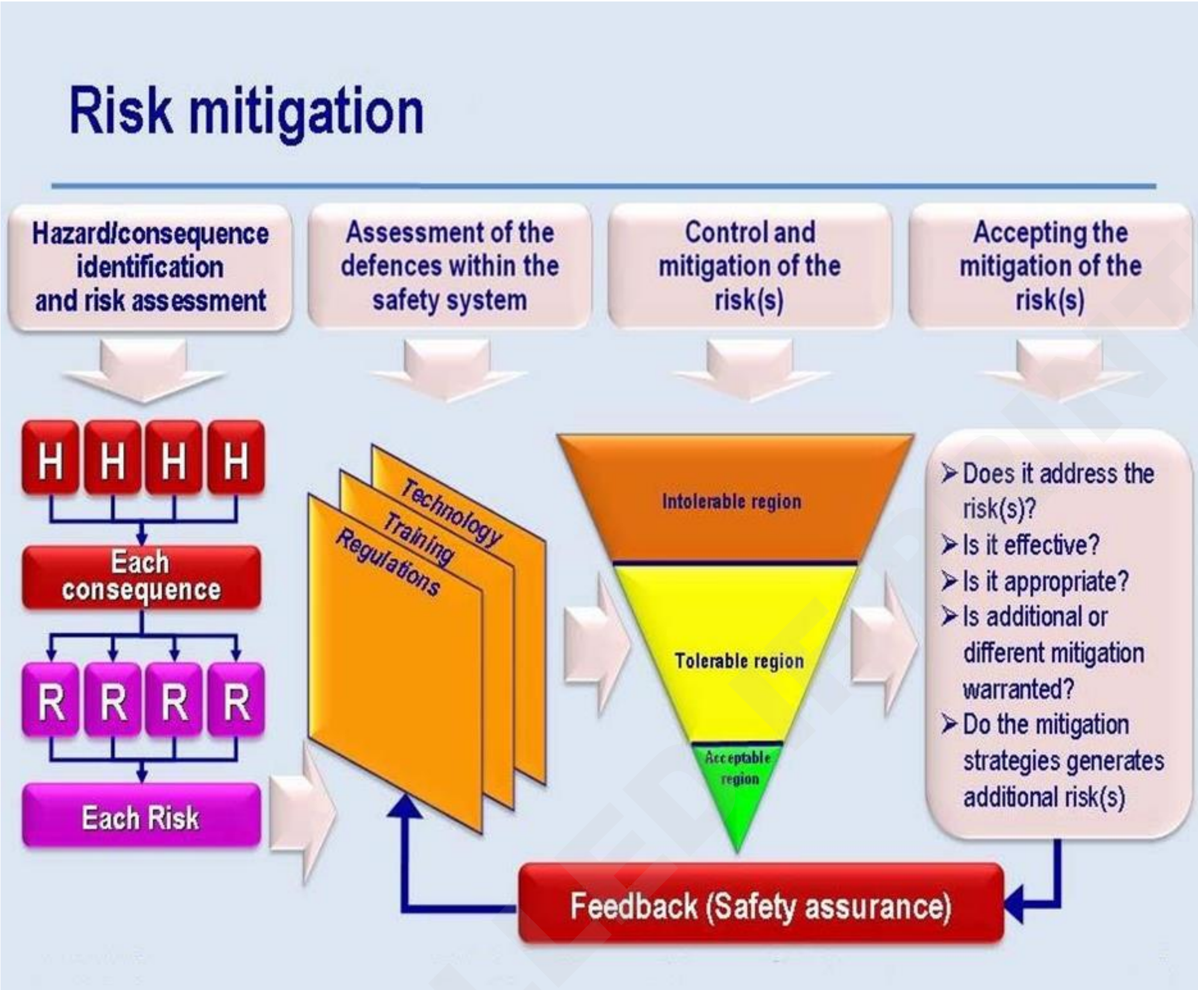


Figure 8 risk mitigation

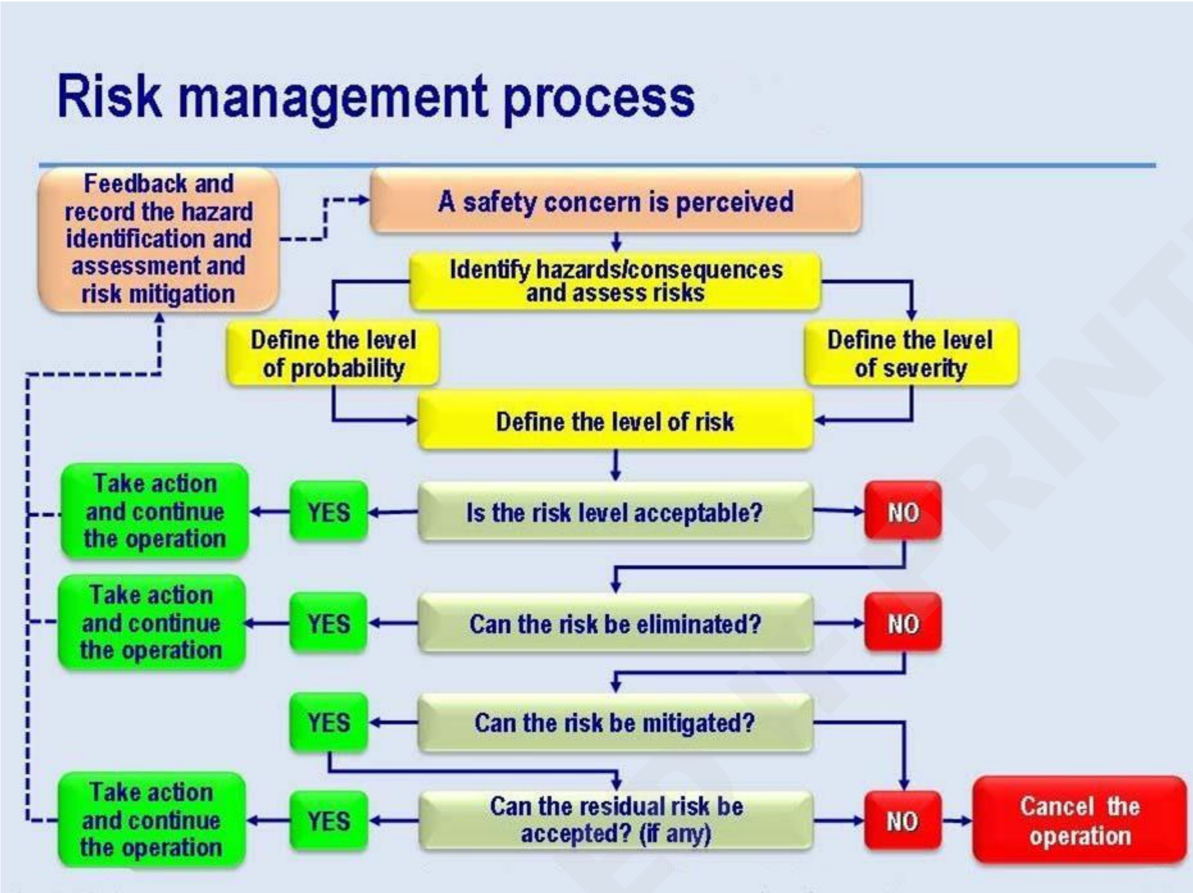


Figure 9 risk mitigation process

11.3 Incident and Accident Investigation

11.3.1 General

Effective safety management system depends on the investigation and analysis of safety issues. The safety value of an accident, a hazard or an incident is largely proportional to the quality of the investigative effort. The technical aspects of accident and incident investigation used by the safety & quality directorate and other personnel in the course of an investigation, Requirements regarding mandatory reports to the ECAA.

i. **Accident**
An occurrence associated with the operation of an aircraft that 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, the aircraft sustains substantial damage, or the aircraft is missing or is completely inaccessible.

ii. **Incident**
An occurrence other than an aircraft accident, associated with the operation of an aircraft, which affects or could affect the safety of operations.

iii. **Occurrence**
To indicate an accident or incident. From the perspective of safety management, there is a danger in concentrating on the difference between accidents and incidents using definitions that may be arbitrary and limiting. Many incidents occur every day which may or may not be reported to the investigation authority but which come close to being accidents often exposing significant risks. Since there is no injury, or little or no damage, such incidents might not be investigated. This is unfortunate because the investigation of an incident may yield better results for hazard identification than the investigation of an accident. The difference between an accident and an incident may simply be an element of chance. Indeed, an incident may be thought of as an undesired event that under slightly different circumstances could have resulted in harm to people or damage to property and thus would have been classified as an accident.

iv. **Investigation**
A process conducted for the purpose of accident prevention which includes the gathering and analysis of information, the drawing of conclusions, including the determination of causes and, when appropriate, the making of safety recommendations.

v. **Investigator-In-Charge**
A person charged, on the basis of his or her qualifications, with the responsibility for the organization, conduct and control of an investigation. This will normally be the Quality & Safety director.

vi. **Serious Incident**
An incident involving circumstances indicating that an accident nearly occurred. The difference between an accident and a serious Incident lies only in the result.

vii. **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.
- Results in a fracture of any bone (except simple fractures of fingers, toes, or nose).
- Involves lacerations which cause severe, nerve, muscle or tendon damage,
- Involves injury to any internal organ.
- Involves second or third degree bums, or tiny burns affecting more than 5 percent of the body surface.

- Involves verified exposure to infections subs lances or injurious radiation.

11.3.2 In-House Investigations

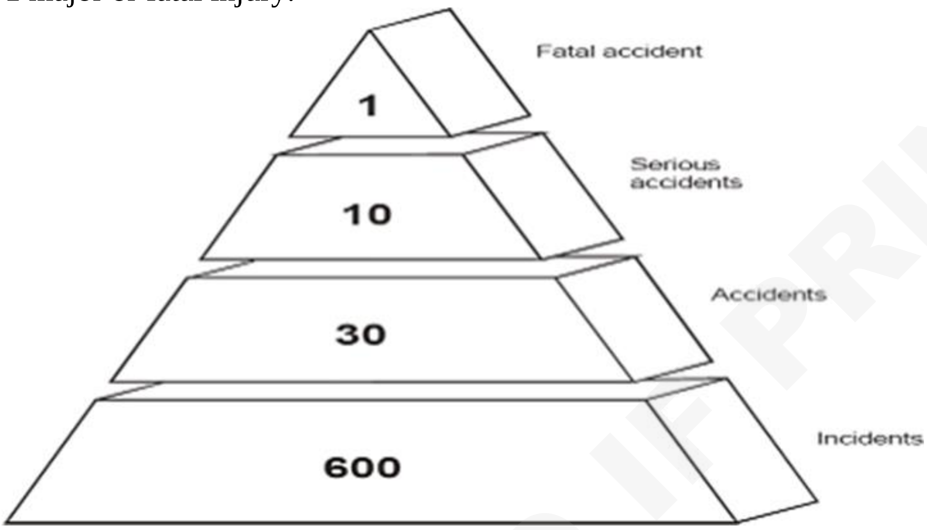
i. Most occurrences do not warrant investigations by regulatory authorities. Many incidents are not even required to be reported to the State. Nevertheless, such incidents may be indicative of potentially serious hazards, perhaps systemic problems that will not be revealed unless the occurrence is properly investigated.

ii. For every accident or serious incident, there will likely be hundreds of minor occurrences, many of which have the potential to become an accident. It is important that all reported hazards and incidents be reviewed and a decision taken on which ones should be investigated and how thoroughly.

iii. For in-house investigations, the investigating team may require the assistance of specialists, depending on the nature of the occurrence being investigated, for example:
   - cabin safety specialists for in-flight turbulence encounters, smoke or fumes in the cabin, galley fire,
   - experts in air traffic services for loss of separation, near collisions, frequency congestion, etc.;
   - maintenance engineers for incidents involving material or system failures, smoke or fire, etc.; and experts able to provide airport management advice for incidents involving foreign object damage (FOD), snow and ice control, airfield maintenance, vehicle operations, etc.

11.3.3 Scope of Safety Investigations

i. Research into industrial safety in 1969 indicated that for every 600 reported occurrences with no injury or damage, there were some:
   - 30 incidents involving property damage;
   - 10 accidents involving serious injuries; and
   - 1 major or fatal injury.



ii. The (1:600 Rule, ratio: 1-10-30-600) is an indicative of a wasted opportunity if investigative efforts are focused only on those rare occurrences where there is serious injury or significant damage. The factors contributing to such accidents may be present in hundreds of incidents and could be identified before serious injury or damage. Effective safety management requires that staff and management identify and analyses hazards before they result in accidents.

iii. In aviation incidents, injury and damage are generally less significant than in accidents. Accordingly, there is less publicity associated with these occurrences. In principle, more information regarding such occurrences should be available (e.g. live witnesses and undamaged flight recorders).

iv. Without the threat of substantial damage suits, there also tends to be less of an adversarial atmosphere during the investigation. Thus, there should be a better opportunity to identify why the incidents occurred and, equally, how the defenses in place prevented them from becoming accidents. In an ideal world, the underlying safety deficiencies could all be identified and preventive measures to ameliorate these unsafe conditions could be initiated before an accident occurs.

v. How far should an investigation look into minor incidents and hazard reports?
The extent of the investigation should depend on the actual or potential consequences of the occurrence or hazard. Hazard or incident reports that indicate high-risk potential should be investigated in greater depth than those with low-risk potential.

vi. The depth of the investigation should be that which is required to clearly identify and validate the underlying hazards. Understanding why something happened requires a broad appreciation of the context for the occurrence. To develop this understanding of the unsafe conditions, the investigator should take a systems approach, perhaps drawing on the SHEL model outlined in human factors (Quality Manual - chapter 4.3). Resources are normally limited, thus the effort expended should be proportional to the perceived benefit in terms of potential for identifying systemic hazards and risks to the organization.

vii. Although the investigation should focus on the factors that are most likely to have influenced actions, the dividing line between relevance and irrelevance is often blurred. Data that initially may seem to be unrelated to the investigation could later prove to be relevant once relationships between different elements of the occurrence are better understood.

11.3.4 Investigation Policy and Objectives

i. In addition to investigating all incidents, it is Nesma Airlines policy to also conduct an in- house formal investigation following an accident or serious incident, even where it is also subject to government investigation. This shall enable Nesma Airlines to ascertain quickly whether any immediate changes in procedures are necessary. Typically, Nesma Airlines may be asked to investigate and make a report to ECAA.

ii. All internal accident/incident investigations are carried out by the Quality & Safety Director, under the authority of the Accountable Executive. Investigations seek to determine not only the immediate causes, but the underlying or root causes as well. Appropriate prevention and intervention procedures will then be developed and remedial action will be recommended to prevent future similar occurrences at the same time measuring the effectiveness of that corrective or remedial action after made them available to line managers to eliminate hazards or mitigate unacceptable risk.

11.3.5 Accident/Incident Notification

i. In the event of an accident, the QSD shall be notified per the procedures contained in Nesma Airlines ERP When an incident occurs, QSD shall also be immediately notified by the most expeditious means. Such incidents may include, but are not limited to, any occurrence, other than an accident placing doubt on the continued safe operation of the aircraft and which:
   - Jeopardize (risk) the safety of the crew, passengers or aircraft, but terminated without serious injury or substantial damage,
   - Causes damage to, or failure of, any major component not resulting in substantial damage or serious injury, but which will require the replacement or repair of that component.
   - Jeopardize the safety of the crew, passengers or aircraft and avoided being an accident only by exceptional handling of the nine raft or by chance.
   - Causes trauma (severe physical injury) to crew, passengers or third parties.
   - Could be of interest to the press and news media,

ii. Specific examples include loss of engine cowlings, portions of flaps, control surfaces or fuselage panels, an altitude excursion or other ATC violation, or a minor taxiing accident, such as damage due lo collision with ground equipment.

11.3.6 Investigative Procedure

i. Upon notification, the QSD will determine the required level of response. In The event of an aircraft accident, personnel responsibilities arc assigned as detailed in the CRP, for other incidents, the QSD may request assistance from appropriate areas there are two levels of investigations:

Note: Nesma Airlines shall be represented during all investigations, the QSD and Emergency Response Coordinator (ERC) have uninhibited access to till areas of operations, including any and all relevant documents and files. All employees shall cooperate fully in any investigation and must not withhold any requested information.

Note: The failure to cooperate during an investigation, intentional withholding of relevant facts, or providing false and/or misleading information constitute grounds for immediate dismissal.

ii. As soon as a notification of an incident/accident is received, the QSD will ensure that all relevant documents are gathered and the evidence is preserved. When necessary, as in the case of an accident, specific technical duties will be assigned to qualified personnel. The QSD maintains a list of employees qualified to serve on each of the following possible ECAA investigative groups (these employees may also perform such functions in lesser incidents):

- Operations.
- Witness,
- Survival Factors.
- Air Traffic Control.
- Weather.
- Structures.
- Systems.
- Power plants.
- Maintenance Records.
- Flight Data Recorder.
- Cockpit Voice Recorder VCR
- Human Performance
- Aircraft performance.

Because aircraft accident and incident investigation is a highly complex and technical field, the QSD and ERC shall periodically attend formal courses, seminars, etc. to maintain an appropriate level of readiness and expertise. Certain other designated employees may also attend such courses if they are expected to perform such duties in the event of an accident.

11.3.7 Information Sources

Information relevant to a safety investigation can be acquired from a variety of sources, including:

i. Physical examination of the equipment used during the safety event. This may include examining the front-line equipment used, its components, and the workstations and equipment used by supporting personnel (e.g. ATCOs, maintenance and servicing personnel).
ii. Documentation spanning a broad spectrum of the operation, for example:
   - maintenance records and logs;
   - personal records/logbooks;
   - certificates and licenses;
   - in-house personnel and training records and work schedules;
   - operator’s manuals and SOPs;
   - training manuals and syllabi;
   - manufacturers’ data and manuals;
   - regulatory authority records;
   - Weather forecasts, records and briefing material; and 10) flight planning documents.
iii. Recordings (flight recorders, ATC radar and voice tapes, etc.). These may provide useful information for determining the sequence of events. In addition to traditional flight data recordings, maintenance recorders in new generation aircraft are a potential additional source of information.
iv. Interviews conducted with individuals directly or indirectly involved in the safety event. These can provide a principal source of information for any investigation. In the absence of measurable data, interviews may be the only source of information.
v. Direct observation of actions performed by operating or maintenance personnel in their work environment. This can reveal information about potential unsafe conditions. However, the persons being observed must be aware of the purpose of the observations.
vi. Simulations. These permit reconstruction of an occurrence and can facilitate a better understanding of the sequence of events that led up to the occurrence, and the manner in which personnel responded to the event. Computer simulations can be used to reconstruct events using data from on-board recorders, ATC tapes, radar recordings and other physical evidence.
vii. Specialist advice. Investigators cannot be experts in every field related to operational environment. It is important that they realize their limitations. They must be willing to consult with other professionals during an investigation.
viii. Safety databases. Useful supporting information may come from accident/incident databases, in-house hazard and incident reporting systems, confidential reporting programs, systems for monitoring line operations (e.g. flight data analysis, LOSA and NOSS programs), manufacturers’ databases, etc.

11.3.8 Interviews

i. Information acquired through interviews can help clarify the context for unsafe acts and conditions. It can be used to confirm, clarify or supplement information learned from other sources.

ii. Interviews can help to determine “what” happened. More importantly, interviews are often the only way to answer the important “why” questions which, in turn, can facilitate appropriate and effective safety

iii. Recommendation In preparation for an interview, the interviewer must expect that individuals will perceive and recall things differently. The details of a system defect reported by operational personnel may differ from those observed by maintenance personnel during a service check. Supervisors and management may perceive issues differently than line personnel.

iv. The interviewer must accept all views as worthy of further exploration. However, even qualified, experienced and well-intentioned witnesses could be mistaken in their recollection of events. In fact, it may be grounds to suspect the validity of the information being received if during interviews of a number of people concerning the same event, the interviewees are not presenting different perspectives.

v. Conducting interviews:

The effective interviewer adapts to these differing views, remaining objective and avoiding making an early evaluation of the content of the interview. An interview is a dynamic situation, and the skilled interviewer knows when to continue a line of questioning and when to back off. To achieve the best results, interviewers will likely employ a process as follows:

- carefully preparing and planning for the interview;
- conducting the interview in accordance with a logical, well-planned structure; and
- Assessing the information gathered in the context of all other known information.

11.3.9 Investigation Methodology

i. The field phase of an investigation is used to identify and validate perceived safety hazards. Competent safety analysis is required to assess the risks, and effective communications are required to control the risks. In other words, effective safety management requires an integrated approach to safety investigations.

ii. Some occurrences and hazards originate from material failures or occur in unique environmental conditions. However, the majority of unsafe conditions are generated through human errors. When considering human error, an understanding of the conditions that may have affected human performance or decision-making is required. These unsafe conditions may be indicative of systemic hazards that put the entire aviation system at risk. Consistent with the systems approach to safety, an integrated approach to safety investigations considers all aspects that may have contributed to unsafe behavior or created unsafe conditions.

iii. Integrated Safety Investigation Methodology (ISIM) can guide the safety investigator from the initial hazard or incident notification to the communication of safety lessons learned.

iv. Effective investigations do not follow a simple step-by-step process that starts at the beginning and proceeds directly through each phase to completion. Rather, they follow an iterative process that may require going back and repeating steps as new data are acquired and/or as conclusions are reached.

Report Investigation and analysis

Every event should be investigated. The logic flow for an integrated process for safety investigations is depicted in (figure 10) Integrated Safety Investigation Methodology (ISIM) Using this type of model can guide Nesma Airlines safety investigator from the initial hazard or incident notification through to the communication of safety lessons learned. More detailed analysis is required to establish the organizational factors that contributed to the error.
Nesma Airlines investigator or team of investigators must be technically competent and have access to background information, so the facts and events are interpreted accurately. The investigator should have the confidence of the staff and the investigation process should be a search to understand how the mishap happened, not a hunt for someone to blame. For incident and accident investigation procedure

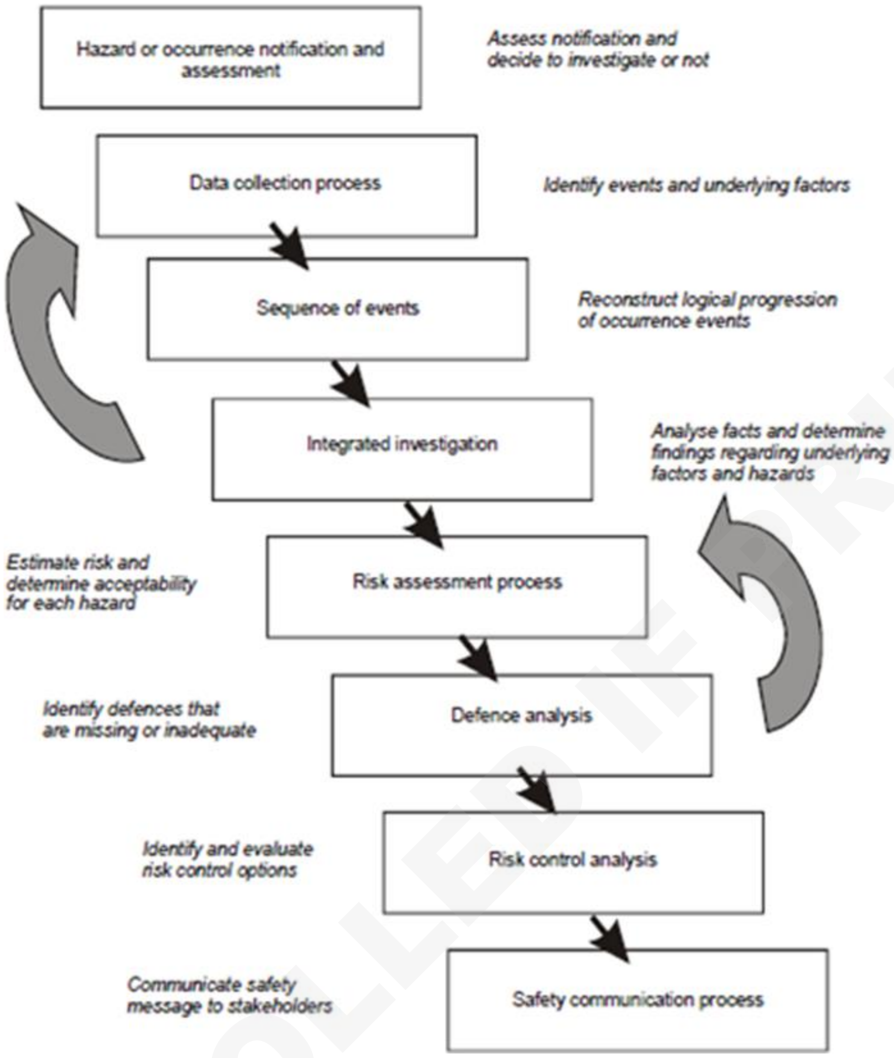


Figure 10: Integrated Safety Investigation Methodology (ISIM)

11.3.10 Investigating Human Performance Issues

i. Investigators have been quite successful in analyzing the measurable data pertaining to human performance, e.g. strength requirements to move a control column, lighting requirements to read a display, and ambient temperature and pressure requirements. Unfortunately, the majority of safety deficiencies derive from issues that do not lend themselves to simple measurement and are thus not entirely predictable. As a result, the information available does not always allow an investigator to draw indisputable conclusions.

ii. Several factors typically reduce the effectiveness of a human performance analysis. These include:
   - the lack of normative human performance data to use as a reference against which to judge observed individual behavior;
   - FDA, data provide a baseline to better understand normal day-to-day performance in aviation operations.
   - the lack of a practical methodology for generalizing from the experiences of an individual to an understanding of the probable effects on a large population performing similar duties;
   - the lack of a common basis for interpreting human performance data among the many disciplines (e.g. engineering, operations and management) that make up the aviation community; and
   - The ease with which humans can adapt to different situations, further complicating the determination of what constitutes a breakdown in human performance.

iii. The logic necessary to convincingly analyses some of the less tangible human performance phenomena is different from that required for other aspects of an investigation. Deductive methods are relatively easy to present and lead to convincing conclusions. For example, a measured wind shear produced a calculated aircraft performance loss, and a conclusion could be reached that the wind shear exceeded the aircraft's performance capability. Such straight cause/effect relationships cannot be so easily established with some human performance issues such as complacency, fatigue, distraction or judgment. For example, if an investigation revealed that a crewmember made an error leading to an occurrence under particular conditions (such as complacency, fatigue or distraction), it does not necessarily follow that the error was made because of these preconditions. There will inevitably be some degree of speculation involved in such a conclusion. The viability of such speculative conclusions is only as good as the reasoning process used and the weight of evidence available.

iv. Inductive reasoning involves probabilities. Inferences can be drawn from the most probable or most likely explanations of behavioral events. Inductive conclusions can always be challenged, and their credibility depends on the weight of evidence supporting them. Accordingly, they must be based upon a consistent and accepted reasoning method.

v. Analysis of human performance issues needs to take into account the objective of the investigation (i.e. understanding why something happened). Occurrences are seldom the result of single cause. Although individual factors when viewed in isolation may seem insignificant, in combination they can result in a sequence of events and conditions that culminate in an accident. The SHEL model provides a systematic approach to examining the constituent elements of the system, as well as the interfaces between them.

vi. Understanding the context in which humans err is fundamental to understanding the unsafe conditions that may have affected their behavior and decision-making. These unsafe conditions may be indicative of systemic risks posing significant accident potential.

11.3.11 Safety Recommendations

Formal safety recommendations warrant written communications. This ensures that the recommendations are not misunderstood and provides the necessary baseline for evaluating the effectiveness of implementation. However, it is important to remember that safety recommendations are only effective if they are implemented. When an investigation identifies hazards or unmitigated risks, safety action is required. The need for action must be communicated by means of safety recommendations to those with the authority to expend the necessary resources. Failure to make appropriate safety recommendations may leave the risk unattended. For those formulating safety recommendations, the following considerations may apply:

i. Action agency. Who can best take the necessary corrective action? Who has the necessary authority and resources to intervene? Ideally, problems should be addressed at the lowest possible level of authority, such as the departmental or company level as opposed to the national or regulatory level. However, if several organizations are exposed to the same unsafe conditions, extending the recommended action may be warranted. State and international authorities, or multinational manufacturers may best be able to initiate the necessary safety action.
ii. What versus how. Safety recommendations should clearly articulate what should be done, not how to do it. The focus is on communicating the nature of the risks requiring control measures. Detailed safety recommendations which spell out exactly how the problem should be fixed, should be avoided. The responsible manager should be in a better position to judge the specifics of the most appropriate action for the current operating conditions. The effectiveness of any recommendation will be measured in terms of the extent to which the risks have been reduced, rather than strict adherence to the wording in the recommendation.
iii. General versus specific wording. Since the purpose of the safety recommendation is to convince others of an unsafe condition putting some or all of the system at risk, specific language should be used in summarizing the scope and consequences of the identified risks. On the other hand, since the recommendation should specify what is to be done (not how to do it), concise wording is preferable.
iv. Recipient’s perspective. In recommending safety action, the following considerations pertain to the recipient’s perspective:
    - The safety recommendation is addressed to the most appropriate action authority (i.e. the one having the jurisdiction and authority to effect the necessary change).
    - There are no surprises (i.e. there has been prior dialogue concerning the nature of the assessed risks).
    - It articulates what should be done, while leaving the action authority with the latitude to determine how best to meet that objective.

11.4 Safety Performance Monitoring

11.4.1 Introduction

i. Safety management requires feedback on safety performance to complete the safety management cycle. Through feedback, system performance can be evaluated and any necessary changes effected. In addition, all stakeholders require an indication of the level of safety within an organization for various reasons, for example:
   - Staff may need confidence in their organization's ability to provide a safe work environment.
   - Line management requires feedback on safety performance to assist in the allocation of resources between the often-conflicting goals of production and safety.
   - Passengers are concerned with their own mortality,
   - Senior management seeks to protect the corporate image (and market share),
   - Shareholders wish to protect their investment

ii. Although the stakeholders in an organization's safety process want feedback, their individual perspectives as to "what is safe?" vary considerably. Deciding what reliable indicators exist for acceptable safety performance depends largely upon how one views "safety", for example:
   - Senior management may seek the unrealistic goal of "zero accidents". Unfortunately, as long as aviation involves risk, there will be accidents, even though the accident rate may be very low,
   - Regulatory requirements normally define minimum "safe" operating parameter, e.g. cloud base and flight visibility limitations. Operations within these parameters contribute to "safety", however, they do not guarantee it.

iii. Statistical measures are often used to indicate a level of safety, e.g. the number of accidents per hundred thousand hours, or fatalities per thousand sectors flown. Such quantitative indicators mean little by themselves, but they are useful in assessing whether safety is getting better or worse over time.

11.4.2 Quality Assurance

i. A quality assurance system (QAS) defines and establishes Nesma Airlines quality policy and objectives. It ensures that elements necessary to improve efficiency and reduce risks are in place. If properly implemented, a QAS ensures that procedures are carried out consistently and in compliance with applicable requirements that problems are identified and resolved, reviews and improves its procedures, products and services. A QAS should identify problems and improve procedures in Older to meet corporate objectives.

ii. QAS helps ensure that the requisite systemic measures have been taken to meet Nesma Airlines safety goals. However, quality assurance does not "assure safety". Rather, quality assurance to ensure the necessary standardization of the systems within Nesma Airlines to reduce the risk of accidents.

iii. QAS contains procedures for monitoring the performance of all aspects and ensures that the organization's / suppliers have appropriate quality assurance systems in place, including such elements as:
- ➢ Well designed and documented procedures (e.g. SOPs)
- ➢ Inspection and testing methods;
- ➢ Monitoring of equipment and operations;
- ➢ Internal and external audits;
- ➢ Monitoring of corrective actions taken; and
- ➢ The use of appropriate statistical analysis, when required

iv. Quality management system (QMS) has been established in many segments of the aviation system for a long time. A QMS defines and establishes an organization's quality policy and objectives. It ensures that the organization has in place those elements necessary to improve efficiency and reduce service-related risks. If properly implemented, a QMS ensures that procedures are carried out consistently and in compliance with applicable requirements that problems are identified and resolved and that the organization continuously reviews and improves its procedures, products and services. QMS should identify problems and improve procedures in order to meet corporate objectives.

v. The objective of SMS is to identify the safety hazards the organization must confront - and that in many cases it generates - during delivery of services, and to bring the safety risks of the consequences of these hazards under organizational control. In broad terms, the first imperative of this objective - hazard identification - is accomplished through the safety risk management component of an SMS, which is based upon safety management principles and practices. The second imperative -bringing the safety risks under organizational control - is accomplished through the safety assurance component of an SMS, which is based upon the integration of safety and quality management principles and practices.

vi. SMS differs from QMS in that:
- ➢ SMS focuses on the safety, human and organizational aspects of an organization (i.e. safety satisfaction); while
- ➢ QMS focuses on the product(s) and service(s) of an organization (i.e. customer satisfaction).

vii. The relationship between SMS and QMS

It is accurate to say that SMS and QMS share many commonalities they both:

- Have to be planned and managed;
- Depend upon measurement and monitoring;
- Involve every function, process and person in the organization; and
- Strive for continuous improvement.

viii. Once commonalities and differences between SMS and QMS have been established, it is possible to establish a synergistic relationship between both systems. It cannot be stressed strongly enough that the relationship is complementary, never adversarial, and it can be summarized as follows:
   - SMS builds partly upon QMS principles;
   - SMS should include both safety and quality policies and practices; and
   - The integration of QMS into SMS provides a structured approach to monitor that processes and procedures to identify safety hazards and their consequences, and bring associated safety risks in aviation operations under the control of the organization function as intended and, when they do not, to improve them.

ix. The application of QA principles to safety management processes helps ensure that the requisite system-wide safety measures have been taken to support the organization in achieving its safety objectives. However QA cannot, by and in itself and as proposed by quality dogma, assure safety. It is the integration of QA principles and concepts into an SMS under the safety assurance component, which assists an organization ensuring the necessary standardization of processes to achieve the overarching objective of managing the safety risks of the consequence(s) of hazards the organization must confront during the activities related to the delivery of services.

11.4.3 Safety Oversight

The monitoring functions of safety oversight take many forms with varying degrees of formality. Nesma Airlines employs the first-line supervisors to maintain vigilance (from a safety perspective) by monitoring the day-to-day activities as follows:

i. They regularly conduct inspections (formal or informal) of day-to-day activities in all safety -critical areas.
ii. They sample employees' views on safety (train both a general and a specific point of view) through safety surveys.
iii. They systematically review and follow up on all reports of identified safety issues.
iv. They systematically capture data which reflect act vial day-to-day performance such as FDA,
v. They follow a regular operational audit program (including both internally and externally conducted safely audits).
vi. They communicate safety results to all affected personnel.

Surveys:

- **i.** Surveys of Nesma Airlines operations and facilities can provide management with an indication of the levels of safety and efficiency, Understanding the systemic hazards and inherent risks associated with everyday activities allows Nesma Airlines to minimize unsafe acts and respond proactively by improving the processes, conditions and other systemic issues that lead to unsafe acts.
- **ii.** Safety surveys are one way to systematically examine particular elements or the processes used to perform a specific operation either generally or from a particular safety perspective, they are particularly useful in assessing attitudes of selected populations.
- **iii.** Surveys are usually independent of routine inspections by government or company management. Surveys completed by operational personnel can provide important diagnostic information about daily operations and significant information regarding many aspects of the organization, including:
  - Perceptions and opinions of operational personnel;
  - Level of teamwork and cooperation among various employee groups;
  - Problem areas or bottlenecks in daily operations;
  - Safety culture;
  - Current areas of dissent or confusion,
- **iv.** Safety surveys may involve the use of:
  - Checklist,
  - Questionnaires.
  - Informal confidentiality reviews.
- **v.** The validity of all survey information obtained may need to be verified before corrective action is taken. Similar to voluntary incident reporting systems

11.5 Safety Performance Measurement

11.5.1 General:

i. Safety management requires feedback on safety performance to complete the safety management cycle. Through feedback, system performance can be evaluated and any necessary changes effected. In addition, all stakeholders require an indication of the level of safety within an organization for various reasons:
   - Staff may need confidence in their organization's ability to provide a safe work environment.
   - Line management requires feedback on safety performance to assist in the allocation of resources between the often-conflicting goals of production and safety.
   - Passengers are concerned with their own mortality,
   - Senior management seeks to protect the corporate image (and market share),
   - Shareholders wish to protect their investment

ii. Statistical measures are often used to indicate a level of safety, e.g. the number of accidents per hundred thousand hours, or fatalities per thousand sectors flown. Such quantitative indicators mean little by themselves, but they are useful in assessing whether safety is getting better or worse over time.

11.5.2 Safety Health:

i. The term safety health is an indication of Nesma Airlines resistance to unexpected conditions or acts by individuals. It reflects the systemic measures put in place by Nesma Airlines to defend against the unknown. Furthermore, it is the indication of Nesma Airlines ability to adapt to the unknown. In fact, it reflects the safely culture of Nesma Airlines.

ii. Although the absence of safety-related events (accidents and incidents) does not necessarily indicate a "safe" operation, some operations are considered to be "safer" than others, Safety deals with risk reduction to an acceptable (or at least a tolerable) level. The level of safety in an organization is unlikely to be static.

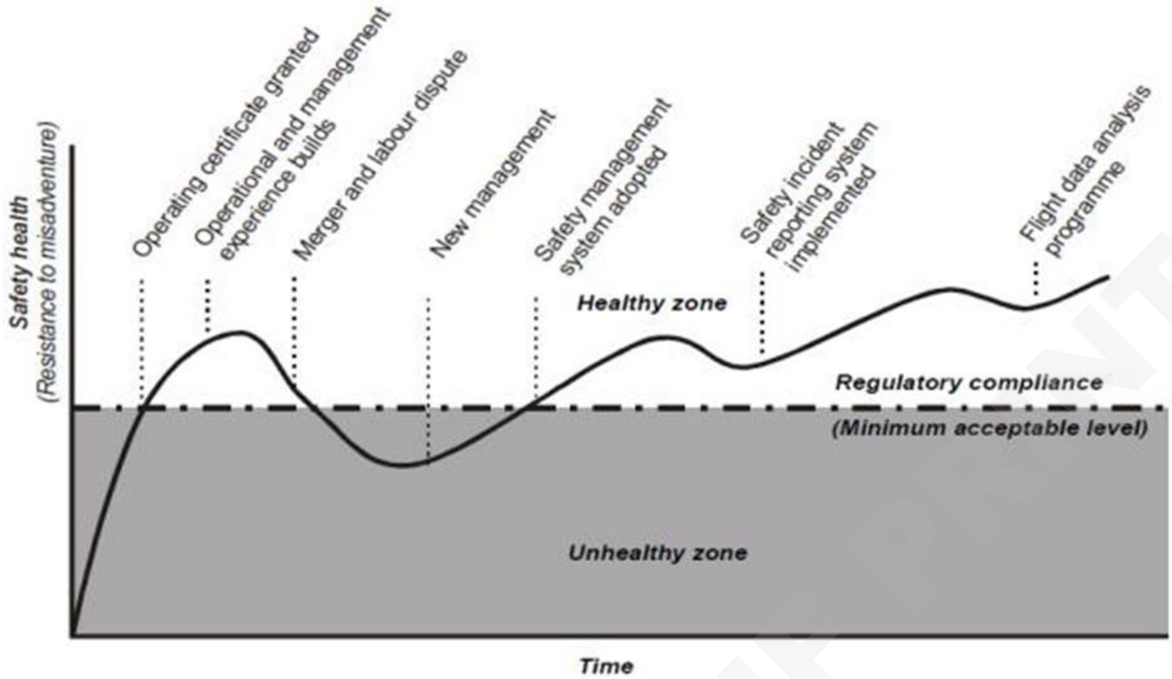
iii. Adding defences against safety hazards, safety health may be considered to be improving. However, various factors (hazards) may compromise that safety health, requiring additional measures to strengthen the organization's resistance to misadventure.

11.5.3 Assessing Safety Health

Nesma Airlines set benchmarks and indicators for assessing safety performance in order to improve safety health; through:

i. Implementing measures to increase its resistance to the unforeseen. They consistently do more than just meet the minimum regulatory requirements.

ii. Identifying the symptoms may provide a valid impression of Nesma Airlines safety health, however, information may still be lacking for effective decision-making. Additional tools are required to measure safety performance in a systematic and convincing way



11.5.4 Symptoms of Poor Safety Health

Poor safety health may be indicated by symptoms that put elements of the organization at risk. A weakness in any one area may be tolerable; however, weaknesses in many areas indicate serious systemic risks, compromising the safety health of the organizations as follows:

i. Inadequate organization and resources for current operations;
ii. Instability and uncertainty due to recent organizational change;
iii. Poor financial situation;
iv. Unresolved labour-management disputes;
v. Record of regulatory non-compliance;
vi. Low operational experience levels for type of equipment or operations;
vii. Fleet inadequacies such as age and mix;
viii. Poorly defined (or no) corporate safety function;
ix. Inadequate training programmes;
x. Corporate complacency regarding safety record, current work practices, etc.; and
xi. Poor safety culture

11.5.5 Improving Safety Health

i. Proactive corporate safety culture;
ii. Investment in human resources in such areas as non-mandatory training;
iii. Formal safety processes for maintaining safety database, incident reporting, investigation of incidents, safety communications, etc.;
iv. Operation of a comprehensive safety management system (i.e. appropriate corporate approach, organizational tools and safety oversight);
v. Strong internal two-way communications in terms of openness, feedback, reporting culture and dissemination of lessons learned; and
vi. Safety education and awareness in terms of data exchange, safety promotion, participation in safety for and training aids.

11.5.6 Statistical Safety Performance Indicators

i. Statistical safely performance indicators illustrate historic safety achievements; they provide a "snapshot" of past events. Presented either numerically or graphically, they provide a simple, easily understood indication of the level of safety in terms of the number or rate of accidents, incidents or casualties over a given time frame. At the highest level, this could be the number of fatal accidents per year over the past ten years. At a lower (more specific) level, the safety performance indicators might include such factors as the rate of specific technical events (e.g. losses of separation, engine shutdowns, TCAS advisories and runway incursions).

ii. Statistical safety performance indicators can be focused on specific areas of the operation to monitor safety achievement, or on identifying areas of interest. This approach is useful in trend analysis, hazard identification, risk t, as well as in the choice of risk control measures.

iii. Since accidents (and serious incidents) are relatively random and rare events in aviation, assessing safety health based solely on statistical safety perform a nee indicators may not provide a valid predictor of safety performance, especially in the absence of reliable exposure data. Reviewing the past does little to assist in their quest to be proactive and to put in place those systems most likely to protect against the unknown.

11.5.7 Nesma Airlines Key Performance Indicators (KPI'S):

Nesma Airlines safety performance targets are detected and should be achieved as follows:

- The selection of the safety performance indicators.
- Measuring the performance of the selected indicators.
- Performing a risk assessment that includes mitigations, identify actions required and implement these actions.
- A measurable target for each selected indicator performance measurement is established based on mitigations set and actions to be implemented.
- After setting the target and applying the actions required, another measurement is done to monitor their effects on reducing the number of cases caused by operations and to verify the measurable target achievement.
- A continuous improvement for safety targets will require to repeat the above procedure by setting better targets and/or adding new indicators.
- The following are an examples for the targets that may be selected and set on a measurable base:
  - Continual reduction of high risk and/or severe incidents (occurrences reports)
  - To reach and maintain 100% IOSA compliance.
  - To conduct a Line Operational Safety Audit (LOSA) at least once every 4 years.
  - Reduction in the percentage of SAFA findings ratio.

The following is an example for operations department proposed KPI's

- Flight data monitoring program events, the number of flight data events detected vs. the severity of those events as detected by the flight data analysis program.

11.5.8 The Following Are Examples for Cabin Proposed KPI's

– Cabin crew evaluation program
– Emergency equipment checks completion,
– Cabin crew training plan completion,

A slide is inadvertently deployed 11.5.9. Acceptable Levels of Safety:

Nesma Airlines believes that Weak organizations that fail to meet the acceptable levels of safety will be removed from the aviation system either proactively, by the regulator revoking their operating certificate, or reactively, in response to commercial pressures such as the high cost of accidents or serious incidents, or consumer resistance.

11.6 Handling of Accidents/Incidents and Occurrences

11.6.1 Terminology

11.6.1.1 Accident

An occurrence associated with the operation of an aircraft which takes place between the times any person boards the aircraft with the intention of flight until such time as all persons have disembarked, in which:

a. a person is fatally or seriously injured as a result of:

1. being in the aircraft;
2. direct contact with any part of the aircraft, including parts which have become detached from the aircraft; or,
3. 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

b. 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 the engine, its cowlings or accessories; or for damage limited to propellers, wing tips, antennas, types, brakes, fairings, small dents or puncture holes in the aircraft skin: or

c. The aircraft is missing or is completely inaccessible.

11.6.1.2 Incident

An occurrence, other than an accident, associated with the operation of an aircraft which affects or could affect the safety of operation.
An incident includes occurrences that:

- Has jeopardized the safety of the crew, passengers or aircraft but which has terminated without serious injury or substantial damage;
- Was caused by damage to, or failure of, any major component not resulting in substantial damage or serious injury but which will require the replacement or repair of that component;
- Has jeopardized the safety of the crew, passengers or aircraft and has avoided being an accident only by exceptional handling of the aircraft or by good fortune;
- Has serious potential technical or operational implications;
- Causes trauma to crew, passengers or third parties;
- Could be of interest to the press and news media.

Examples include loss of engine cowlings, portions of flap or control surfaces, items of ancillary equipment or fuselage panels; an altitude excursion; a minor taxiing accident; damage due to collision with ground equipment
A Serious incident is an incident involving circumstances indicating that an accident nearly occurred.

11.6.1.3 Serious Injury

'Serious injury' means an injury which is sustained by a person in a reportable accident and which:

- Requires that person's stay in hospital for more than 48 hours commencing within seven days from the date on which the injury was sustained, or
- Results in the fracture of any bone, except simple fractures of fingers, toes or nose, or
- Involves lacerations which cause nerve, muscle or tendon damage or severe hemorrhage, or
- Involves injury to any internal organ, or
- Involves second- or third-degree burns or any burns affecting more than five percent of the body surface, or
- Involves verified exposure to infectious substances or injurious radiation.

11.6.2 Aircraft Accident Procedures

11.6.2.1 Pilot in Command/Crew Post-Accident/Incident Procedures

Immediately after an accident/incident and following the evacuation of any passengers from the aircraft the Pilot in Command, senior crewmember or delegated passenger must carry out the following duties subject to safety considerations and the prevailing situation:

- The aircraft must be secured in a safe condition as possible;
- A headcount must be made to account for all persons on board the aircraft;
- The needs of any injured persons must be attended to;
- The remains of any deceased persons should be decently set apart and covered;
- The distress beacon must be activated and pyrotechnics, if available, prepared for immediate use;
- If people, dwellings or communications facilities are close to the accident site, efforts to obtain assistance must be made, having regard to the local situation.
- Notify the nearest Authority, by the quickest available means

The wreckage of the aircraft must be preserved and unauthorized persons should not be allowed access to it. An authorized person is any person nominated by the accident investigation authority or regulatory authority, and usually includes police, fire and rescue services.

11.6.2.2 Preservation, Production and Use of Flight Data

Following an accident, the Company must attempt to preserve all DFDR and CVR data and make it available to the investigating authority at least for 60 days or for the longer period upon the request of ECAA in safe custody.

As follow:-

1. The data acquisition is the responsibility of maintenance department
2. Records will be held to safety manager with evidence of receiving.
3. Safety manager will save the data in safe custody, Safe custody shall include protection against further damage, access by unauthorized persons, pilfering and deterioration.
4. Records shall be ready and accessible for the related authorities in the interest of investigations.
5. Official permission shall be granted before disposable of information.

11.6.2.3 Accident Reporting

The initial accident report must be raised within 72 hours by the aircraft Pilot In Command to the company (Chief Pilot). Chief Pilot shall distribute the initial Report to the concerned Directors/Manager in addition to Operational Safety & Quality Assurance Office. The latter is responsible for notifying within 72 hours the accident to the appropriate authority and all other official agencies concerned.
The report must include the following information:

- Aircraft model and registration;
- Name of Pilot In Command and crew particulars;
- Date, time (UTC) and location of the accident;
- Number of persons on board at the time of the accident;
- Number of persons killed or seriously injured;
- The nature of the accident;
- Brief particulars of aircraft or third party damage;
- Details of any dangerous goods on board.

In due course an Air Safety Report must be completed.

11.6.3 Aircraft Incident Procedures

It is the Pilot in Command's responsibility to initiate the incident procedure, having first assessed the event and situation, by informing Flight Operations Control (Dispatch) by telephone. If the Pilot in Command is in any doubt, contact should still be made and a decision will be sought from the Director Flight Operations or the Operational Safety & Quality Assurance Office whether or not to continue with the procedure.
The incident report must be raised within 72 hours by the aircraft Pilot in Command to the company.

During Office Hours

The Director Flight Operations will convene a meeting of all concerned parties (or their alternates) to form an Incident Group. The Incident Group will assess the situation and act in accordance with their defined responsibilities (see table below).

Outside Office Hours

The Duty Flight Operations Officer (Dispatch) will assess the situation and contact appropriate members of the Incident Group. As some members of the Group may either be un-contactable or in a remote location the Duty Flight Operations officer (*Dispatch*) must attempt to ensure that feasibly close co-ordination is established and also control the whole incident by acting in the capacity of those members who are not immediately contactable.
The Director Flight Operations and/or Operational Safety Manager will:

a) Assess the severity and implications of the incident on information received;
b) If required, contact all concerned management staff (or their alternates) to form an Incident Group. Outside office hours, if the incident is thought to be of a serious enough nature, then consideration must be given to convening a meeting at Company Head Quarters.
c) If any Incident Group member is un-contactable, ensure that that member's responsibilities are undertaken;
d) Correlate and disseminate all relevant information;
e) Ensure that all appropriate documentation is collected and completed within a reasonable time frame;

f) Ensure that all requirements are being addressed if any responsibilities have been delegated;
g) Ensure that adequate communication is established and maintained with the aircraft Pilot in Command.
h) Ensure that all DFDR and CVR data is preserved should it be required for internal or external investigation.

Controlling responsibility for the incident will not be relinquished until it is certain that:

a) As much information as possible has been obtained;
b) All relevant documentation has been completed and dispatched to the authorities, if involved;
c) Crew movements are determined;
d) Each member of the Incident Group is acting appropriately;
e) There is no need for further preliminary action or co-ordination;
f) The Operational Safety & Quality Assurance Office has been fully briefed;
g) The assigned Company Press Office is in possession of factual and updated information. When it is unclear or where doubt exists whether an incident is a notifiable accident or a reportable occurrence it should be notified as an accident without delay. The accident investigation authority will then pass the relevant information on to the safety regulatory authority if it decides to downgrade the event. Similarly, the safety regulatory authority will pass on information to the accident investigation authority if the event is erroneously reported as an occurrence. It should be noted that any delay in reporting an occurrence could, if it became a notifiable accident, seriously affect the efficiency of any subsequent investigation.

Incident group and list of responsibilities Ground Safety Incidents

When safety violations by ground service personnel occur (e.g. opening of cargo doors with engines running, ramp maneuvering traffic violations, misuse of ground support equipment, etc.) the Station Manager shall assume the principal role in any investigation and follow-up.
In order to investigate appropriate action, aircraft Pilots in Command are requested to:

a) Inform ATC if the incident is subject to Ground Movement Control;
b) Raise an Air Safety Report;
c) Inform Flight Operations control as soon as possible by the most expeditious means (e.g. telephone).

11.6.4 Operations Emergency Procedures

If an emergency occurs in a manner that endangers the safety of the airplane or operating personnel and it had been known first to the flight dispatchers, they shall:

- Initiate contact with the pilot-in-command and convey any safety related information and any required amendments to the flight plan
- Avoid taking any actions mentioned in the operations manual that would conflict with ATC procedures/instructions.

Note: it is equally important that the pilot-in-command convey similar information to the flight dispatchers during the course of the flight in case of emergency.

11.6.5 Company Investigation

11.6.5.1 General

All incidents are investigated through follow-up, however Nesma Airlines will conduct an in-house formal investigation following an accident or incident even though it may also be the subject of a Government investigation. A Government investigation can become a protracted affair, whereas Nesma Airlines needs to ascertain quickly whether any immediate changes in procedures are necessary. Also, Nesma Airlines may be asked to investigate and make a report on the Government agency's behalf.

11.6.5.2 Policy

If a Company investigation into an incident becomes necessary, an Investigating Board should be convened on the direction of the Director of Operations or Technical Director (as appropriate). The Operational Safety Manager may be appointed to act on their behalf.
The operating crew of the aircraft involved in any incident for which an investigation is required should be automatically relieved of all duty, without prejudice, at the Board's discretion until notified otherwise.
The investigation should commence as soon as possible after the event.

11.6.5.3 Investigating Board's Terms of Reference

The Board's objective is to investigate and report on any aspect considered to be relevant to an understanding of the incident. This is achieved by:

- **i.** Examining the circumstances surrounding the incident to discover the likely cause;
- **ii.** Making recommendations to prevent recurrence.

Notes: It must be made clear that it is not the purpose of the investigation to apportion blame.

11.6.5.4 Composition of the Investigating Board

The Investigating Board should consist of at least two specialist members plus the Operational Safety Manager. The specialist members will be drawn from Flight Crew Training or Engineering staff, depending on the nature and circumstances of the incident.
If a trade association exists, a representative should be invited to attend any interviews.

11.6.5.5 Preparation

All relevant documents should be gathered and made available for reference. This list is not exhaustive, but will typically include, as appropriate:

- **a)** The original Air Safety Report;
- **b)** Crew statements;
- **c)** Crew license details and training records;
- **d)** Witness statements;
- **e)** Photographs;
- **f)** Flight documentation (navigation log, weight and balance information, etc);
- **g)** Operating/maintenance manuals and checklists.

Obtain also, if appropriate:

- **a)** All relevant DFDR printouts and CVR transcripts (after having the authority's approval);
- **b)** ATC voice tapes or transcripts (after having the authority's approval).

11.6.5.6 Reporting the Results of the Investigation

The Investigating Board's findings should be written up under the following suggested headings:

Summary of the Incident

A brief account of events compiled from the initial report, including the aircraft type and registration, date and time, place, nature of event, etc;

History of the Flight

A detailed account of the incident, including:

1. The time the crew reported for duty;
2. The composition of the crew (including cabin crew);
3. Expected duty to be carried out;
4. Details of the previous rest and duty periods up to the time of the incident;
5. Departure time;
6. Aircraft weight, fuel load and payload;
7. Action taken at the time of the incident and its effects.

Investigation of circumstances

1. Injuries to persons (with medical evidence appended);
2. Damage to aircraft (with photographs/sketches and engineering or strip examination reports appended);
3. Damage to third party equipment or installations;
4. Crew information (assigned position -PF/PM/relief crew-, license details, qualifications, total hours flown, total hours on type; for Pilot-In-Command, total hours in command; cabin crew);
5. Aircraft information (any permitted limiting serviceability);
6. Meteorological information (forecasts and METARS, prevailing conditions at the time of the incident);
7. Aids to navigation (serviceability of navigational aids and any relevant
8. NOTAMS);
9. Communications (list service in use at the time of the incident and append any relevant ATC tape transcripts)
10. Airfield and ground facilities (airport conditions; emergency services cover and its effectiveness);
11. Flight recorders (DFDR/CVR evidence);
12. Wreckage (list the type and location of any wreckage and components; append maps showing the position of any parts of the aircraft which migrated in flight; include an account of any operation to salvage or remove an aircraft from the runway;
13. Survival aspects (list safety equipment and drills used; highlight any deficiencies found);
14. Tests and research (summarize technical evaluations of component defects and append the results of any equipment strip examination; list simulator checks conducted in the course of the investigation);
15. Other information (items to be included under a non-specific heading such as CRM aspects and the effects of decisions made in handling the incident).

11.6.5.7 Analysis and Conclusions

All evidence, supporting documents, data and references should be collated and the incident summarized commensurate with the circumstances.
Only the professional opinion of the Board should be stated. If there is any matter of conjecture it must be stated as such.
State the findings and cause (an open conclusion may be declared).

11.6.5.8 Recommendations

Recommendations, if any, must be made in relation to the Investigating Board's Terms of Reference.
The report should be signed by all members of the Investigating Board then submitted to the Director of Operations or Technical Director for their consideration.
It is not the Board's duty to take further action.

11.6.6 Air Safety Reports and the MOR System

11.6.6.1 Policy

The Mandatory Occurrence Reporting (MOR) scheme is law in most countries and it is fundamental to its purpose that the substance of reports should be disseminated in the interests of flight safety. Without prejudice to the proper discharge of its responsibilities, the regulatory authority will not disclose the name of the person submitting a report, or that of a person to whom it relates unless required to do so by law, or unless in either case the person concerned authorizes a disclosure. Should any flight safety follow-up action be necessary, the regulatory authority will take all reasonable steps to avoid disclosing the identity of the reporter or of individuals involved in the occurrence?

All Nesma Airlines flight safety-related incidents shall be submitted on the approved Air Safety Report form (refer to "Forms" Section), which must be completed in full. The information provided will be entered into the flight safety database so that the status of any occurrence can be monitored. The Operational Safety & Quality Assurance Office will submit the report to the ECAA under the Mandatory Occurrence Report scheme.

11.6.6.2 Objective

The objective of occurrence reporting is to enable the Company to identify the cause of the event to ensure that suitable corrective action is taken, and not to apportion blame to individuals involved.

11.6.6.3 Occurrences Which Should Be Reported

The following list is neither exhaustive nor shown in order of importance**.** If in doubts, file a report.

1. A system defect occurs which adversely affects the handling characteristics of the aircraft and renders it unfit to fly;
2. There is a warning of fire or smoke;
3. An emergency is declared;
4. Safety equipment or procedures are defective or inadequate;
5. Deficiencies occur in operating procedures, manuals or navigational charts;
6. There is incorrect loading of fuel, cargo or dangerous goods;
7. Operating standards are degraded;
8. Ground damage occurs;
9. A rejected take-off is executed after take-off power is established;
10. A runway or taxiway excursion occurs;
11. Significant handling difficulties are experienced;
12. A navigation error which involves a significant deviation from track;
13. An altitude excursion of more than 200 feet occurs;
14. There is an exceedance of the limiting parameters for the aircraft configuration or when a significant unintentional speed change occurs;
15. Communications fail or are impaired;
16. A go-around or a wind shear go-around is executed;
17. A GPWS warning occurs;
18. A stall warning occurs;
19. A heavy landing check is required;
20. A serious loss of braking occurs;
21. The aircraft is evacuated;

22. The aircraft lands with reserve fuel or less remaining;
23. An Airport (Air miss) or ATC incident or wake turbulence event occurs;
24. Significant turbulence, wind shear or other severe weather is encountered;
25. Crew or passengers become seriously ill, are injured or become incapacitated;
26. There is difficulty in controlling violent, armed or intoxicated passengers or when restraint is necessary;
27. Toilet smoke detectors are activated;
28. Any part of the aircraft or its equipment is sabotaged or vandalized;
29. An act of aggression (e.g. bomb threat or hi-jack) occurs;
30. Security procedures are breached;
31. A bird strike or foreign object damage occurs;
32. A TCAS RA occurs;
33. Any engine has to be shut down in flight;

Or any other event considered having serious/related safety implications.

11.6.6.4 Co-Ordination of Reporting System

The regulatory authority will normally require the appointment of a coordinator to filter out reports which do not qualify for submission under the MOR scheme and to disseminate reports as appropriate.
The Company coordinator is the Safety & Quality Director.

11.6.6.5 Reporting Procedure

All air safety incidents and occurrences are to be reported using the approved ASR Report form (<u>refer to "Forms" Section; Air Safety Report</u>), supplies of which are carried in the aircraft documents file.
An Air Safety Report may be raised by Flight Crew or Ground Crew as follows:

a) The originator will complete the ASR form as soon as possible after the incident.
If the report is raised by a flight crewmember the crewmember will enter 'ASR RAISED' in the aircraft technical log (this entry is the trigger for action).

b) The completed form must be faxed to Flight Operations and the Operational Safety & Quality Assurance Office as soon as possible after the incident so that action can be expedited. The hand-written original must be returned to the Operational Safety & Quality Assurance Office in the Company mail system for retention.

11.6.6.6 Reporting Responsibility

Flight Crew responsibility for reporting commences with the acceptance of the aircraft for flight (i.e. the signing of the Technical Log) and ceases on completion of the Technical Log at the end of consecutive duty sectors. Ground Crew responsibility for reporting exists at all other times.

11.6.6.7 Handling of Air Safety Reports

On receipt of a report the Operational Safety & Quality Assurance Office will:

- **a)** Assess the ASR commensurate with the regulatory authority's mandatory reporting criteria and decide whether it merits submission;
- **b)** Enter the report into the database, ensuring that follow-up action is requested from the appropriate department(s);
- **c)** File the original report.

Note: Reports should be kept on office file for the current and preceding calendar years and then archived. Original reports may have to be presented in evidence for future warranty and/or insurance claims.
If an ASR is upgraded and submitted to the Authority the reporter must be advised accordingly.

11.6.6.8 Follow-Up and Closure

If follow-up is required, action will have been assigned to the appropriate department.
The Operational Safety & Quality Assurance Office will review responses and, if satisfactory, recommend closure of the report at the next Flight Safety Committee meeting.
If responses are unsatisfactory the incident must remain open for continuing review and action as required.
The Authority and the reporter must be informed of action taken once the incident is closed.

11.6.7 Accidents or Occurrences When Dangerous Goods Are Being Carried

11.6.7.1 Policy

Nesma Airlines shall carry dangerous goods only (when authorized) in accordance with the IATA "dangerous goods regulations" and the ICAO "technical instructions for safe transport of dangerous goods by air".

All accidents and incidents, involving dangerous goods, shall be reported to the appropriate authority of the state in which the accident and/or incident occurred, as required by that state. Furthermore it is recommended that the accident and/or incident be also reported to the Egyptian authorities, authorities of the country of flight departure and of the country of flight destination (if not yet arrived).

11.6.7.2 Provision of Information to the Pilot in Command

Prior departure, the Pilot in Command shall be provided with a specific form concerning any dangerous goods loaded. This information shall be provided by applicable departments as e.g. cargo department or loading agencies to the Pilot in Command as a dedicated "Notice TO Crew", the NOTOC.

The information that shall be listed as a minimum is:

- **(a)** The proper shipping name and the UN number as listed in the IATA "dangerous goods regulations" and ICAO "technical instructions for the safe transport of dangerous goods by air".
- **(b)** The class, division and subsidiary risk for which labels/placards are required, and in addition - in case of class 1 substances (i.e. explosives) – the computability group.
- **(c)** The packing group.
- **(d)** For non-radioactive particles, the number of packages, the gross weight per package and their loading position.
- **(e)** For radio-active articles, the number of packages, the gross weight, their "transport index" (indicating activity level) and their loading position.
- **(f)** When applicable, the indication that the package/article shall be transported in "cargo aircraft only".
- **(g)** The airport where the package(s) is to be unloaded, i.e. its destination airport.
- **(h)** If applicable, an indication that the dangerous goods are being transported under a state exemption.
- **(i)** Confirmation that to be transported dangerous goods packaging are not showing forms of damage or leakage.

When the NOTOC is presented, the Pilot in Command shall sign a copy, to be retained at each individual departure airport -if flight consists of multiple sectors – where dangerous goods have been loaded during its flight, to indicate that the information has been received.

The NOTOC shall be readily available to all flight crewmembers during flight.

11.6.7.3 Special Notification Requirements.

In the event of an accident

If an aircraft carrying dangerous goods is involved in an accident, information regarding the dangerous goods on board shall be sent to the State, where the accident occurred, as soon as possible. Such information shall include the concerned articles “proper shipping name”, class and subsidiary risk for which labels are required, the compatibility group for class 1, the total net quantity in weight and location on board the aircraft.

In the event of an incident

If an aircraft carrying dangerous goods is involved in an incident the operator/airline/company shall, on request from the state in which the incident occurred, provide that state with all information required minimizing the hazards created by any damage to the dangerous goods carried.

11.6.7.4 Information to Be Provided By the Pilot in Command

If an in-flight emergency occurs and the prevailing conditions permit, the Pilot In Command shall inform the Air Traffic Control unit with which communications are established at that point in time of any dangerous goods on board. The Pilot in Command should give the information as listed on the NOTOC and as minimum state:

- Proper shipping names of goods transported and UN number.
- The “class” and the “division”.
- For “class 1” articles the compatibility group and any subsidiary risks.
- The gross weight and location on board the aircraft.

Rules of The Air

Chapter 12

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Chapter 12 Rules of the Air

12.1 Applicability

The ICAO rules of the air are defined in ICAO Doc 8168 (PAN-OPS), ICAO Doc 4444 (PANS-RAC) and in the annexes to the convention of the international civil aviation.
No flight may be operated if rules of the air of the state where the aircraft is registered or of the state over-flown cannot be followed, except if an over-flight permit, where deviations from the rules of the air are indicated is granted by concerned states.
If the aircraft is registered in a non-ICAO state, an over-flight permit must be granted by each state prior to over-flying them.
Prior to over-flying a non ICAO state, an over-flight permit must be granted by this state.
Main parts (operational items) of the ICAO rules of the air are reported in the ATC chapter of Jeppesen Airway Manual. State rules of the air differences from ICAO are indicated in this manual for each state.
No flight may be operated if rules of the air of the state where the aircraft is registered or of the state over-flown cannot be followed, except if an over-flight permit, where deviations from the rules of the air are indicated is granted by concerned states.
The Egyptian air navigation (rules of the air) applies to all aircraft when in or over the Egyptian state and to aircraft on the Egyptian register wherever they may be.
However, the order, in respect of Egyptian registered aircraft when they are in or over the territory of a state other than Egypt, applies only in so far as its provisions do not conflict with any rules made by that state in relation to flights over its territory. The territorial rules take precedence over those of the state of registry.

12.1.1 Responsibility for Compliance with the Rules of the Air

The attention of flight crew is drawn to the ATC and emergency sections of the Jeppesen Manual which are designed to provide pilots with ICAO standards and recommended practices and procedures for international operations. In addition, on a state-by-state basis, flight procedures, unique to a state or different from the published ICAO rules and procedures are included.
Flight crew is required, in particular, to familiarize themselves with the following:

- Visual and instrument flight rules
- Communication procedures including COM-Failure procedures
- Information and instructions relating to the interception of civil aircraft - Signals
- ATC clearances, adherence to flight plan and positions reports
- visual signals used to warn an unauthorized aircraft flying in or about to enter a prohibited, restricted or danger area
- Procedures for pilots observing an accident or receiving a distress call
- The ground/air visual signals for use by survivors of an accident, and - Distress and urgency calls

12.1.1.1 Prohibition on Interference with Crewmembers

Unauthorized persons shall not be permitted to interfere with the duties of any member of the flight crew, or to restrict their freedom to freely perform their duties. Furthermore, no person shall be permitted to willfully damage any part of an aircraft or any of its equipment, or to commit any act that may endanger the safety of the aircraft, its flight crew or its passengers.

12.1.1.2 Reporting Hazardous/Emergency Situations or Conditions

The pilot in command is required to report any hazardous flight condition, abnormal meteorological phenomena, or irregularity in the performance of navigation aids or aircraft instruments that may jeopardize the safety of the flight … etc., to the nearest ATC facility without delay.

Pilot in Command is also responsible for:

- Notifying the appropriate local authority without delay, in the event of any emergency situation that necessitated action in violation of local regulations and/or procedures.
- Submitting, if required by the state of occurrence, a report to the appropriate local authority and also to the ECAA.

12.1.12 Carriage of Illegal Substances

None of the articles listed hereunder shall be carried by aircraft, except with prior permission of the competent authority and in accordance with laid down conditions.

- Explosives and pyrotechnics except those, which are necessary for the operation of the aircraft or for giving the prescribed signals;
- Weapons and ammunitions of war;
- Nuclear substances and radioactive materials and other objects related thereto.
- Poisonous gases;
- Germs and dangerous substances;
- Any other objects, the carriage of which is prohibited by the competent authority. No person shall operate an aircraft within the State Territory with knowledge that illegal substances, such as narcotic drugs, marijuana, depressant or stimulant drugs or substances, are carried in the aircraft

12.2 Protection of Persons and Property

Misuse of signals and markings

- A signal or marking to which a meaning is given by these Rules, or which is required by these Rules to be used in circumstances, or for a purpose therein specified, shall not be used except with that meaning, or for that purpose.
- A person in an aircraft or on an aerodrome or at any place at which an aircraft is taking off or landing shall not make any signal which may be confused with a signal specified in these Rules, and, except with lawful authority, shall not make any signal which he knows or ought reasonably to know to be a signal in use for signaling to or from any navel, military or air force aircraft.

12.3 Communications

In case of communication failure, unless otherwise directed by ATC, a pilot shall select A7600 on the transponder and carry out the following procedures as applicable.

Note: The communication failure procedures given below are ICAO standard. Refer to Jeppesen Route Manual,

12.3.1 VMC Conditions

If the failure occurs in VMC conditions, or if VMC conditions are encountered after the failure, the aircraft shall:

- Continue to fly in VMC;
- Land at the nearest suitable aerodrome; and
- Report its arrival by the most expeditious means to the appropriate ATC unit.

12.3.2 IMC Conditions

If the failure occurs in IMC conditions or when conditions are such that it is inadvisable to complete the flight, the aircraft shall:

a. Unless otherwise prescribed on the basis of regional air navigation agreement, in airspace where radar is not used in the provision of air traffic control, maintain the last assigned speed and level, or minimum flight altitude if higher, for a period of 20 minutes following the aircraft's failure to report its position over a compulsory reporting point and thereafter adjust level and speed in accordance with the filed flight plan;

b. In airspace where radar is used in the provision of air traffic control, maintain the last assigned speed and level, or minimum flight altitude if higher, for a period of 7 minutes following :

   1) The time the last assigned level or minimum flight altitude is reached; or

   2) The time the transponder is set to Code 7600; or

   3) The aircraft's failure to report its position over a compulsory reporting point; whichever is later, and thereafter adjust level and speed in accordance with the filed flight plan;

c. When being radar vectored or having been directed by ATC to proceed offset using RNAV without a specified limit, rejoin the current flight plan route no later than the next significant point, taking into consideration the applicable minimum flight altitude;

d. Proceed according to the current flight plan route to the appropriate designated navigation aid or fix serving the destination aerodrome and, when required to ensure compliance with

e. below, hold over this aid or fix until commencement of descent;

e. Commence descent from the navigation aid or fix specified in d. at, or as close as possible to, the expected approach time last received and acknowledged; or, if no expected approach time has been received and acknowledged, at, or as close as possible to, the estimated time of arrival resulting from the current flight plan;

f. complete a normal instrument approach procedure as specified for the designated navigation aid or fix; and

g. Land, if possible, within 30 minutes after the estimated time of arrival specified in e) above or the last acknowledged expected approach time, whichever is later.

12.4 Reference

A full description of the Rules of the Air is contained in the Jeppesen Route Manual

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FORMS

Chapter 13

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Chapter 13 Forms

This Chapter includes Forms, Reports and Diagrams should be used by Flight and Cabin Crewmembers.

13.1 Operation Forms

13.1.1 Pilot Report

Nesma Airlines نسما للطيران

Captain:		First Officer:			
Flight No./ Date		A/C Reg:		Route:	
Flight Irregularity		**Reasons**			
Cancellation		Technical		Late Boarding	
Return		ATC		Catering	
Diversion		Security		Weather	
Emergency		FLT/OPS		Immigration	
Delay		Miscellaneous		Others	

Report Submitted to the Chief Pilot

Signature:

Action:		**Form:**	**To:**
For Information			
Please Action			
Comments			
Keep Me Informed			
Copy Replay To			
Action Taken By:		**Date:**	**Signature:**

Issue No. 2 Dated Nov. 2011

Form No. 103

13.1.2 Journey Log (Voyage Report)

Nesma Airlines نسما للطيران

A/C Type:- | A/C Reg.:-

CLEAR FORM | PRINT | Submit by E-mail

VOYAGE REPORT
(JOURNEY LOG)

Date Of Flight:- | Type of Flight:- | Schedule ☐ | Charter ☐ | Augmented ☐

Sector			Time								Fuel		S.E.T	Duty	Cockpit Crew Name	ID.NO
FLT NUM.	FROM	TO	S.T.D	A.T.D Off Block / Air Born	S.T.A	A.T.A Touch Down / On Block	Day	Night	Total		DEP. FUEL / ARR FUEL	PLANNED BURNOFF / ACTUAL BURNOFF	Single Engine Taxi Time	INST		
														CAPT		
														F/O		
													☐	OBS		

Duty	Cabin Crew Name	ID.NO	POS
INST			
INST			
CDC			
C/A			
C/A			
C/A			
C/A			
C/A			

Sector	PIC	PF	PM	Delay Code1	Delay Time1	Delay Code2	Delay Time2	Delay Code3	Delay Time3
I									
II									
III									
IV									
V									

00:00 | 00:00 | 00:00

Total HRS:MIN

HEAVY FLIGHT LOG TIME

Issue No: 04
Dated 1/08/2018
Form No. 100

Observations

ANY DETAILED REPORT CONCERNING FLIGHT SHALL BE WRITTEN IN SPECIAL FORM

Special Forms: Pilot Report ☐ ASR ☐

CAPTAIN(S) SIGNATURE

Form No. 100

IATA Delay Code

Delay Codes starting with

These Codes are used to describe delays caused by Passenger and Baggage handling
- 11 Late Check-in, acceptance of passengers after deadline
- 12 Late Check-in, congestion in check-in area
- 13 Check-in error
- 14 Overbooking, booking errors
- 15 boarding, discrepancies and bagging missing checked in-passenger at gate
- 16 commercial publicity, passenger convenience, VIP, Press, Ground meals and missing personal items
- 17 Catering order, late or incorrect order given to supplier
- 18 baggage processing, sorting, etc.

Delay Codes starting with 2

These Codes are used to describe delays caused by Cargo (21-26) and mail handling (27-29).
- 21A Documentation, errors, etc.
- 22 Late positioning
- 23 Late acceptance
- 24 Inadequate packing
- 25 overbooking, booking errors
- 26 Late preparation in warehouse
- 27 Mail Over sales, packing, etc.
- 28 Mail Late positioning
- 29 Mail Late acceptance

Delay Codes starting with 3

These Codes are used to describe delays caused by Aircraft and ramp handling
- 31 Aircraft documentation late or inaccurate, weight and balance (Load sheet) general declaration, Passenger manifest, etc.
- 32 Loading, unloading, bulky special load, cabin load, lack of loading staff
- 33 Loading Equipment, Lack of or breakdown, e.g. container pallet loader, lack of staff
- 34 Servicing equipment, lack of or breakdown, lack of staff, e.g. steps
- 35 Aircraft Cleaning
- 36 Fuelling, Defueling, fuel supplier
- 37 Catering, late delivery or loading
- 38 ULD, Containers, pallets, lake of or breakdown
- 39 Technical equipment, lack of or breakdown, lack of staff, e.g. pushback

Delay codes starting with 4

These codes are used to describe technical delay reasons
- 41 Aircraft defects
- 42 Scheduled maintenance, late release
- 43 Non-scheduled maintenance, special checks and/ or additional works beyond normal maintenance
- 44 Spares and maintenance equipments, lake of or breakdown
- 45 AOG (aircraft on ground for technical reasons) spares, to be carried to another station
- 46 Aircraft change for technical reasons
- 47 Stand by aircraft, lack of planned stand by aircraft for technical reasons
- 48 Scheduled cabin configuration and adjustment

Delay codes starting with 5

These codes are used to describe damage to aircraft and automated equipment failure
- 51 Damage during flight operations, bird or lightning strike, turbulence, heavy or overweight landing
- 52 Damage during ground operations, collisions (other than during taxiing, loading offloading damage, contamination, towing, extreme weather conditions
- 55 Departure control system, check in, weight and balance (load control), computer system error, baggage sorting, gate-reader error or problems
- 56 Cargo preparation documentation system
- 57 Flight plans
- 58 Other computer systems

Delay codes starting with 6

These codes are assigned to operations and crew caused delays
- 61 Flight plan, late completion or change of flight documentation
- 62 Operational requirements, fuel, load alteration
- 63 Late crew boarding or departure procedures
- 64 Flight deck crew shortage, crew rest
- 65 Flight deck crew special request or error
- 66 Late cabin crew boarding or departure procedures
- 67 Cabin crew shortage
- 68 Cabin Crew error or special request
- 69 Captain request for security check, extraordinary

Delay codes starting with 7

These codes explain weather caused delays
- 71 Departure station
- 72 Destination station
- 73 En-route or alternate
- 74 De-Icing of aircraft, removal of ice snow, frost prevention
- 75 Removal of snow ice water sand from airport runway
- 76 Aircraft ground handling impaired by adverse weather conditions

Delay codes starting with 8

These codes are used for Air Traffic Control (ATC) Restrictions (81-84) AND airport or governmental authorities caused delays
- 81 ATC restriction en route or capacity
- 82 ATC restriction due to staff storage or equipment failure en-route
- 83 ATC restriction at destination
- 84 ATC restriction due to weather destination
- 85 Mandatory security
- 86 Immigration, customs, health
- 87 Airport facilities, parking stands, ramp congestion, buildings, gate limitations,...
- 88 Restrictions at airport of destination, airport runway closed due obstruction, industrial action, staff shortage, political unrest, noise abatement, night curfew, special flights,...
- 89 restrictions at airport of departure, airport runway closed due obstruction, industrial action, staff shortage, political unrest, noise abatement, night curfew, special flights, start-up and pushback,...

Delay codes starting with 9

These codes are used for reactionary reasons or miscellaneous
- 91 Passenger or load connection, awaiting load or passengers from another flight, protection of stander passengers onto anew flight.
- 92 Through check-in error, passenger and baggage
- 93 Aircraft rotation
- 94 Cabin Crew rotation
- 95 Crew rotation (entire or cockpit crew)
- 96 Operations control, rerouting, diversion, consolidation, aircraft change for reasons other than technical
- 97 Industrial action within own airline
- 98 Industrial action outside own airline
- 99 Miscellaneous, not elsewhere specified

13.1.3 Dispatch Release Form

Nesma Airlines نسما للطيران

FLIGHT DISPATCH RELEASE

FLIGHT DATA

DATE	:	TYPE OF OPERATIONS	:
AIRCRAFT TYPE	:	REGISTRATION	:
FLIGHT	:	ROUTE	:
STD	:	TAKE OFF ALTERNATE	:
ALTERNATE 1	:	ALTERNATE 2	:

AIRCRAFT & FUEL WEIGHTS ALL WEIGHTS IN KGS

PAYLOAD	:	TRIP	:
ZERO FUEL WEIGHT	:	CONT	:
TAKEOFF FUEL	:	TAXI	:
TAKEOFF WEIGHT	:	FINAL RESERVE	:
LANDING WEIGHT	:	ALTERNATE	:
LANDING FUEL	:	ADDITIONAL	:
		MIN. REQUIRED	:
		EXTRA	:
		BLOCK FUEL	:
		PIC FUEL REQ	:

MEL/CDL

SIGNATURE

DISPATCHER PILOT IN COMMAND

Issue No.: 4 Date: JUN 2023 Form No.: 403

13.1.4 Pilot in Command's Discretion Report - Extension of Flying Duty Period

Nesma Airlines نسما للطيران		PILOT IN COMMAND'S DISCRETION REPORT EXTENSION OF FLYING DUTY PERIOD	
Flight No.		Aircraft Type	
Date		Pilot In Command	

Note: If discretion exercised for part crew or individuals, state name(s) and operational Capacity below:

Capacity	**Name**	**Capacity**	**Name**

Split Duty	Actual Time off		Actual Time on		Credit		
In Flight Relief	Rest Taken (Hrs/Mnts)		Bunk/Seat		Credit		

Scheduled (Planned)				**Actual**			
		UTC	HRS/Mnts.			UTC	HRS/Mnts.
A	Planned DEP			1	Duty Reporting Time		
B	Planned ARR			2	ATA		
C	Duty Start			3	Actual FDP		
D	Scheduled FDP			4	Allowable FDP (as per OM-A)		
				5	Credit (if any)		
				6	Revised/allowable FDP (4+5)		
				7	Discretion used (3-6)		

COMMANDER'S REPORT (CONTINUE OVERLEAF IF NECESSARY)

Name:	**Signed:**	**Date:**

OPERATOR'S REMARKS / ACTION TAKEN

Name:	**Signed:**	**Date:**

Forwarded to ECAA	
Filed	

Issue No. 2 Dated Nov. 2011 Form No. 101

13.1.5 Pilot in Command's Discretion Report- Reduction of Rest (ECAR 121.519)

Nesma Airlines		**PILOT IN COMMAND'S DISCRETION REPORT** REDUCTION OF REST		
Flight No.		Aircraft Type		
Date		Pilot In Command		
		Date	**UTC/LOCAL**	**Hrs/Mnts**
Last Duty Started			: / :	
Last Duty Ended			: / :	
Rest earned (Hrs.)				:
Calculated earliest next available duty			: / :	
Actual start of next FDP			: / :	
Rest Period reduced by				:

Note: If discretion exercised for part crew or individuals, state name(s) and operational Capacity below:

Capacity	**Name**	**Capacity**	**Name**

PILOT IN COMMAND'S REPORT (CONTINUE OVERLEAF IF NECESSARY)

Name:	**Signed:**	**Date:**

OPERATOR'S REMARKS / ACTION TAKEN

Name:	**Signed:**	**Date:**

Forwarded to ECAA	
Filled	

Issue No. 2 Dated Nov. 2011 Form No. 102

13.1.6 Technical Log Form

Nesma Airlines نسما للطيران 0008501A	AIRCRAFT TECHNICAL LOG AIRCRAFT TYPE A 320- 200	TECHNICAL DEPARTMENT

A/C REG. SU-	DEP. Date	B-RNAV	RVSM	CAT I	CAT II	LOG TIME	Hrs.	Mins.
DEP. Point / ARR. Point	ARR. Date	Fuel Used	Eng1			Landed		
FLT. No.	Revenue		Eng2			Airborne		
	Non revenue		Total			Sector time		
Pilot Name PF PM		Delay code		No. Landing		Time B/F		
Co-Pilot Name PF PM		Delay time	G/A	FLX	TOGA	Total time		

Item No	Defect			Action Taken				
1		☐ PR	☐ MR	ATA	☐ADD raised	ADD cleared No.	☐ RII	Date Eng. Sig & Auth Eng. Sig & Auth. RII
2		☐ PR	☐ MR	ATA	☐ADD raised	ADD cleared No.	☐ RII	Date Eng. Sig & Auth Eng. Sig & Auth. RII
3		☐ PR	☐ MR	ATA	☐ADD raised	ADD cleared No.	☐ RII	Date Eng. Sig & Auth Eng. Sig & Auth. RII

Item No	P/N OFF	S/N OFF	P/N ON	S/N ON

FUEL			ENGINE OIL Qts			IDG AND APU OIL UPLIFT Qts		HYDRAULIC Qts		TIRE PRESSURE PSI
Supplier	Arrival	Kgs	Engine	1	2					
Receipt		Kgs	Arrival			LH		G		
Density	Uplift	Ltr	Uplift			RH		B		
Temp.	Depart	Kgs	Departure			APU		Y		

I Hereby Certify That The Maintenance Specified Above Has Been Carried Out In Accordance With Manufacturer's Documents, Egyptian Civil Aviation Regulations And Nesma AirLines Relevant Approved Document

CHECK	SIGN.	AUTH.	DATE	TIME	STATION	AIRCRAFT ACCEPTANCE FOR FLIGHT	
WEEKLY						Capt. Name	Capt. Sign
DAILY						DATE: - - / - - / - - - -	
PDC						TIME: - - / - -	

Continue to next Page: ☐ YES ☐ NO Dated

Revision No. 04 08/08/2016 Page / Form No.: 206-01

13.1.7 Generic Document Distribution Form

Nesma Airlines نسما للطيران	Operations Department	Generic Document Distribution Form
Document Name		
Date		
Recipient	**Position**	**Signature**

Issue Date: Dec 2017 Form No. 155

13.2 Security Forms

13.2.1 Disruptive Passenger Incident Report Form

Nesma Airlines نسما للطيران	Unruly Passenger Warning Form	Security Department

First Warning: Your behavior may be in violation of law.
Second Warning: You should immediately cease this kind of action to avoid further consequences.
Final Warning: On behave the caption; your behavior is unacceptable, if it continues we will be forced to take further necessary action against you.
This is a formal warning that local low prohibits the following:

- Threatening; intimidating; or interfering with a crewmember.
- Smoking on a nonsmoking flight or in the lavatory; and/o r
- Creating an alcohol-related disturbance.

An incident report will be filed with the local authorities.
If you do not refrain from these activities you will be prosecuted local laws provides monetary lines and, in some cases, imprisonment.

Date……………………………………………….flight#...
Departure City: ……………………………………..Arrival City: ....
Passenger Named: ………………………………..seat#...
Address: ………………………………………………………………………………
Desorption of Incident: ………………………………………………………………......
Witness Name: ………………………………………………………………………….
Address: ………………………………………………………………………………
Phone#:………………….....Passport Number:…………………………………………
Code#:………………………………………………..Nick Name: …………………….....
Cabin Crew Signature: ………………………………………………………………….
Flight Purser Name: …………………………………………………………………….
Code#: ………………………………………………Nick Name: ……………………....
Flight Purser Name: ………………………………………………………………….....
Captain Name: ………………………………………………………………………….
Code# Nick …………………………………………Captain Name: ……………………
Captain Signature: ……………………………………………………………………

13.2.1.1 Disturbance Unruly Disruptive Passenger Verbal Warning Form

Nesma Airlines نسما للطيران	Disturbance / Unruly / disruptive Passenger Verbal Warning Form	Security Department

عربــــــــى
إن أسلوب أداؤك مخالف للقانون ، إن لم تستطع السيطرة على تصرفاتك ، سوف نقوم بإخطار السلطات المختصة لمقابلة هذة الرحلة.

ENGLISH
Your behavior appears to be in violation of the law, if you fail to control your actions, police authorities will be notified to meet this flight.

FRANÇAIS
Votre comportement semble être en violation de la loi, si vous ne commandez pas vos actions,les authorizations de police seront annoncée et demandées pour rencontrer ce vol.

GERMAN
Ihr verhalten scheint ein vestoβ gagen das gesetz zu sein, wenn sie es weiterhin nicht schaffen, Ihr verhalten zu kontrollieren, sehen wir uns gezwungen, die polizeibhörde zu verständigen um an bord zu kommen.

ITALIANO
Il tuo comportamento è persequibile a norma di legge .se non modera il tuo comportamento, informiamo la polizia responsible del questo volo.

SPANISH
Vuestra comportamiento parece contra la ley ,si no pudiera controlarlo vamos a informar, la policia para incontrarnos en el airopuerto.

POLISH
Twoje/wasze zachowanie jest niezgodne z prawem. Jesli tego nie uszanujesz, po przylocie beda czekaly sluzby policyjne.

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13.2.2 Aircraft Security Check List

Nesma Airlines نسما للطيران	Aircraft Security Search Checklists (Pre-Flight, Transit, after night stop & Maintenance Stop)	Security Department

Date	Coming From	Flight No.	Station of Inspection	Start Time of Inspection (GMT)	End Time of Inspection (GMT)	Leaving To	Flight No.	A/C Type	A/C Registration
/ /				:	:				

Cockpit (Captain)

COCKPIT		
	❑ Seats including pouches, cushions and underside of seats	❑ Entire floor including area formed of rudder pedals and beneath all flight desk seats
	❑ Horizontal control panel between captain and co-pilot seats	❑ Ceiling, side and rear walls
	❑ Logbook and flight manual stowage	❑ Life-jacket stowage
	❑ Oxygen mask stowage	❑ Crew coatroom and luggage stowage area
	Name:	**Signature:**

Aircraft fuselage exterior / Engines / Holds (Maintenance):

MAINTENANCE		
	❑ Air-Conditioning packs Air- inlets & outlet ducts	❑ Wings including flaps, snap-covers to fuel
	❑ All Access Doors	❑ Engine forward inlet outlet vents
	❑ Nose wheels and it's sachets	❑ Engine Aft vent
	❑ Main wheels and it's sockets	❑ Cargo Holds and items contained within the hold
	Name:	**Signature:**

CABIN CREW		
	Forward and Rear Entrance Galleys and Lavatories (Cabin Crew in Charge):	
	❑ Doors	❑ Emergency equipment stowage's
	❑ Escape chute stowage area	❑ Removable containers, food boxes and ovens
	❑ Open and inspect all galley compartments, bar and refrigerator	❑ Fire extinguisher stowage, oxygen compartment
	❑ Cabin crew seat, life-jacket stowage and seats back	❑ Lavatories compartment and mirror and
	❑ Emergency Equipment stowage's	❑ Containers under sink; and area around it
	❑ Trolleys and behind Trolleys	❑ Galleys and lavatories waste
	1L Name:	**Signature and ID:**
	3R Name:	**Signature and ID:**
	Passengers cabin (Cabin Crew in Charge):	
	❑ Overhead bins (Baggage racks) **	❑ Area under seats, between seats, between the seat and the wall and Between bulkheads and seats
	❑ Bags of company materials and equipment Stowage	❑ Life jacket stowage 20% and passenger seat cushions 40%
	❑ Passenger seats, seats back, seats pockets	❑ Walls, ceiling and floor Air Condition and Light
	1R Name:	**Signature and ID:**
	3L Name:	**Signature and ID:**

Purser Name:	**Purser Signature:**
Pilot in Command Name:	**Pilot in Command Signature:**

Note: (**) **Where an aircraft is in transit, the aircraft security search shall be performed whilst passengers remain on board provided that:**

a) The passengers shall be asked to positively identify their belongings perhaps by placing them on their laps, while the security check or search is performed; and

b) The passengers are under supervision in order to prevent movement through the aircraft when the search is being performed

c) All Crew member must check their own cabin luggage before signing the preflight and transit security search checklist form.

Distribution:

1. **Original:** PIC (Pilot In Command) Flight File. **2. First Copy:** Ground Station. **3. Third Copy:** Remain in the booklet.

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13.2.3 Preliminary Report on Act of Unlawful Interference

INFORMATION PROVIDED INTHIS REPORT IS RESTRICTEDAND WILL ONLY BE DISCLOSEDTOAUTHORIZED PERSONS

PRELIMINARY

REPORT ON ACT OF UNLAWFUL INTERFERENCE

File Number: ……..…………………………..

Date of Report: (Day/month/year)

a. Act of unlawful Seizure of Aircraft.	☐
b. Attempted Act of unlawful of Aircraft.	☐
c. Unlawful Act Against The safety of Civil Aviation.	☐
d. Attempted Unlawful Act Against The Safety of Civil Aviation.	
e. Other Act of Unlawful Interference.	☐

A. GENERAL INFORMATION
1. State providing the Report: ....
2. Date of the Occurrence .... (Day/month/year)
3. Time of the Occurrence: .... (Local time – 24-hour clock)
4. Duration of the Occurrence:…………………………………………………………

B. PARTICULARS OF AN ACT OF UNLAWFUL INTERFERENCE:
1. Flight information

Flight departure date: .... (Day/month/year)

Flight departure time:.................................. (Local time – 24-hour clock)

Flight identification: ……………………………........

Type of aircraft: ……………………………………

Operator: ……………………………………………

Number of passengers: …………………………......

Number of crew: …………………………………..

In-flight security guards (if any): …………………

Number of perpetrator (s): …………………………..

Type of operation (scheduled, chartered, etc)……………………

Airport of departure	(Name) ……………………	(State) ………………
Intended destination	(Name) ……………………	(State) ………………
Diversion(s) (Including final destination)	(Name) ……………………	(State) ………………
	(Name) ……………………	(State) ………………
	(Name) ……………………	(State) ………………
	(Name) ……………………	(State) ………………
	(Name) ……………………	(State) ………………

2. Airport buildings or facilities affected:

……………………………………………………………………………………

……………………………………………………………………………………

3. Brief summary of occurrence (include location of events, dates and times):

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

4. Action to ensure the release of passengers and crew, including measures taken to facilitate the continuation of their journey, if applicable.

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

5. Action to return the aircraft and its cargo to the persons lawfully entitled to possession, if applicable.

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

6. Did the perpetrator(s) circumvent the security measures in place by use of:

☐ Force ☐ Other

Describe briefly:

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

7. What new measures and procedures have been taken or are contemplated to prevent recurrence of a similar event?

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

8. Action by the competent authorities to take the perpetrators) into custody or other measures taken to ensure his/her/their presence:

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

C. ANY ADDITIONAL RELEVANT INFORMATION

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

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…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

Name: …………………………… Title: ………………………………………..

Department:.. ..-END -

13.2.4 Final Report on Act of Unlawful Interference

Nesma Airlines

INFORMATION PROVIDED INTHIS REPORT IS RESTRICTEDAND WILL ONLY BE DISCLOSEDTOAUTHORIZED PERSONS

File Number: …….…………………….

Date of Report: (Day/ Month/ Year)

a) Act of unlawful Seizure of Aircraft.	☐
b) Attempted Act of unlawful of Aircraft.	☐
c) Unlawful Act Against The safety of Civil Aviation.	☐
d) Attempted Unlawful Act Against The Safety of Civil Aviation.	☐
e) Other Act of Unlawful Interference.	☐

A. GENERAL INFORMATION

1. State providing the Report: ....
2. Date of the Occurrence (Day/month/year)
3. Time of the Occurrence: (Local time – 24-hour clock)
4. Duration of the Occurrence: …………………………..…………………

B. PARTICULARS OF AN ACT OF UNLAWFUL INTERFERENCE:

1. Flight information
   Flight departure date: ....(Day/month/year)
   Flight departure time:... (Local time – 24-hour clock)
   Flight identification: …………………………........
   Type of aircraft: ……………………………………
   Operator: …………………………………………
   Number of passengers: …………………………......
   Number of crew: ………………………………….
   In-flight security guards (if any): …………………
   Number of perpetrator (s): ………………………….
   Type of operation (scheduled, chartered, etc)……………………

Airport of departure	(Name) ……………………	(State) ………………
Intended destination	(Name) ……………………	(State) ………………
Diversion(s) (Including final destination)	(Name) ……………………	(State) ………………
	(Name) ……………………	(State) ………………
	(Name) ……………………	(State) ………………
	(Name) ……………………	(State) ………………
	(Name) ……………………	(State) ………………

2. Aircraft

State of registration: ……………………………

Registration number: ……………………………

Aircraft type: ……………………………

3. Airport where the sabotage device/substance was (believed) loaded on the aircraft:………………………………………………………………………………

Airport buildings or facilities affected:

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

C. THE OCCURRENCE

1. Location of the Aircraft:

On the ground ☐

During flight ☐

2. Ground facility:

On airport ☐

Off airport ☐

3. Weapons/devices Describe	Real	Fake
Weapon no.1: …………………………………………………..	☐	☐
Weapon no.2: …………………………………………………..	☐	☐
Weapon no.3: …………………………………………………..	☐	☐
Weapon no.4: …………………………………………………..	☐	☐
Weapon no.5: …………………………………………………..	☐	☐
Explosives: …………………………………………………..	☐	☐

Incendiary: ………………………………………………………….. ☐ ☐

Other (describe): ………………………………………………………………...

……………………………………………………………………………………...

……………………………………………………………………………………..

4. Communications

4.1. Source of threat:

Written message ☐
Telephone call ☐

Other ☐ (describe)
……………………………………………………………………………………

……………………………………………………………………………………

4.2. Who received the threat?

Flight crew ☐

Cabin crew ☐

Airline ground staff ☐

Passenger ☐

Other ☐ (describe):
……………………………………………………………………………………

……………………………………………………………………………………

……………………………………………………………………………………

4.3. Where there specific demands made? (If yes, please explain) Yes No

……………………………………………………………………………………

……………………………………………………………………………………

4.4. Who transmitted the demands to authorities on the ground: Yes No

The pilot? ☐ ☐

The perpetrator? ☐ ☐

Other (describe): ☐

……………………………………………………………………………….....

……………………………………………………………………………….....

5. Counter measures: Yes No

5.1 Was there any attempt to stop the action of the perpetrator(s)? ☐ ☐

5.2 If so, by what means? ☐ ☐

5.3 Results:

Successful ☐ Unsuccessful ☐

Yes No

5.4 Did the perpetrator(s) enter the cockpit? ☐ ☐

If yes, describe: …………………………………………………………......

……………………………………………………………………………….....

……………………………………………………………………………….....

Yes No

5.5 Were crewmembers in possession of a bomb threat search list? ☐ ☐

5.6 Were crewmembers familiar with least risk bomb location? ☐ ☐

5.7 Did the perpetrator(s) has (have)? ☐ ☐

Technical knowledge of the aircraft's operation? ☐ ☐

Familiarity with the design of the aircraft? ☐ ☐

Knowledge of the airport or essential navigation facilities? ☐ ☐

If yes, please explain: ……………………………………………………
…………………………………………………………………………….....
…………………………………………………………………………….....

6. Diversion of the aircraft (Please answer only if aircraft was diverted)

6.1 List airports in chronological order:

Airport	State	Arrival date and Time	Departure date and Time	Landing Permitted Yes No
a.				☐ ☐
b.				☐ ☐
c.				☐ ☐
d.				☐ ☐
e.				☐ ☐

6.2 Was there sufficient fuel to reach all of the destinations ordered? List below

Airport				Yes No
a.				☐ ☐
b.				☐ ☐
c.				☐ ☐
d.				☐ ☐
e.				☐ ☐

If yes, describe:

……………………………………………………………………………………….....

……………………………………………………………………………………….....

6.3 Did the crew have the necessary charts available for the destinations? List below

Airport				Yes No
a.				☐ ☐
b.				☐ ☐
c.				☐ ☐
d.				☐ ☐
e.				☐ ☐

If yes, describe:

……………………………………………………………………………………….....

……………………………………………………………………………………….....

6.4 Were any of the passengers allowed to leave the aircraft at any of the airports? List airports in chronological order:

Airport				Yes No
a.				☐ ☐
b.				☐ ☐
c.				☐ ☐
d.				☐ ☐
e.				☐ ☐

If yes, describe:

……………………………………………………………………………………….....

……………………………………………………………………………………….....

6.5 Was action taken at any of the airports to resolve the occurrence? List below.

Airport				Yes No
a.				☐ ☐
b.				☐ ☐
c.				☐ ☐
d.				☐ ☐
e.				☐ ☐

If yes, describe:

……………………………………………………………………………………….....

……………………………………………………………………………………….....

6.6 Was maintenance undertaken at any of the airports? List below.

Airport				Yes No
a.				☐ ☐
b.				☐ ☐
c.				☐ ☐
d.				☐ ☐
e.				☐ ☐

If yes, describe:

……………………………………………………………………………………….....

……………………………………………………………………………………….....

D. THE PERPETRATOR (use additional sheets if more than 3): Total number of perpetrators: …………

1. Name:……………………………………………………….............(male/female)

Alias:…………………………………………………………………………

Date of birth: …………….. (DD/MM/YY) Place of birth: …………..…

Nationality: ………………

Airport of embarkation: ………………… …………………….

Name State

How did the perpetrator(s) gain access to the aircraft/building facility?

……………………………………………………………………………….....

……………………………………………………………………………….....

2. Name: :………..…………………………………......................... (male/female)

Alias:…………………………………………………………………………

Date of birth: …………….. (DD/MM/YY) Place of birth: …………………..…

Nationality: ………………

Airport of embarkation: ………………………… ………………….

Name State

How did the perpetrator(s) gain access to the aircraft/building facility?

……………………………………………………………………………….....

……………………………………………………………………………….....

3. Name: :……………………………………………………..............(male/female)

Alias:…………………………………………………………………………

Date of birth: …………….. (DD/MM/YY) Place of birth: …………………..…

Nationality: ………………

Airport of embarkation: ………………………… ……………………

Name State

How did the perpetrator(s) gain access to the aircraft/building facility?

……………………………………………………………………………….....

……………………………………………………………………………….....

E. AIRPORT SECURIT

	Yes	No
1. Is there an airport security program where the perpetrator(s) boarded the aircraft?	☐	☐
2. Does the security program provide for protection of the air side (fences, guards, locked gates, patrols, identification system, etc.)?	☐	☐
3. Are the identification cards issued to ground personnel and auxiliary services reviewed regularly?	☐	☐
4. Inspection/screening of passengers, crew and cabin baggage:	☐	☐
a. Are all passengers and cabin baggage subjected to inspection/screening for all international flights?	☐	☐
b. Are all passengers and cabin baggage subjected to inspection/screening for all domestic flights?	☐	☐
c. Are all crewmembers subjected to security control?	☐	☐
d. Are alt passengers and their cabin baggage which have been subjected to inspection/screening re-screened before boarding the aircraft if they mix or have contact with persons who have not been subjected to inspection/screening?	☐	☐
5. Inspection/screening system used: Gate plan (direct access to aircraft) Sterile hold area plan (pre-boarding lounge) Sterile concourse plan	☐ ☐ ☐	☐ ☐ ☐
6. System of security control in use: Metal detection device: Walk-through Hand-held X-ray unit	☐ ☐ ☐ ☐	☐ ☐ ☐ ☐

Physical inspection Other ……………………………………………………………………….	☐ ☐	☐ ☐
7. Was the operation of the metal detection devices and x-ray units recently examined using objects?	☐	☐
8. Has training regularly been provided to security personnel who operate metal detectors and x-ray units?	☐	☐
9. Matching baggage:	☐	☐
a. Is reconciliation made of the number of checked-in passengers with the pieces of baggage loaded on the aircraft?	☐	☐
b. Does the procedure in a) above include transfer passengers and their inter-line checked baggage?	☐	☐
10. Did the perpetrator(s) circumvent the security measures in place by use of: Force Other, Describe briefly: …………………………………………………………………………….. …………………………………………………………………………….. ……………………………………………………………………………...	☐ ☐	☐ ☐
11. What new measures and procedures have been taken or are contemplated to prevent recurrence of a similar event? ……………………………………………………………………………… ……………………………………………………………………………… ……………………………………………………………………………… ………………………………………………………………………………		

F. TERMINATION OF THE OCCURRENCE:

1. Position of the negotiator (explain if the negotiator had decision-making authority or acted only as an intermediary):
   ……………………………………………………………………………………
   ……………………………………………………………………………………
   ……………………………………………………………………………………

2. Airport/aircraft Number of persons affected:

Crew	Killed	Injured
Passengers		
Perpetrator(s)		
Others		

3. Circumstances surrounding death or injuries:
   ……………………………………………………………………………………
   ……………………………………………………………………………………
   ……………………………………………………………………………………

4. Damage to the aircraft/airport facilities (short description to include cost of damage, time loss and flights affected):
   ……………………………………………………………………………………
   ……………………………………………………………………………………
   ……………………………………………………………………………………

5. Furnish any additional information relevant to circumvention of security during this Occurrence:
   ……………………………………………………………………………………
   ……………………………………………………………………………………
   ……………………………………………………………………………………

PART II: INFORMATION CONCERNING THE ACTION TAKEN FOR THE RELEASE OF PASSENGERS AND CREW AND THE RETURN OF THE AIRCRAFT, IF APPLICABLE:

1. Action taken for the release of passengers and crew:
……………………………………………………………………………………
……………………………………………………………………………………
……………………………………………………………………………………
……………………………………………………………………………………

2. Action taken to facilitate the continuation of the journey of the passengers and crew as soon as practicable:
……………………………………………………………………………………
……………………………………………………………………………………
……………………………………………………………………………………
……………………………………………………………………………………

3. Action taken to return the aircraft and its cargo, without delay, to the persons lawfully entitled to possession:
……………………………………………………………………………………
……………………………………………………………………………………
……………………………………………………………………………………
……………………………………………………………………………………

PART III: INFORMATION CONCERNING THE MEASURES TAKEN IN RELEATION TO THE PREPETATOR(S):

1. Action by the competent authorities to take the perpetrator(s) into custody or other measures taken to ensure his/her/their presence:
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
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……………………………………………………………………………………………
……………………………………………………………………………………………

2. Action taken to institute extradition proceedings or to submit the case to the competent authorities for the purpose of prosecution; advice of the results of such proceedings, if available (other provide such information separately as soon as practicable).
……………………………………………………………………………………………
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PART IV: ANY ADDITIONAL RELEVANT INFORMATION

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Name……………………… Title: …………………………………..

Department: ………………………………………..

-END-

G. AIRPORT SECURIT

	Yes	No
12. Is there an airport security program where the perpetrator(s) boarded the aircraft?	☐	☐
13. Does the security program provide for protection of the air side (fences, guards, locked gates, patrols, identification system, etc.)?	☐	☐
14. Are the identification cards issued to ground personnel and auxiliary services reviewed regularly?	☐	☐
15. Inspection/screening of passengers, crew and cabin baggage:	☐	☐
a. Are all passengers and cabin baggage subjected to inspection/screening for all international flights?	☐	☐
b. Are all passengers and cabin baggage subjected to inspection/screening for all domestic flights?	☐	☐
c. Are all crewmembers subjected to security control?	☐	☐
d. Are alt passengers and their cabin baggage which have been subjected to inspection/screening re-screened before boarding the aircraft if they mix or have contact with persons who have not been subjected to inspection/screening?	☐	☐
16. Inspection/screening system used: Gate plan (direct access to aircraft)	☐	☐
Sterile hold area plan (pre-boarding lounge)	☐	☐
Sterile concourse plan	☐	☐
17. System of security control in use:	☐	☐
Metal detection device:	☐	☐
Walk-through	☐	☐
Hand-held X-ray unit	☐	☐
Physical inspection	☐ ☐	☐ ☐

Other …………………………………………………………………………….	
18. Was the operation of the metal detection devices and x-ray units recently examined using objects?	☐ ☐
19. Has training regularly been provided to security personnel who operate metal detectors and x-ray units?	☐ ☐
20. Matching baggage:	☐ ☐
1. Is reconciliation made of the number of checked-in passengers with the pieces of baggage loaded on the aircraft?	☐ ☐
b. Does the procedure in a) above include transfer passengers and their inter-line checked baggage?	☐ ☐
21. Did the perpetrator(s) circumvent the security measures in place by use of: Force Other, Describe briefly: …………………………………………………………………………….. …………………………………………………………………………….. ……………………………………………………………………………...	☐ ☐ ☐ ☐
22. What new measures and procedures have been taken or are contemplated to prevent recurrence of a similar event? ……………………………………………………………………………… ……………………………………………………………………………… ……………………………………………………………………………… ………………………………………………………………………………	

H. TERMINATION OF THE OCCURRENCE:

1. Position of the negotiator (explain if the negotiator had decision-making authority or acted only as an intermediary):

……………………………………………………………………………………
……………………………………………………………………………………
……………………………………………………………………………………

2. Airport/aircraft Number of persons affected:

Crew	Killed	Injured
Passengers		
Perpetrator(s)		
Others		

3. Circumstances surrounding death or injuries:

……………………………………………………………………………………
……………………………………………………………………………………
……………………………………………………………………………………

4. Damage to the aircraft/airport facilities (short description to include cost of damage, time loss and flights affected):

……………………………………………………………………………………
……………………………………………………………………………………
……………………………………………………………………………………

5. Furnish any additional information relevant to circumvention of security during this Occurrence:

……………………………………………………………………………………
……………………………………………………………………………………
……………………………………………………………………………………

PART II: INFORMATION CONCERNING THE ACTION TAKEN FOR THE RELEASE OF PASSENGERS AND CREW AND THE RETURN OF THE AIRCRAFT, IF APPLICABLE:

1. Action taken for the release of passengers and crew:
…………………………………………………………………………………
…………………………………………………………………………………
…………………………………………………………………………………
…………………………………………………………………………………

2. Action taken to facilitate the continuation of the journey of the passengers and crew as soon as practicable:
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3. Action taken to return the aircraft and its cargo, without delay, to the persons lawfully entitled to possession:
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PART III: INFORMATION CONCERNING THE MEASURES TAKEN IN RELEATION TO THE PREPETATOR(S):

1. Action by the competent authorities to take the perpetrator(s) into custody or other measures taken to ensure his/her/their presence:
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2. Action taken to institute extradition proceedings or to submit the case to the competent authorities for the purpose of prosecution; advice of the results of such proceedings, if available (other provide such information separately as soon as practicable).
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PART IV: ANY ADDITIONAL RELEVANT INFORMATION
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……………………………………………………………………………………………..

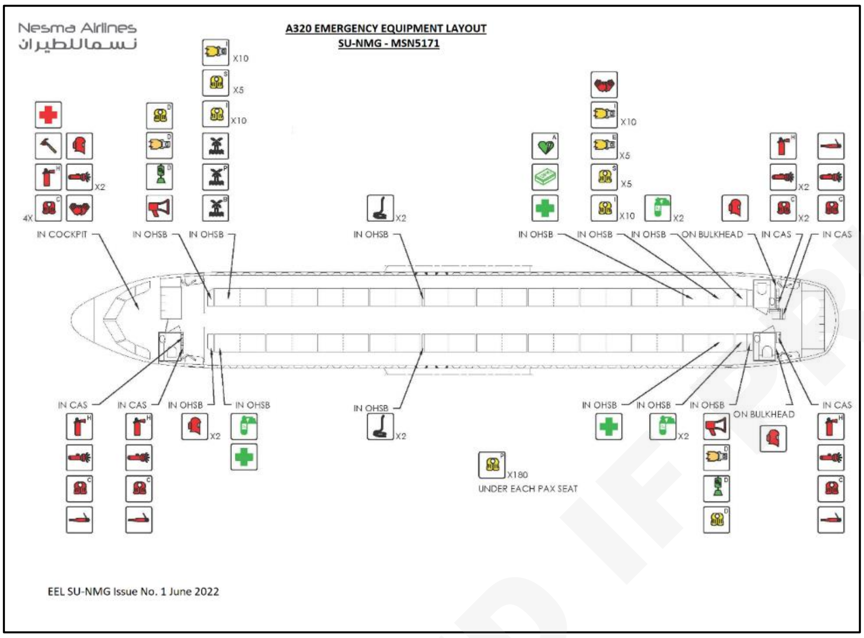
Name: ………………………… Title…………………………………..

Department: ………………………………………..

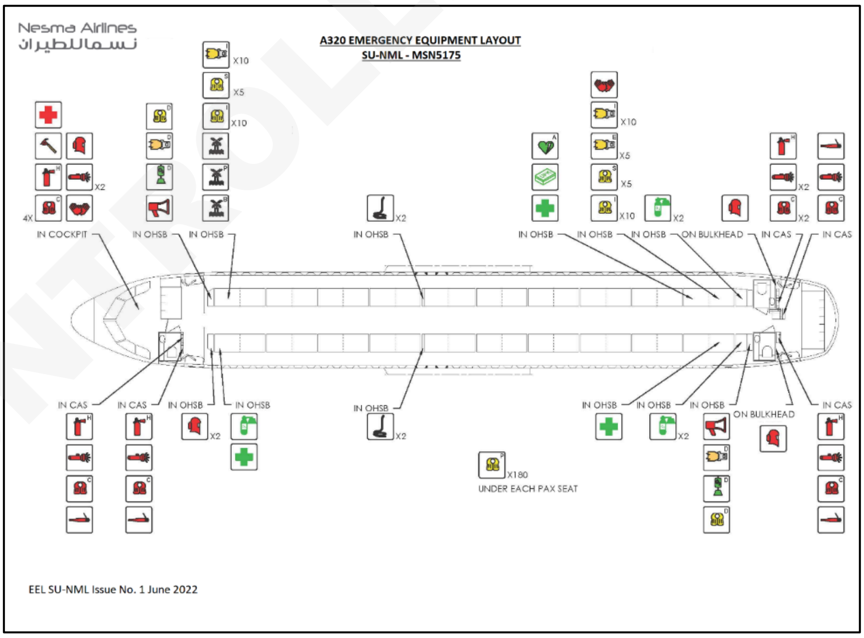
-END-

13.2.5 Emergency Equipment Diagrams

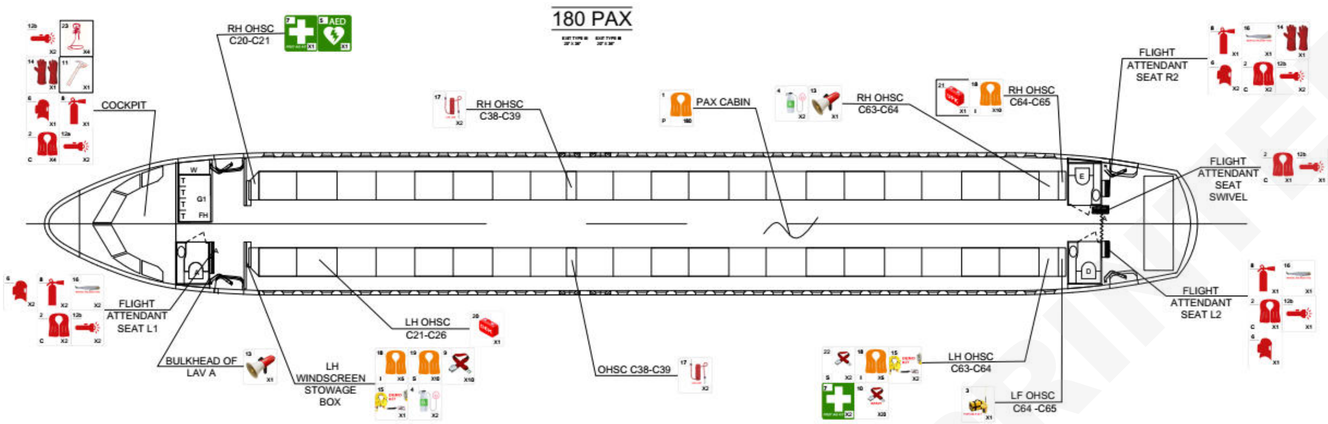
13.2.5.1 SU-NMG



13.2.5.2 SU-NML



13.2.5.3 SU-NMR



180 PAX
RH OHSC C20-C21
COCKPIT
RH OHSC C38-C39
PAX CABIN
RH OHSC C63-C64
RH OHSC C64-C65
FLIGHT ATTENDANT SEAT R2
FLIGHT ATTENDANT SEAT SWIVEL
FLIGHT ATTENDANT SEAT L1
BULKHEAD OF LAV A
LH WINDSCREEN STOWAGE BOX
LH OHSC C21-C26
OHSC C38-C39
LH OHSC C63-C64
LF OHSC C64 -C65
FLIGHT ATTENDANT SEAT L2

13.2.6 Aircraft Incident Report

PILOT IN COMMAND **………………………………..** **F/O ……………………………………** **FLIGHT NO ……** **REGISTRATION/TYPE** **…………………** **DATE** **…………………………………………**	**TIME** **…………………………………………………………** **STATION OR FLT.RTE** **…………………………………………** **CABIN CREW (When applicable)** **………………………………** **1- …………………………. 2- ……………….** **3-…………………………. 4- ………………**

METEOROLOGICAL CONDITION **(when applicable)**			
ATC	FLIGHT PHASE		**FLT.COND**
[] Ground **[] Tower** **[] Departure** **[]Center** **[] Approach** **[] None**	**[] Parked** **[] Take Off** **[] Climb** **[] Descent** **[] Approach** **[] Landing** **[] Gear up**	**[] Taxi** **[] Initial Climb** **[] Cruise** **[] Holding** **[] Missed App** **[] Gear Down**	**[] IFR/IMC** **[] IFR/VMC**
LIGHT COND	**WEATHER FACTORS**		**FLAP POSITION**
[] Dawn **[] Daylight** **[]Dusk** **[] Night**	**[] Cross Wind** **[] Turbulence** **[] Precipitation** **[] Aircraft Icing**	**[] Thunderstorm** **[] Lighting** **[] Norm** **[] Other**	**ALTITUDE/LEVEL**

Forward to Chief Pilot

<u>REMARKS</u>

13.2.7 Flight Crew Checklist for In-Flight Chemical/Biological Weapons

Nesma Airlines	FLIGHT CREW CHECK LIST FOR IN-FLIGHT CHEMICAL / BIOLOGICAL WEAPONS	Security Department

SITUATION

IN CABIN BUT UNACTIVATED	IN CABIN AND ACTIVATED	IN CARGO HOLD
*Don mask and goggles. * Inform ATC and declare emergency. * squawk7700 * Do not change altitude until procedure directs. * turn off recirculation fans. * Decrease cabin temperature . * Attempt to contain / wrap device . * Advise systems operational control. * Initiate slow descent to appropriate alternate aerodrome. * Quarantine passengers upwind of aircraft until assistance arrives.	*Don mask and goggles. *inform ATC and declare emergency. * squawk7700 * turn off recirculation fans. *Raise cabin elevation to 1000 ft at fastest rate possible. * Decrease cabin temperature . * Execute emergency descent procedure. * Advise systems operational control . * upon landing , evacuate aircraft via upwind side of airplane. * Quarantine passengers upwind of aircraft until assistance arrives.	*Don mask and goggles. *inform ATC and declare emergency. * squawk7700 * turn off recirculation fans. * Accomplish cargo smoke / fire checklist . * Advise systems operational control . * Maintain positive cabin pressure until landing. * Stop aircraft with surface wind at 10/2 O"clock position . * Upon landing , evacuate aircraft via upwind side of airplane . * Quarantine passengers upwind of aircraft until assistance arrives.

Issue No: 01Dated May /2013 1/1 Form No.: 760

13.3 Safety Forms

13.3.1 Confidential Report

Nesma Airlines نسما للطيران	Confidential /Hazard/Human Factor Report	Safety Department

Existing Condition:
……
……
……
……
……
……
……
……
……
……
……
…………………………………………………………………………………………………

Recommended Corrective Action
……
……
……
……
……
………………………………………………

Please detail the existing condition and any recommended corrective action. Use additional sheets as necessary. Drop in Safety Suggestion box or mail to the safety department office. If you would like an update on any action please provide your name and phone or address. Thank you for your interest in the flight safety.

Date ……/…../….. **Dep:** ……………….
Name and Phone No.(optional)
……

FLIGHT SAFETY ONLY

Rcvd by ………………………………………………………..
File No ………………………………………………………..
Assigned to ………………………………………………………..

13.3.2 Air Safety Report Form

Nesma Airlines نسما للطيران	**Air Safety Report**	**Safety and Quality Department**

Basic Reference:

Occurrence NR:

1. Type of event ✈ ASR AIRMISS /ATC BIRDSTRICK Wake Turbulence TCAS RA

2. Captain Staff No. …………	Co – Pilot Staff No. ………..	Other Crew Staff No. ………..

3. Date of Occurrence dd mm yy ……../…..…/………	**4. Time (Local UTC)** Day / Night …..……/………..	**5. Flight Number**	**6. Route** ……./……./…… From to Diverted	**7. SQUAWK**
8. A/C Type:	**9. Registration**	**10. Passenger / Crew**	**11.Fuel Quantity**	
12. Altitude FL / FL	**13. Speed / MACH NR**	**14. A/C Weight** KG	**15. Tech Log Ref.** ………………../………… Tech Log Page Nr /Item Nr	

16. Flight phase
Towing ✈ Parking ✈ Push-back ✈ Taxi Out ✈ Take – off ✈ Initial Climb (Below 1500 ft)

17. Airport + Stand	**18. GEOG Position**

19. MET IMC VMC	**20. WX actual** Wind	**21.Significant WX** Moderate/Severe Rain / Snow / Icing / Fog / Turbulence / Hail / Standing Water / Windsheer
22. Runway	**23. Runway State** Dry / Wet / Ice / Slush	**24.Configuration** A pilot / A thrust / Gear / Flap / Slat / Spoilers

25.Summary (concise description of the event)

26.Event and cause (Detailed description of the event and its immediate cause)
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………

27. Actions and results (Action taken. Their results and any subsequent events)
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………

28.Other Information (And suggestion for preventive action)
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………
……………………………………………………………………………………………

Issue No.: 01 **Issue Date: 1/10/2010**	**Page 1 / 2**	**Form No.: 305**

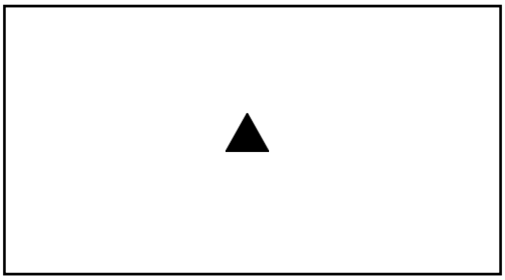
Nesma Airlines نسما للطيران	Air Safety Report	Safety and Quality Department

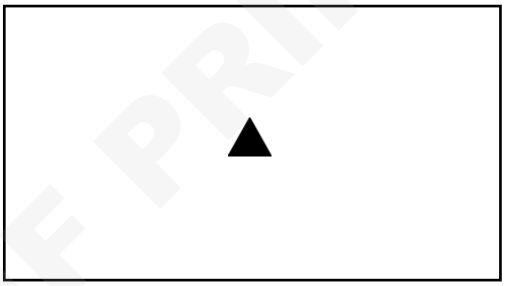
29. Station's Engineer's / Station Manager's Report

AIRMISS- ATC INCIDENT – TCAS RA – WAKE TURBULENCE – BIRD STRIKE

30. AIRMISS* / ATC Incident (*Delete as applicable) and / or TCASRA

Mark passage of the aircraft relative to you. In plan on the left and in elevation on the right assuming you are the center of each diagram. Indicate appropriate scale.





Severity of Risk	Low / Med / High
Avoiding Action Taken	Yes / No
Reported to ATC	…………...…unit
ATC instructions issued	…………………
Frequency in use	………………….
Heading	…………....DEG
Cleared altitude	………………….

Minimum Vertical Separation	…………………….....FT
Minimum Horizontal Separation	………………….M/NM*
TCAS Alert	RA /TA/None
Type of RA	…………………………..
RA followed	Yes / No (vertical deviation ....FT)
WAS TCAS Alert	Necessary / Useful / Nuisance

Describe overleaf:
Other A/C type, Markings, color, Lighting, call sign. etc.

31. Wake Turbulence

Heading ……	Turning Left / Right / No
Position on Glideslope	High / Low / On
Position on extended centerline	Left / Right / On
Chang in attitude	Pitch…Roll…YAW…DEG
Was there buffet?	Yes/No Stick Shake? Yes/No

What made you suspect wake turbulence?

Describe any vertical acceleration?

Give details of preceding A/C (Type, callsign, etc.)

Were you aware of other aircraft before incident? Yes / No

32.Bird Strike

Type of Birds

NR Seen	1	2-10	11-100	More
NR Struck	1	2-10	11-100	More
Time	Dawn	Day	Dusk	Night

Describe impact points and damage overleaf

Filling Instructions

Immediate fix to …….. and SITA.................. (Dispatch)

Original must be sent to operations safety Manager, Nesma Airlines, Cairo, Egypt.

Dispatch to copy	GMFO/FSO/CPF/MFS
Contact Numbers	………………………..
Chief Pilot Fleets	……………………….
Flight Dispatch	……………………….

33. MORE

Signature:

Rank

Issue No.: 01 Issue Date: 1/10/2010	Page 2 / 2	Form No.: 305

13.3.3 Cabin Crew Safety Report

Nesma Airlines نسما للطيران	Cabin Crew Air Safety Report	Safety Department

Reporter

□ Purser □ CABIN CREW(CC) □ Off-Duty CC	□Trainee □ Extra CC □ Other

Flight information at the time of event

Flight Segment	Flight origin .... Departure time	Destination .... Time since takeoff ....
Cabin Activity (check all that apply)	□ boarding □ beverage service □ cart service □ deplaning	□ meal service □ tray service □ safety related duties, specify □ Other ....

Flight Phase	Weather	Lighting
□ pre departure □ taxi □ takeoff □ climb □ cruise □ descent □ approach □ landing □ gate arrival □ Other	□ Clear □ rain □ turbulence □ thunderstorms □ Cloudy □ fog	INSIDE CABIN □ Bright □ Medium □ Dark OUTSIDE CABIN □ Day light □ night

Event Characteristics

Reporter's location in aircraft at time of event

Reporter's activity at time of event

Was a passenger directly involved in the event? □ Yes □ No	Was fire/smoke involved in the event?
Did this event result in an injury? □ Yes □ No To passenger? □ Yes □ No To crew? □ Yes □ No	Was there an evacuation during or as a result of this event? □ Yes □ No

Issue No.02
Dated 15/10/ 2010 1/2 Form No.: 304

Nesma Airlines نسما للطيران	Cabin Crew Air Safety Report	Safety Department

Please fill in appropriate spaces and check all items which apply to the event or situation.

Describe Event /Situation

CHAIN OF EVENT	**HUMAN PERFORMANCE CONSIDERATIONS**
- How the problem arose? - How it was discovered? - Contributing factors - Corrective actions	- Perceptions, judgments, decisions - Actions or inactions - Factors affecting the quality of human performance

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Bearing in mind the topics shown above discuss those which you feel and are relevant to the event Include what you believe really caused.

....

....

....

Reporter Name: I.D No. : Date: / /

Reporter Signature:

Issue No.02
Dated 15/10/ 2010 2/2 Form No.: 304

13.3.4 Voluntary Safety Report

Nesma Airlines نسما للطيران	Voluntary Safety Report	Safety and Quality Department

The information supplied in this form will only be used to enhance safety. You may to not provide your name. if you do provide your name. upon receipt of this form your name & position will be removed discarded. Under no circumstances will your identify be disclosed to any person in the airport or to any other organization, agency or person without your express permission.

When you have completed your part of the form, it should be given to the safety Manager or any member of the company safety committee. It may also be dropped in the drop boxes provided for the purpose at various locations.

Name (Optional):……………………………………………………………………………...

Position (Optional):………………………………………………………………………………

(Name and position, if provided, to be discarded by the safety Manager before processing this form further)

PART A

TO BE COMPLETED BY THE PERSON IDENTIFYING THE HAZARD

Please fully describe the Hazard.

Date of Occurrence:……./………../……….. **Time:**……:……..:…….

Location of Hazard:……………………………………………………………………………………

Description:………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

Suggestions of Corrective Actions:……………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

In your opinion, what is the likelihood of a similar occurrence happening again?

Rare 1	2	3	4	Likely 5

What do you consider could be the worst possible consequence if this occurrence did happen again?

Minor Damage 1	2	3	4	Catastrophic 5

Issue No.: 02 Issue Date: Oct 2013	Page 1 / 2	Form No.: 303

Nesma Airlines نسما للطيران	**Voluntary Safety Report**	**Safety and Quality Department**

PART B

TO BE COMPLETED BY THE SAFETY DEPARTMENT

The report has been de-identified and entered into the company database

Signature:……………………………………….. **Date:**………………………..

Name:……………………………………………

Rate the likelihood of the hazard recurring

Rare				**Likely**
1	**2**	**3**	**4**	**5**

Rate the worst – case consequences

Minor Damage				**Catastrophic**
1	**2**	**3**	**4**	**5**

What action is required eliminate or control the hazard and prevent injury.

……………………………………………………………………………………………………

……………………………………………………………………………………………………

……………………………………………………………………………………………………

Resources Required:

……………………………………………………………………………………………………

……………………………………………………………………………………………………

Responsibility for Action:

……………………………………………………………………………………………………

Referred to ………………………………..…..for further action.

Signature:……………………...….. **Date:**……………………

Forwarded to the safety committee for review.

Signed:…………………………………… **Date:**……………………

Appropriate feedback given to the staff.

Signed:…………………………………… **Date:**……………………

Suggestions for corrective actions:

……………………………………………………………………………………………………

……………………………………………………………………………………………………

……………………………………………………………………………………………………

……………………………………………………………………………………………………

Issue No.: 02 **Issue Date: Oct 2013**	**Page 2 / 2**	**Form No.: 303**

13.4 Miscellaneous Forms

13.4.1 Amendment/Question/Suggestion Form

To: Director – Flight Operations Nesma Airlines
Flight Operations Department

5 El Madina St., El Nozha El Gedida, Cairo, Egypt.
TELEFAX: + (202) 26217597

Email: sherif.elmessiri@nesmaairlines.com

From:

Name:____________________Staff No.: __________

Section:

Date:

The purpose of this form is to report any discrepancy that the Holder of this manual may come across with while reading and understanding the Operations Policy Manual. Should you find any part(s) of the Manual that would necessitate a change, kindly fill in the form below, and submit it to the Director – Flight Operations?

Document No.	Chapter	Section	Page No.

Description

____

____

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For Internal use only

Date received:____________________ Received by: ____________________

Issue No. 2 Dated Nov. 2011 Form No. 104

13.4.2 CFIT Form

CFIT Checklist

Evaluate the Risk and Take Action

Part I: CFIT Risk Assessment

Section 1 – Destination CFIT Risk Factors	Value	Score

Airport and Approach Control Capabilities:

ATC approach radar with MSAWS..	0	
ATC minimum radar vectoring charts...	0	
ATC radar only..	-10	
ATC radar coverage limited by terrain masking..	-15	
No radar coverage available (out of service/not installed)............................	-30	
No ATC service..	-30	

Expected Approach:

Airport located in or near mountainous terrain..	-20	
ILS..	0	
VOR/DME...	-15	
Nonprecision approach with the approach slope from the FAF to The airport TD shallower than 2 3/4 degrees..	-20	
NDB..	-30	
Visual night “black-hole” approach..	-30	

Runway Lighting:

Complete approach lighting system..	0	
Limited lighting system...	-30	

Controller/Pilot Language Skills:

Controllers and pilots speak different primary languages..............................	-20	
Controllers’ spoken English or ICAO phraseology poor................................	-20	
Pilots’ spoken English poor..	-20	

Departure:

No published departure procedure..	-10	

Destination CFIT Risk Factors Total (✗)

Section 2 – Risk Multiplier

Your Company's Type of Operation (select only one value): Value Score

Scheduled..	1.0	
Nonscheduled..	1.2	
Corporate..	1.3	
Charter..	1.5	
Business owner/pilot..	2.0	
Regional...	2.0	
Freight..	2.5	
Domestic..	1.0	
International...	3.0	

Departure/Arrival Airport (select single highest applicable value):

Australia/New Zealand...	1.0	
United States/Canada..	1.0	
Western Europe...	1.3	
Middle East..	1.1	
Southeast Asia...	3.0	
Euro-Asia (Eastern Europe and Commonwealth of Independent States).........................	3.0	
South America/Caribbean...	5.0	
Africa..	8.0	

Weather/Night Conditions (select only one value):

Night — no moon..	2.0	
IMC..	3.0	
Night and IMC...	5.0	

Crew (select only one value):

Single-pilot flight crew..	1.5	
Flight crew duty day at maximum and ending with a night nonprecision approach.......	1.2	
Flight crew crosses five or more time zones..	1.2	
Third day of multiple time-zone crossings...	1.2	

Add Multiplier Values to Calculate Risk Multiplier Total___
Destination CFIT Risk Factors Total ✐ Risk Multiplier Total ● CFIT Risk Factors Total ☛✗) ________

Part II: CFIT Risk-reduction Factors

Section 1 – Company Culture

Corporate/company management: **Value Score**

Places safety before schedule..	20	
CEO signs off on flight operations manual..	20	
Maintains a centralized safety function..	20	
Fosters reporting of all CFIT incidents without threat of discipline...............................	20	
Fosters communication of hazards to others..	15	
Requires standards for IFR currency and CRM training...	15	
Places no negative connotation on a diversion or missed approach................................	20	

115-130 points Tops in company culture
105-115 points Good, but not the best
*
80-105 points
Improvement needed
Less than 80 points
High CFIT risk

Company Culture Total (✱) _____

Section 2 – Flight Standards

Specific procedures are written for: **Value Score**

Reviewing approach or departure procedures charts..	10	
Reviewing significant terrain along intended approach or departure course...................	20	
Maximizing the use of ATC radar monitoring..	10	
Ensuring pilot(s) understand that ATC is using radar or radar coverage exists...............	20	
Altitude changes..	10	
Ensuring checklist is complete before initiation of approach...	10	
Abbreviated checklist for missed approach..	10	
Briefing and observing MSA circles on approach charts as part of plate review..............	10	
Checking crossing altitudes at IAF positions..	10	
Checking crossing altitudes at FAF and glideslope centering...	10	

Independent verification by PM of minimum altitude during

Step-down DME (VOR/DME or LOC/DME) approach...	20	

Requiring approach/departure procedure charts with terrain

In color, shaded contour formats..	20	
Radio-altitude setting and light-aural (below MDA) for backup on approach..................	10	
Independent charts for both pilots, with adequate lighting and holders..........................	10	
Use of 500-foot altitude call and other enhanced procedures for NPA..........................	10	

Ensuring a sterile (free from distraction) cockpit, especially during

IMC/night approach or departure..	10	

Crew rest, duty times and other considerations especially

For multiple-time-zone operation...	20	
Periodic third-party or independent audit of procedures...	10	

Route and familiarization checks for new pilots

Domestic..	10	
International...	20	
Airport familiarization aids, such as audiovisual aids..	10	

First officer to fly night or IMC approaches and the captain to

Monitor the approach..	20	

Jump-seat pilot (or engineer or mechanic) to help monitor terrain clearance

And the approach in IMC or night conditions...	20	
Insisting that you fly the way that you train..	25	

300-335 points Tops in CFIT flight standards
270-300 points Good, but not the best
*
200-270 points
Improvement needed
Less than 200 High
CFIT risk

Flight Standards Total (✱) ___

Section 3 – Hazard Awareness and Training **Value Score**

Your company reviews training with the training department or training contractor.........	10	

Your company's pilots are reviewed annually about the following:

Flight standards operating procedures..	20	
Reasons for and examples of how the procedures can detect a CFIT "trap"...............	30	
Recent and past CFIT incidents/accidents..	50	
Audiovisual aids to illustrate CFIT traps...	50	
Minimum altitude definitions for MORA, MOCA, MSA, MEA, etc..........................	15	
You have a trained flight safety officer who rides the jump seat occasionally...............	25	
You have flight safety periodicals that describe and analyze CFIT incidents................	10	
You have an incident/exceedance review and reporting program.................................	20	

Your organization investigates every instance in which minimum

Terrain clearance has been compromised..	20	
You annually practice recoveries from terrain with GPWS in the simulator..................	40	
You train the way that you fly..	25	

285-315 points Tops in CFIT training
250-285 points Good, but not the best
*
190-250 points
Improvement needed
Less than 190 High
CFIT risk

Hazard Awareness and Training Total (✱) ____

Section 4 – Aircraft Equipment

Aircraft includes: **Value Score**

	Value	Score
Radio altimeter with cockpit display of full 2,500-foot range — captain only...............	20	
Radio altimeter with cockpit display of full 2,500-foot range — copilot.......................	10	
First-generation GPWS..	20	
Second-generation GPWS or better..	30	

GPWS with all approved modifications, data tables and service

Bulletins to reduce false warnings..	10	
Navigation display and FMS...	10	
Limited number of automated altitude callouts..	10	

Radio-altitude automated callouts for nonprecision

Approach (not heard on ILS approach) and procedure..	10	

Preselected radio altitudes to provide automated callouts that

Would not be heard during normal nonprecision approach..	10	

Barometric altitudes and radio altitudes to give automated

"Decision" or "minimums" callouts..	10	
An automated excessive "bank angle" callout..	10	
Auto flight/vertical speed mode..	-10	
Auto flight/vertical speed mode with no GPWS..	-20	

GPS or other long-range navigation equipment to supplement

NDB-only approach...	15	
Terrain-navigation display...	20	
Ground-mapping radar..	10	

175-195 points Excellent equipment to minimize CFIT risk

155-175 points Good, but not the best

*

115-155 points
Improvement needed
Less than 115 High
CFIT risk

Aircraft Equipment Total ( ) _

Company Culture__________________ Flight Standards__________ Hazard Awareness and Training ______________________

Aircraft Equipment_________________ ● CFIT **Risk-reduction Factors Total ( ) _**

*** If any section in Part II scores less than "Good," a thorough review is warranted of that aspect of the company's operation.**

Part III: Your CFIT Risk

Part I CFIT Risk Factors Total ______________ **Part II CFIT Risk-reduction Factors Total**

____

● CFIT **Risk Score** _______________

A negative CFIT Risk Score indicates a significant threat; review the sections in Part II and determine what changes and improvements can be made to reduce CFIT risk.

Performance Engineering

Chapter 14

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Table of Content

Chapter 14 Performance Engineering

14.1 Scope

Performance engineering department is primarily responsible for all technical matters of Nesma Airlines' fleet or for Aircraft performance. A performance engineer shall carry out calculations to provide technical support to the Flight Operations department, perform route study and ensure compliance with regulatory requirements.

Performance engineering office shall also be involved in evaluating new aircraft systems and modifications and define their operational impact in order to have adequate information and to ensure safe operations.

They also customize the Electronic Checklist and the Standard Operating Procedures (SOP) in coordination with the technical pilots and ensuring it is in accordance with manufacturer recommendations and Nesma Airlines requirements.

14.2 Acronyms

AEO	All Engine Operations
OEI	One Engine Inoperative
OCTOPUS	Operational and Certified Take-off and Landing Performance Universal Software
PEP	Performance Engineer's Program
PPM	Performance Program Manual
VMBE	Maximum Brake Energy Speed
MCDL	Master Configuration Deviation List

14.3 Performance Engineering Terminology

Fly Smart with Airbus: Airbus application for a class of Type A EFB applications. Refer to 8.12 Electronic Flight Bag (EFB) for more information.

OCTOPUS: Operational and Certified Take-off and landing Performance Universal Software. This program enables to compute performance under regulatory constraints for a given aircraft and to optimize takeoff and landing performance for given runways. It is sometimes referred to as the low speed database.

PEP: Performance Engineering Program. The official performance application of Airbus, it contains the performance database of Nesma Airlines' fleet as stated in the AFM PERF-OCTO. PEP implements OCTOPUS inside its modules.

PPM: Performance Program Manuals. The official set of documents provided by Airbus that contain instructions on how to use the PEP, its modules and operational procedures.

PAAdmin: Performance Application Administrator. This tool manages the packaging of the performance database into Fly Smart with Airbus readable format.

Airport Manager: a sub-module part of PEP that enable the reading or modifying of the airport database.

14.4 Performance Database Control

Aircraft performance database is provided exclusively from the manufacturer. It is documented in the AFM PERF-OCTO from the manufacturer side and it clarifies the appropriate scope of operations that the performance database fits in.
For Nesma Airlines Airbus fleet, the performance database is provided through Airbus electronic service and the "Airbus World" portal. The control procedures for the management and update of the performance database is as follows:

1. Airbus notifies Nesma Airlines' administrator of the new update of the performance database. The update includes the list of modifications and bugs resolved.
2. Nesma Airlines' administrator notifies the performance engineer and OCC manager of the new update (NB: concerned personnel receive notification email from Airbus of the new update).
3. The new update is installed.
4. Fly Smart database is updated according to 8.12.6 EFB Processes

Once a new database is provided, all performance calculations should be based on the latest update.
The performance database contains data about the fleet of Nesma Airlines. Prior to computation, an aircraft of interest shall be selected from the aircraft selection zone inside each module of the performance application.

14.5 Airport Manager

This tool has been designed as part of PEP or WINDOWS independent tool devoted to airport and runway data creation and storage.
All data provided through the AIRPORT MANAGER are usable in the TLO (Takeoff and Landing Optimization) and OFP (Operational Flight Path) PEP for WINDOWS components.
Airport Manager has a graphical user interface that allows the sorting, classification, storage and creation of airport data.
The Airport Manager application allows the importing of airport data files in different formats that include ASCII, XML, SITA, ICAO and IATA formats. Normal airport data are extracted either from Airport Information Publication (AIP) or through suppliers of airport data.
The normal airport data include TODA, TORA, ASDA, slope, magnetic heading and variation, runway slope, list of obstacles affecting the runway and their respective distances.
It also allows the modification of the airport/runway data and the addition of comments that shall appear in the generated documents (i.e. RTOW charts).
Functions of the Airport Manager include:

- Importing/Exporting airport data
- Modification of current data
- Creation of datasets and grouping of airports
- Filter views and sort airports

Reference Document: PPM-The Airport Manager

14.6 Flight Manual (FM)

This represents the aircraft performance database. The aircraft performance database provides the performance data applicable to an aircraft model.
This program enables to compute performance under regulatory constraints for a given aircraft and to optimize takeoff and landing performance for given runways. OCTOPUS is used for computations related to Airbus Fly by Wire aircraft and is an aircraft specific tool.
This database comes with the in-flight failure data file for landing and MCDL performance penalties.
The FM module is based on the OCTOPUS software. Version control of the OCTOPUS database is found in the AFM-PERF-OCTO.

14.6.1 Introduction

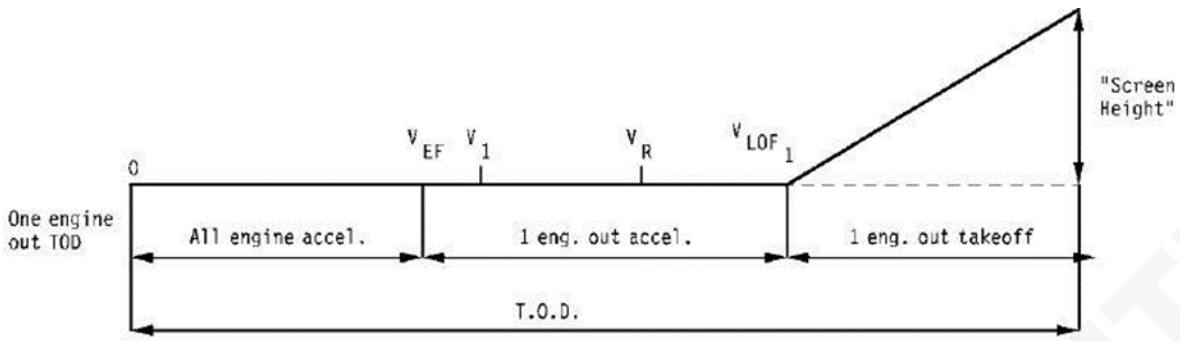
FM Module is used to obtain regulatory and operational aircraft performance. These data used to be presented in the Aircraft Flight Manual (AFM). The OCTOPUS FM module enables you to compute various regulatory data such as TOD, TOR, speeds (V1, V2), takeoff gradients, airspeed calibration, etc.

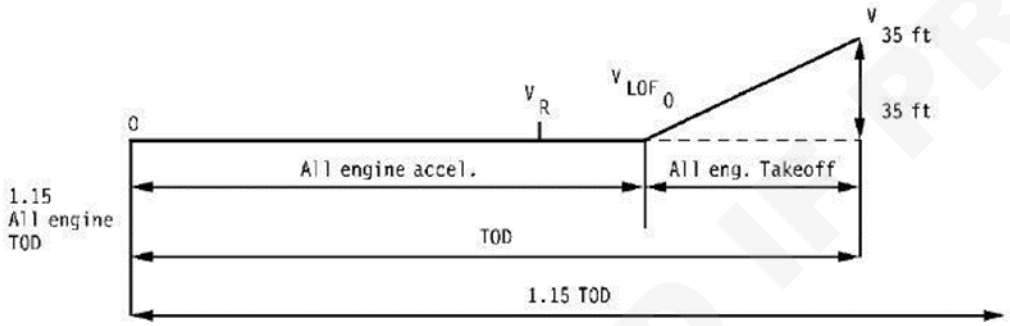
14.6.2 FM Modules

14.6.2.1 TOD Calculation

This module gives the takeoff distance at specific atmospheric conditions and engine status. The administrator can also select a range for speed ratios (V1/VR) and (V2/VS).
The takeoff distance (TOD) is the distance between brake release and the point where the regulatory 35ft height, (15ft height in case of wet or contaminated runway) is reached.
The regulations dictate that TOD should be the maximum of calculated TOD in case one engine inoperative and the distance when all engines are operative multiplied by 1.15.

$$TOD = max\{TOD_{OEI}, 1.15\, TOD_{AEO}\}$$





Input Data:

- Bleed status (Anti-ice, Air conditioning)
- Takeoff configuration
- Center of gravity (if applicable)
- Engine option (Always TOGA for certified limitation)
- Runway conditions (runway state, slope, width)
- Applicable CDL items
- Takeoff weight
- Atmospheric conditions (OAT, wind)
- Speed ratios (V1/VR) and (V2/VS)
- Pressure altitude

Outputs:

- TOD (OEI, 1.15 AEO)
- Speeds (V1, VR, V2, VLF) CAS and IAS
- EPR

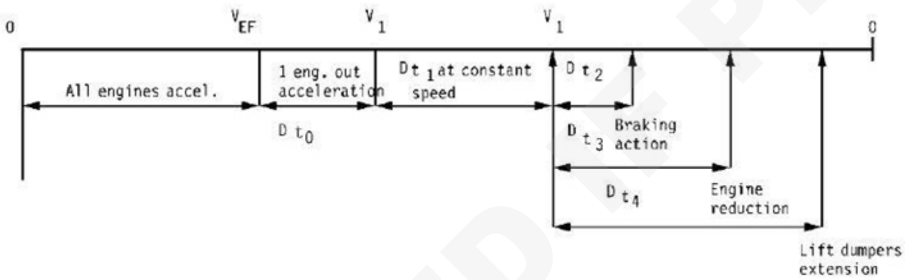
14.6.2.2 TOR Calculation

This module gives the takeoff run at specific atmospheric conditions and engine status. The administrator can also select a range for speed ratios (V1/VR) and (V2/VS).
The TOR is the distance between brake release and middle of takeoff segment (on dry runways).
Inputs & outputs: The same as TOD calculation except TOR distance as output instead of TOD.

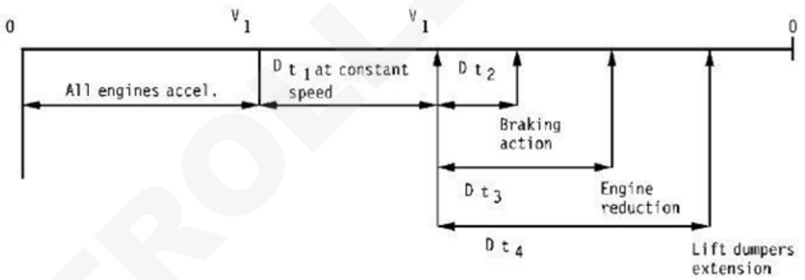
14.6.2.3 ASD Calculation

This module gives the accelerate stop distance at specific atmospheric conditions and engine status. The administrator can also select a range for speed ratios (V1/VR) and (V2/VS).
It is calculated in cases of two engines operative and one engine inoperative. Since these two cases are governed by special time sequences, the most limiting distance is considered. The user can also calculate the ASD with V1 limited by VMBE.

One engine out ASD



All engines ASD



Input Data:

- Same as TOD & TOR
- Credit for reversers (All reversers operative, all reversers inoperative, one inside reverser inoperative, one outside reverser inoperative)
- Anti-skid status (on, off, partially off)
- Brakes (operative, one brake inoperative, two brakes inoperative)
- Tachometer status (operative, 1 tachometer inoperative)
- Spoilers (operative, inoperative, one pair inoperative, two pairs inoperative)
- Ground idle (No, Yes)

Output Data:

- Same as TOD calculation except ASD instead of TOD
- Brake Energy for AEO and OEI

14.6.2.4 First Segment Gradient

The takeoff first segment is the segment between liftoff and the point at which V2 is achieved. During the first segment, operating engines are at takeoff thrust, the flaps/slats are in takeoff configuration and landing gear retraction is initiated once safely airborne with positive climb. The first segment ends when the landing gear is fully retracted.
The minimum landing gradient for Airbus twin-engine aircraft is 0.0 % and 0.5 % for the quad-engine aircraft.

Input Data:

- Same as TOD & TOR
- Engine anti-ice valve blocked open (Yes, No)
- CDL items
- Type of gradient computation (gradient calculation, weight calculation)

Output Data:

- Weight (it is either user defined or computed depending on the type of gradient computation selected in the input)
- 1st segment (it is also user defined or computed)
- VLOF (lift off speed)
- V2/VS (ratio between V2 and VS)

14.6.2.5 Second Segment Gradient:

It begins when the landing gear is fully retracted. Engines are at takeoff thrust and the flaps/slats are in the takeoff configuration. This segment ends at the higher of 400' or specified acceleration altitude. In most cases, the second segment is the performance-limiting segment of the climb.
Its input data are the same like the data used in the first gradient computation with some specific inputs that are needed in the second gradient computation.
The minimum regulatory gradient for twin engine aircraft is 2.4 % and 3.0 % for quad engine aircraft.

Input Data:

- Same as First Segment Gradient
- Landing gear status (extended, retracted)
- Dispatch in derated mode
- Type of gradient computation
- Calculation Option (Normal, Regulatory Values)

Output Data:

- Weight (as in first gradient output)
- 2nd segment gradient (as in first gradient output)
- Weight for minimum regulatory gradient (only of Regulatory Values is selected in the calculation options)
- Regulatory second segment (only of Regulatory Values is selected in the calculation options)
- Regulatory indicated/calibrated speeds: speeds corresponding to minimum regulatory minimum gradient (only of Regulatory Values is selected in the calculation options)

14.6.2.6 Complete Takeoff

This function groups all previous functions: calculation of TOR, TOD, ASD, first segment gradient and second segment gradient.
It combines all the inputs and outputs of all the previous functions. List of inputs and outputs are stated in the following tables.

Input Table:

Parameter	Options
Aircraft/runway tab	
Air conditioning	ON/OFF
Anti-ice	OFF/Engine Only/Engine + Wing
Takeoff configuration	CONF 1+F/CONF 2/CONF 3
CG Position	Basic/Extended Forward
Engine Option	TOGA
Runway Condition	Dry/Wet/Slush/Water/Compact Snow/Ice
Runway Slope/Width	
Special Cases	
Reversers credit	All reversers inoperative All reversers operating One reverser inoperative
Anti-Skid	On Totally Off Partially Off
Braking Failed	0 Brake inoperative 1 Brake inoperative
Auto brake	OFF
Flight with landing gear extended	Yes No
Spoilers	All spoilers operating All spoilers inoperative 1 pair inoperative 2 pairs inoperative
Ground idle failed	Yes No
Eng A-ice valve blocked open	No

	Yes
Tachometer Failure	No Yes
Dispatch in rated N1 mode	No Yes
CDL Items	
ATA21-01 Ram air inlet flap	
ATA21-01 Ram air inlet flap (MOD 26363)	
ATA21-02 Ram air outlet flap	
Calculation Data 1	
V1 speeds	V1/VR ratio/CAS/IAS
V2 speeds	V2/Vs ratio/CAS/IAS
Weight	Used only if not selected as a calculation type
Wind	Headwind or Tailwind
Cross wind	
Pressure altitude	
Temperature	

Output Data:

Label	Description
TOD OEI	TOD One Engine Inoperative
1.15 TOD AEO	1.15 TOD All Engine Operative
TOR OEI	TOR One Engine Inoperative
1.15 TOR AEO	1.15 TOR All Engine Operative
ASD OEI	ASD One Engine Inoperative
ASD AEO	ASD All Engine Operative
BRK ENER AEO	Braking energy ratio all engine operative
BRK ENER OEI	Braking energy ratio one engine out
V1 CAS and V1 IAS	V1 in CAS and in IAS
VR CAS and VR IAS	VR in CAS and in IAS
VLOF0 CAS and VLOF0 IAS	Lift-off speed all engine operative in CAS and in IAS
VLOF1 CAS and VLOF1 IAS	Lift-off speed one engine out in CAS and in IAS
V2 CAS and V2 IAS	
1ST SEG GRAD	First segment gradient
2ND SEG GRAD	Second segment gradient

14.6.2.7 Final Takeoff Gradient

This parameter is calculated in en-route configuration (landing gear retracted, slats and flaps configuration clean), maximum continuous engine rating, and one engine out. The minimum gradient for twin-engine aircraft is 1.2% and 1.7% for quad-engine aircraft.

Input Data:

- Same as Complete Takeoff
- Green dot speed is added as an option in the speed tab
- Calculation option (weight based or gradient based)

Output Data:

- Weight corresponding to user input or calculated based on the required gradient
- FTG: Final Takeoff Gradient, it is either calculated or inputted by user
- W REGUL FTG: Weight for minimum regulatory final takeoff gradient if calculation option "Regulatory values given" is chosen
- REGUL FTG: Minimum regulatory final takeoff gradient if calculation option "Regulatory values given" is chosen
- REG SP (CAS/IAS): Speed (IAS) corresponding to the user defined weight with regular minimum final takeoff gradient

14.6.2.8 Approach Climb Gradient

Gradient in approach configuration, landing gear retracted one engine is wind milling (inoperative), engine at go-around thrust. Normally, the approach flaps configuration is 1 degree below the landing configuration. Minimum gradient is 2.1 % for twin-engine aircraft and 2.7% for quad engine aircraft.

Input Data:

Parameter	Options
Aircraft/runway tab	
Air conditioning	ON/OFF
Anti-ice	OFF/Engine Only/Engine + Wing
Configuration	CONF 1+F/CONF 2/CONF 3
CG Position	Basic/Extended Forward
Engine Option	TOGA
Runway Condition	Dry/Wet/Slush/Water/Compact Snow/Ice
Ice Accretion	Yes/No
Runway Slope/Width	
Special Cases	
Flight with landing gear extended	• Yes • No
Eng A-ice valve blocked open	• No • Yes
Dispatch in rated N1 mode	• No • Yes
CDL Items	
ATA21-01 Ram air inlet flap	
ATA21-01 Ram air inlet flap (MOD 26363)	
ATA21-02 Ram air outlet flap	

Calculation Data 1	
Gradient type	Weight or gradient based
Gradient option	Normal/Regulatory
Approach Type	Normal/CAT II

Output Data:

Label	Description
Weight	Input or calculated based on gradient
ACG	Approach climb gradient defined by user
W REGUL ACG	weight for minimum regulatory approach climb gradient
REGUL ACG	minimum regulatory approach climb gradient
SPEED (CAS/IAS)	User defined speed
REGUL SP (CAS/IAS)	Speed corresponding to the computed weight and regular approach climb gradient

14.6.2.9 Landing Climb Gradient

Gradient in landing configuration, landing gear extended, all engines operating and with go around thrust available 8 seconds after Go-Around. The minimum landing climb gradient is 3.2%.

The objective of this constraint is to ensure aircraft climb capability in case of a missed approach with all engines operating. For Airbus Fly by Wire aircraft, the available landing configurations are CONF 3 and FULL.

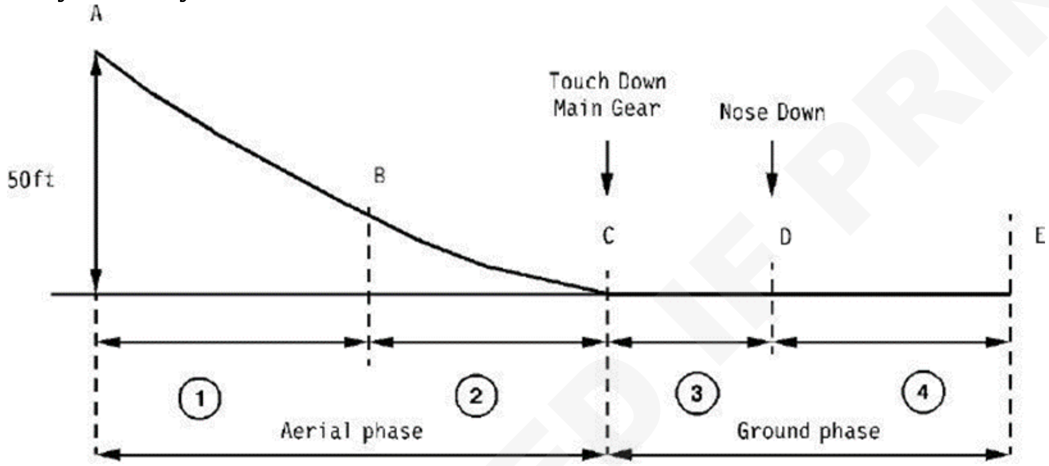
For all Airbus aircraft, this constraint is covered by the approach climb requirement. In its operational documentation (FCOM), Airbus publishes the maximum weight limited by the approach climb gradient only. Landing climb performance should be calculated from the landing climb gradient module inside the FM.

Input and output data of the landing climb gradient are the same as the approach climb gradient except that landing gradient is defined instead of the approach gradient.

14.6.2.10 Required Landing Distance (RLD)

The RLD is based on certified landing performance also known as Actual Landing Distance (ALD), is introduced to assist operators in defining the minimum distance required at destination, and allow flight dispatch.
Before departure, operators must check that the Landing Distance Available (LDA) at destination is at least equal to the Required Landing Distance (RLD) for the forecasted landing weight and conditions.
The landing distance consists of two phases: air phase and ground phase. The calculation basis for these two phases depends on the runway state:

- **Dry Runway:**



The aircraft's landing weight must permit landing within 60% of the Landing Distance Available at both the destination and any alternate airport.

This would give for a dry runway:

$$RLD_{Dry} = ALD/0.6 \leq LDA$$

- **Contaminated Runway:**
  If the surface is contaminated, the required landing distance must be at least the greater of the required landing distance on a wet runway and 115% of the landing distance determined in accordance with approved contaminated landing distance data.

Input Data:

Parameter	Options
Aircraft/runway tab	
Runway Condition	Dry/Wet/Slush/Snow/Ice
Configuration	CONF FULL/CONF 3
CG Position	Basic/Extended Forward
Special Cases	
Reversers credit	• All reversers inoperative • All reversers operating • One reverser inoperative
Anti-Skid	• On • Totally Off Partially Off
Braking Failed	• Brake inoperative • Brake inoperative
Spoilers	• All spoilers operating • All spoilers inoperative • pair inoperative • 2 pairs inoperative
Ground idle failed	• Yes • No
Tachometer Failure	• No • Yes
CDL Items	
ATA21-01 Ram air inlet flap	
ATA21-01 Ram air inlet flap (MOD 26363)	
ATA21-02 Ram air outlet flap	
Calculation Data 1	
K(V/VS)	
D V (CAS)	

Output Data:

Label	Description
LD	Landing Distance
REGUL COEF	Value of regulatory coefficient
REQUIRED LD	Required landing distance
VFA CAS/IAS	V Final Approach in CAS/IAS
BRK ENER AEO	Braking energy ratio, all engine operative

14.6.2.11 Operational Landing Distance

The Operational Landing Distance calculation mode enables to compute the advisory landing distances to be used by the flight crew for in-flight landing distance assessment.

Input Data:

Parameter	Options
Aircraft/runway tab	
Runway state	Dry/Wet/Slush/Snow/Ice
Reported Braking Action	6-Dry/5-Good/4-Good To Medium/3-Medium/2-Medium To Poor/1-Poor
Runway Slope	User input
Configuration	CONF FULL/CONF 3
CG Position	Basic/Extended Forward
Landing Technique	Manual A/Throttle On Manual A/Throttle Off Autoland (ILS Glide)
Special Cases	
Reversers credit	• All reversers inoperative • All reversers operating • One reverser inoperative
Anti-Skid	• On • Totally Off Partially Off
Braking Failed	• Brake inoperative • Brake inoperative
Spoilers	• All spoilers operating • All spoilers inoperative • pair inoperative • 2 pairs inoperative
Ground idle failed	• Yes No
Tachometer Failure	• No • Yes

CDL Items	
ATA21-01 Ram air inlet flap	
ATA21-01 Ram air inlet flap (MOD 26363)	
ATA21-02 Ram air outlet flap	
Calculation Data 1	
Speed type	FMS Speeds
Additional D V (CAS)	User input
Braking Mode	Low/Med/Max Pedal
Weight	User input
Over Weight Landing	
Temperature	User input
Ice Accretion	
Wind	User input
Pressure Altitude	User input
Landing Distance Factor	User input (1.15 default)
Aerial Phase Type	Fixed/Calculated
MOD25225	If applicable on A320 aircraft

Output Data:

Label	Description
AIRBORNE DIST	Airborne distance
GROUND DIST	Ground distance
OLD	Operational landing distance = airborne distance + ground distance
FACTORED OLD	OLD multiplied by the LD Factor
VAPP CAS/IAS	VAPP in CAS/IAS
BRK ENER AEO	Braking energy ratio, all engine operative
VLS CAS	Lowest Selectable speed
VREF CAS	Reference Speed (VLS in CONF FULL)
DELTA VREF	Speed increment due to a failure
APPR COR	Speed increment due to the wind, auto-thrust and ice accretion
DV WIND	Speed increment due to the wind
DV A/THR	Speed increment due to the auto-thrust use
DV ICE ACCR	Speed increment due to ice accretion
DV CDL	Speed increment due to a CDL item
DV ADDITIONAL	Additional speed increment
LD REF	Appearing only in the case of in-flight failure, it corresponds to the OLD without the failure in CONF FULL
FAILURE COEF	OLD divided by LDREF
ROW LDG DIST	“Runway Overrun Warning” Landing Distance

If the in-flight failure is selected, atop of this these additional parameters linked to the in-flight failure are provided:

- Flap lever position for landing
- Number of spoilers inoperative
- Numbers of ailerons inoperative
- Body gears brakes status
- Wing gears brakes status
- Number of thrust reversers inoperative
- Flap/Slat status

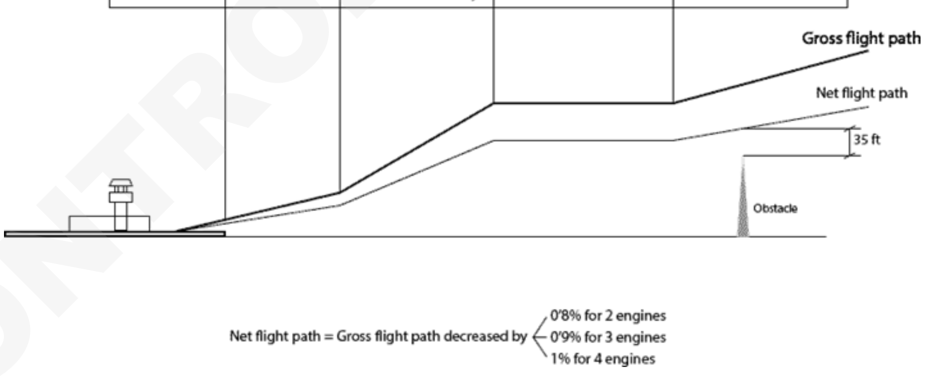
14.6.2.12 Takeoff Flight Path (TOFP)

It starts with brake release and takes place at maximum takeoff engine rating. It includes four phases:

1. First phase: TOD calculation until screen height. This phase is calculated at maximum takeoff thrust.
2. Second phase: or the takeoff first segment. It starts at screen height and it is the landing gear retraction phase. It is calculated at constant weight (TO weight) and constant speed (V2).
3. Third phase: or the takeoff second segment. It starts immediately after gear retraction and it is conditioned by maximum time of maximum takeoff rating use.
4. Fourth phase: an acceleration to level-off phase. In this phase, flaps and slats are retracted. The final speed depends on the weight and altitude and is established through the FM module. This third segment gradient should remain above 1.2 % for twin-engine aircraft and 1.7 % for four-engine aircraft.

The takeoff flight path is calculated taking into account possible deviations from the ideal due to circumstances such as weather, wind, and below average engine performance.
The below figure and table shows typical aircraft performance for the takeoff path.

	Segment 1	Segment 2	Segment 3	Segment 4
START	35 ft	L/G RETRACTED	ACC. ALTITUDE ≥400 ft over runway	CLEAN
THRUST	TOGA	TOGA	TOGA	M.C.T.
SPEED	V2	V2	ACCELERATION	VCLEAN
LANDING GEAR	DOWN	UP	UP	UP
FLAPS	T.O.	T.O.	RETRACTING	RETRACTED
GRADIENT	2 engines > 0.0% 3 engines > 0.3% 4 engines > 0.5%	2 engines > 2.4% 3 engines > 2.7% 4 engines > 3.0%		2 engines > 1.2% 3 engines > 1.5% 4 engines > 1.7%
END	L/G Retracted	ACC ALTITUDE ≥400 ft over runway	Clean	≥1500 ft over runway



Input Data:

Parameter	Options
Aircraft/runway tab	
Runway state	Dry/Wet/Slush/Snow/Ice
Air conditioning	On/Off
Anti-ice	On/Off
Runway Slope	User input
Runway Width	User input
Configuration	CONF 1+F/CONF 2/CONF 3
Engine Option	TOGA
CG Position	Basic/Extended Forward
Special Cases	
Flight with Landing gear extended	Yes/No
Engine Anti-ice valve blocked open	Yes/No
Hydraulic pump failure	Yes/No
Dispatch in N1 rated mode	Yes/No
CDL Items	
ATA21-01 Ram air inlet flap	
ATA21-01 Ram air inlet flap (MOD 26363)	
ATA21-02 Ram air outlet flap	
Calculation Data 1	
V1 type	V1/VR ratio/IAS/CAS
V2 type	V2/VS ratio/IAS/CAS/V2min
TOFP option	Weight at brake release/Second segment gradient

Weight	User input
Temperature	User input
Wind	User input
Cross wind	User input
Pressure Altitude	User input
FTO Check[2]	Yes/No
Extended Second Segment	Yes/No
Turn[3]	Yes/No

Output Data:

Label	Description
WEIGHT AT BRAKE RELEASE	
SECOND SEGMENT GRADIENT	
V2 / VS VALUE	
N1 or EPR or THR	Power management parameter value
FINAL TAKE-OFF	Final takeoff gradient
OPT. FTO V/VS	Optimum V/Vs ratio for FTO calculation
X	Longitudinal net path coordinates from brake release up to regulatory time
Y	Lateral net path coordinates from brake release up to regulatory time
TIME	Time for net path coordinates from brake release up to regulatory time
HEIGHT	Net path height from end of TOD up to regulatory time
BANK ANGLE	

[2] where the "FTO check" option is set to YES, the level-off height can be decreased in order to respect the regulatory final takeoff gradient when needed (in this case, the flight path is ended before the maximum takeoff thrust time). This reduction can be performed up to the regulatory height of 1500 ft.

[3] If turn is selected, new inputs are required like the radius of turn and bank angle. These values shall be determined by the user.

14.6.2.13 Stalling Speed

This module calculates the stalling speed given certain conditions.

Input Data:

Parameter	Options
VS Data	
Context	Takeoff/Landing/Flight
Gears	Up/Down
Configuration	CONF 0/CONF 1/CONF 1+F/CONF 2/CONF 3/CONF FULL
CG Position	Basic/Extended Forward
CDL Items	
ATA21-01 Ram air inlet flap	
ATA21-01 Ram air inlet flap (MOD 26363)	
ATA21-02 Ram air outlet flap	

Output Data:

Label	Description
VS CAS	Calibrated Stall speed

14.7 Takeoff and Landing Optimizations (TLO)

For performance purposes, all Nesma Airlines aircraft are Class A (multi-engines turbojet powered aircraft with a maximum passenger configuration of more than 9 and a maximum take-off weight exceeding 5700 kg).

Nesma Airlines should ensure data or products (Such data or products typically include GPWS terrain and obstacle databases, airport analysis data, weight/mass and balance data and performance data) purchased or otherwise acquired from an external vendor or supplier meet the product technical requirements specified by Nesma Airlines prior to being used in the conduct of operations. Otherwise letter of conformity/acceptance from the original equipment manufacturer and/or the applicable state is being satisfactory, in order to ensure currency, accuracy, and completion of such data.

Performance limitations are defined as per Aircraft Flight Manual (AFM) and as illustrated in 14.6 Flight Manual (FM). Nesma Airlines bears the responsibility of completely respecting the certified limits of its aircraft and abiding by the respective regulations regarding safe takeoff and landing. In normal operations, tailored airport calculations shall be used. In emergencies where tailored data are not available, limitations established in the AFM LIM and performance data established in FCOM PERF may be used.

14.7.1 Takeoff Optimization

This module provides the regulatory takeoff weight for a specific airport. This step is a mandatory step in cockpit preparation. Pilots should have quick access to maximum allowable takeoff weight and associated speeds.

The paper that contains this information is called the Regulatory Takeoff Weight charts (RTOW chart). The charts must be generated for each runway heading, and can be produced for different takeoff conditions at the convenience of the applicant (temperature, wind, QNH, flap setting, runway status, and inoperative items).

All RTOW calculations are regulatory calculations, i.e. they are based upon the assumption of critical engine failure and net flight path as defined in the regulations.

The RTOW chart provides the following information:

- Maximum takeoff weight
- Flexible Temperature (if applicable)
- Takeoff speeds (V1, V2, VR)
- Associated Limitation
- Minimum and maximum acceleration height

Instructions on how to use the temperature-based RTOW charts are provided in the FCOM PER-TOF-TOC-10.

The takeoff chart calculations need the airport data that shall be provided from the airport manager. In all cases, the takeoff performance shall be defined per specific runway and airport given the atmospheric conditions, pressure altitude, wind corrections, runway state (dry, wet, snow, etc.) and/or other limitations defined by the manufacturer.

Performance calculations shall take into account the runway limitations and respective aircraft performance. Takeoff shall be proven safe and complying with regulations and standard procedures before actual dispatch.

Takeoff weight optimization takes into account the effect of TODA, TORA, ASDA, runway slope, runway conditions (dry, wet, slush, etc) and surrounding obstacles.

In many cases, Nesma Airlines takeoffs use engine reduced thrust when the actual takeoff weight is lower than the maximum takeoff weight and in accordance with engines' certified limits established in the AFM.

Engine reduced thrust can be carried out through Flexible Temperature or Engine Derate. Flexible temperature is a temperature that reduces engine maximum takeoff thrust to increase engine life and reliability. Flexible takeoff is permitted on dry and wet runways while it is not allowed on contaminated runways.

Input Data:

Parameter	Options
Calculation Options	
V1/VR	Full range/custom range
V2/Vs1g	Full range/custom range
Calculation Mode	Polynomial method/First principle
Output	Standard/Detailed
Alignment Allowance	User input (loss of runway length due to aircraft alignment prior to takeoff)
All Engine Climb Gradient	On/Off
Dry Check	On/Off (used to ensure the highest of wet/dry calculation is taken into account)
Performance Modifications	User input
Minimum level-off height	User input
Extended second segment	On/Off
Turn	On/Off (on opens new dialog for turn angle)
Check Minimum Gradient	On/Off
Runway	
Selection of runway from airport manager	
Chart Data	
Line Parameter	Temperature/Weight
Column Parameter	Takeoff configuration/Wind speed[4]
Influence parameters	Runway state/Pressure Altitude/Air conditioning
Common Parameters	Takeoff thrust/Anti-ice/Air conditioning

Output Data:

Label	Description
Takeoff Weight	
Takeoff Speeds	V1/VR/V2
Flex Temperature	If applicable
Limitation code	Codes for the most limiting parameters (TORA, Obstacles, 2nd segment gradient, etc)
V2/VS	V2 to stall speed ratio

For Nesma Airlines' operations, all the takeoff related calculations are carried out through the EFB takeoff performance module as controlled and documented in 8.12 Electronic Flight Bag (EFB).

14.7.2 All Engine Climb Gradient (AECG)

In normal operations, the aircraft takes off with all engine operating. In that case, it should be able to adhere to the required climb characteristics (i.e. SID gradient) required by the authorities. The all engine climb performance shows the gradients the aircraft is able to achieve when all its engines are operating at specific temperature, pressure altitude and takeoff weights. All engine climb performance measures the ability of the aircraft to clear distant obstacles in normal flight conditions.

[4] As per Nesma Airlines policy, the column parameter shall be the takeoff configuration and wind speed. Although, many other parameters exist.

AECG GENERIC TABLE

A320-232 - AE232C01	35.0.0 25-Nov-17	TOGA
AIR COND. On Anti-icing Off Thr Red / Acc Height = 1500 FT / 1500 FT Acceleration to 250 KT		Valid for airports from -1000 to 3000 ft

All engines climb gradient (%) - Airport Pressure altitude = -1000 ft

WEIGHT 1000 KG	ISA deviation (DEG C)														
	ISA-15			ISA-10			ISA-5			ISA			ISA+5		
	V2+10	MIN Gra	10000ft	V2+10	MIN Gra	10000ft	V2+10	MIN Gra	10000ft	V2+10	MIN Gra	10000ft	V2+10	MIN Gra	10000ft
50	30.77%	11.73%	15.25%	30.78%	11.74%	15.24%	30.79%	11.74%	15.23%	30.80%	11.74%	15.22%	30.81%	11.74%	15.21%
53	----	----	----	28.12%	10.89%	14.20%	28.13%	10.89%	14.19%	28.13%	10.89%	14.18%	28.14%	10.89%	14.17%
56	25.78%	10.11%	13.26%	25.79%	10.12%	13.26%	25.79%	10.12%	13.25%	25.80%	10.12%	13.24%	25.81%	10.12%	13.23%
59	23.71%	9.42%	12.41%	23.71%	9.43%	12.41%	23.72%	9.43%	12.40%	23.72%	9.43%	12.39%	23.72%	9.43%	12.39%
62	21.86%	8.80%	11.64%	21.86%	8.80%	11.63%	21.87%	8.81%	11.63%	21.87%	8.81%	11.62%	21.87%	8.81%	11.61%
65	20.21%	8.22%	10.93%	20.21%	8.22%	10.92%	20.21%	8.22%	10.92%	20.21%	8.22%	10.91%	20.22%	8.22%	10.90%
68	18.71%	7.69%	10.28%	18.72%	7.69%	10.27%	18.72%	7.69%	10.26%	18.72%	7.69%	10.26%	18.72%	7.69%	10.25%
70	17.80%	7.35%	9.87%	17.80%	7.36%	9.86%	17.80%	7.36%	9.85%	17.80%	7.36%	9.85%	17.80%	7.36%	9.84%
72	16.93%	7.04%	9.48%	16.94%	7.04%	9.47%	16.94%	7.04%	9.47%	16.94%	7.04%	9.46%	16.94%	7.04%	9.46%
74	16.12%	6.74%	9.11%	16.13%	6.74%	9.10%	----	----	----	16.13%	6.74%	9.09%	16.13%	6.74%	9.09%
76	15.36%	6.45%	8.76%	15.36%	6.45%	8.75%	15.36%	6.45%	8.74%	15.36%	6.45%	8.74%	15.36%	6.45%	8.73%
77	14.99%	6.30%	8.58%	14.99%	6.30%	8.58%	14.99%	6.31%	8.57%	14.99%	6.31%	8.56%	14.99%	6.31%	8.56%

Gradient correction per 1000 ft of Airport Pressure altitude

WEIGHT 1000 KG	ISA deviation (DEG C)														
	ISA-15			ISA-10			ISA-5			ISA			ISA+5		
	V2+10	MIN Gra	10000ft	V2+10	MIN Gra	10000ft	V2+10	MIN Gra	10000ft	V2+10	MIN Gra	10000ft	V2+10	MIN Gra	10000ft
50	-0.51%	-0.32%	-0.55%	-0.51%	-0.32%	-0.55%	-0.50%	-0.33%	-0.55%	-0.51%	-0.33%	-0.55%	-0.51%	-0.33%	-0.55%
53	----	----	----	-0.48%	-0.31%	-0.52%	-0.48%	-0.31%	-0.52%	-0.49%	-0.31%	-0.52%	-0.49%	-0.31%	-0.52%
56	-0.45%	-0.29%	-0.49%	-0.45%	-0.29%	-0.49%	-0.45%	-0.29%	-0.49%	-0.45%	-0.29%	-0.49%	-0.45%	-0.29%	-0.49%
59	-0.43%	-0.27%	-0.46%	-0.43%	-0.27%	-0.46%	-0.43%	-0.27%	-0.46%	-0.43%	-0.27%	-0.46%	-0.43%	-0.27%	-0.46%
62	-0.40%	-0.26%	-0.44%	-0.40%	-0.26%	-0.44%	-0.40%	-0.26%	-0.44%	-0.40%	-0.26%	-0.44%	-0.40%	-0.26%	-0.44%
65	-0.38%	-0.24%	-0.42%	-0.38%	-0.24%	-0.42%	-0.38%	-0.24%	-0.42%	-0.38%	-0.24%	-0.42%	-0.38%	-0.24%	-0.42%
68	-0.36%	-0.23%	-0.40%	-0.36%	-0.23%	-0.40%	-0.36%	-0.23%	-0.40%	-0.36%	-0.23%	-0.40%	-0.36%	-0.23%	-0.40%
70	-0.35%	-0.22%	-0.39%	-0.35%	-0.22%	-0.39%	-0.35%	-0.22%	-0.39%	-0.35%	-0.22%	-0.39%	-0.35%	-0.22%	-0.39%
72	-0.34%	-0.22%	-0.38%	-0.34%	-0.22%	-0.38%	-0.34%	-0.22%	-0.38%	-0.34%	-0.22%	-0.38%	-0.34%	-0.22%	-0.38%
74	-0.33%	-0.21%	-0.37%	-0.33%	-0.21%	-0.37%	----	----	----	-0.33%	-0.21%	-0.37%	-0.33%	-0.21%	-0.37%
76	-0.32%	-0.21%	-0.36%	-0.32%	-0.21%	-0.36%	-0.32%	-0.21%	-0.36%	-0.32%	-0.21%	-0.36%	-0.32%	-0.21%	-0.36%
77	-0.32%	-0.21%	-0.35%	-0.32%	-0.21%	-0.35%	-0.32%	-0.21%	-0.35%	-0.32%	-0.21%	-0.35%	-0.32%	-0.21%	-0.35%

All engines climb gradient (%) - Airport Pressure altitude = -1000 ft

WEIGHT 1000 KG	ISA deviation (DEG C)					
	ISA+10			ISA+15		
	V2+10	MIN Gra	10000ft	V2+10	MIN Gra	10000ft
50	30.82%	11.74%	15.21%	30.83%	11.09%	14.21%
53	28.15%	10.89%	14.17%	28.16%	10.27%	13.35%
56	25.81%	10.12%	13.23%	25.82%	9.52%	12.56%
59	23.73%	9.43%	12.38%	23.73%	8.90%	11.56%
62	21.88%	8.81%	11.61%	21.88%	8.27%	10.81%
65	20.22%	8.22%	10.90%	20.22%	7.72%	10.14%
68	18.72%	7.69%	10.25%	18.72%	7.21%	9.52%
70	17.80%	7.36%	9.84%	17.81%	6.89%	9.13%
72	16.94%	7.04%	9.45%	16.94%	6.58%	8.76%
74	16.13%	6.74%	9.08%	16.12%	6.29%	8.41%
76	15.36%	6.45%	8.73%	15.36%	6.01%	8.08%
77	14.99%	6.31%	8.56%	14.99%	5.87%	7.91%

Gradient correction per 1000 ft of Airport Pressure altitude

WEIGHT 1000 KG	ISA deviation (DEG C)					
	ISA+10			ISA+15		
	V2+10	MIN Gra	10000ft	V2+10	MIN Gra	10000ft
50	-0.51%	-0.33%	-0.55%	-0.50%	-0.31%	-0.52%
53	-0.48%	-0.31%	-0.52%	-0.48%	-0.29%	-0.49%
56	-0.45%	-0.29%	-0.49%	-0.45%	-0.27%	-0.46%
59	-0.43%	-0.27%	-0.46%	-0.43%	-0.26%	-0.44%
62	-0.40%	-0.26%	-0.44%	-0.40%	-0.25%	-0.42%
65	-0.38%	-0.24%	-0.42%	-0.38%	-0.23%	-0.40%
68	-0.36%	-0.23%	-0.40%	-0.36%	-0.22%	-0.38%
70	-0.35%	-0.22%	-0.39%	-0.35%	-0.21%	-0.37%
72	-0.34%	-0.22%	-0.38%	-0.34%	-0.21%	-0.36%
74	-0.33%	-0.21%	-0.37%	-0.33%	-0.20%	-0.35%
76	-0.32%	-0.21%	-0.36%	-0.32%	-0.20%	-0.34%
77	-0.32%	-0.21%	-0.35%	-0.32%	-0.20%	-0.34%

Gradient correction for different target height (from the gradient value at 10000 ft)

6000 ft	7000 ft	8000 ft	9000 ft	10000 ft
-0.42 %	-0.15 %	-0.01 %	0.02 %	0.00 %

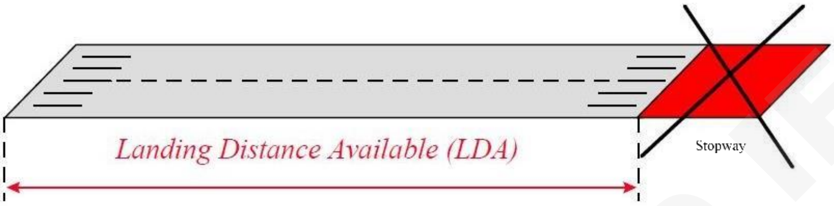
14.7.3 Landing Optimization

Before dispatching an aircraft Nesma Airlines shall verify landing requirements based on aircraft operational constraints developed in its AFM.
In normal operations, landing requirements are not limiting and the aircraft is authorized to land at maximum structural landing weight. However, in case of inoperative items, very high requirement of go-around gradient, contaminated runway or adverse weather conditions, landing weight could be significantly penalized.

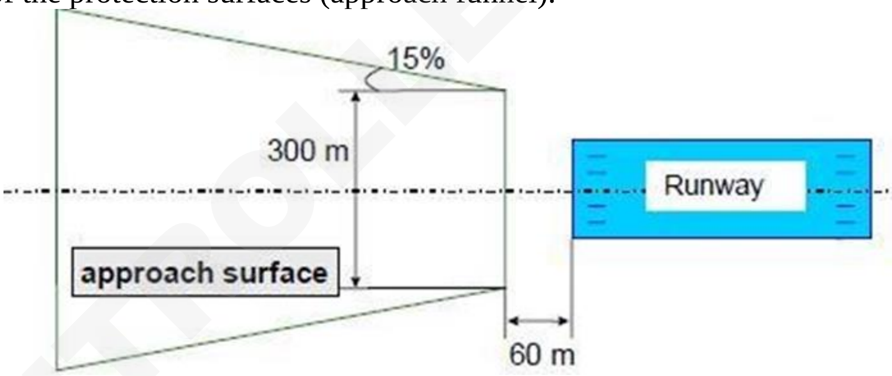
14.7.3.1 Landing Terminology

14.7.3.1.1 Landing Distance Available (LDA)

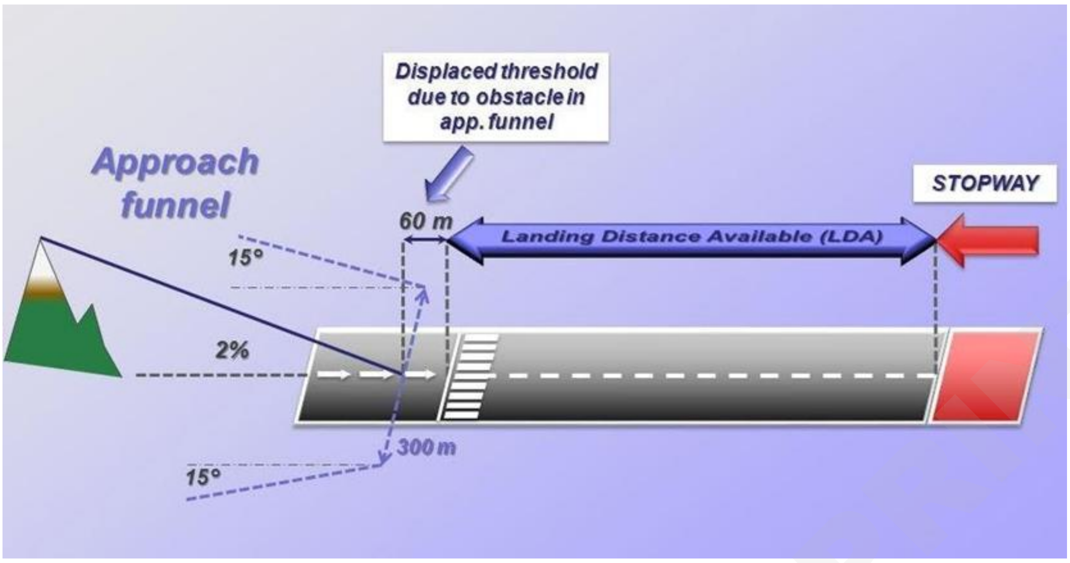
Landing distance available has two definitions depending whether there are limiting obstacles in the approach funnel or not.
With no obstacle in the landing path: the landing distance available is the same as the Takeoff Run Available (TORA). Stop way is not used in lading performance calculations.



With obstacles in the landing path: in this case, the LDA may be shortened if an obstacle exists in the approach funnel. Approach funnel is defined in ICAO annex 8 specifies the dimension of the protection surfaces (approach funnel).



If the obstacle lies within the approach funnel, a displaced threshold is defined considering a 2% plane tangential to the most penalizing obstacle plus a 60 m margin.



14.7.3.1.2 Approach Climb

The go-around in approach configuration. This corresponds to an aircraft's climb capability, assuming that one engine is inoperative. The approach climb also assumes the aircraft in approach configuration (CONF 2 or 3 for Airbus Fly-by-Wire aircraft) and gears are retracted. Approach climb requirements may limit the maximum landing weight below the maximum structural weight. Refer to 14.6.2.8 Approach Climb Gradient..

14.7.3.1.3 Landing Climb

The go-around in landing configuration. This corresponds to an aircraft's climb capability assuming all engines are operating. It assumes the lading configuration (CONF 3 or FULL for Airbus Fly-by-Wire aircraft) and gears extended. The landing climb is less limiting for Airbus aircraft and is always covered by the approach climb characteristics. Refer to 14.6.2.9 Landing Climb Gradient.

14.7.3.2 Landing Performance

In all cases the Required Landing Distance (RLD) shall be lower that the LDA. Refer to14.6.2.10 Required Landing Distance (RLD).
In addition, the landing weight should be the minimum of the maximum landing weight or the landing weight limited by performance.
For Airbus Fly-by-Wire aircraft, RLD shall be checked before dispatching an aircraft. However, it is advised to consult the calculations of Operational Landing Distance during in-flight landing assessment to take into account the Reported Braking Action (RBA) instead of the runway condition, the go-around gradient, in-flight system failure or ECAM warnings and overweight landing procedures. Refer to 14.6.2.11 Operational Landing Distance.

14.7.3.3 Establishment of Landing Charts

Landing charts are established using the aircraft performance database to assess the landing requirements of a given airport at given atmospheric conditions.
Landing chart is established for different landing configurations (CONF 3 or FULL) and wind speeds. It is temperature-based chart, that generates the performance limited landing weight for different temperature values for a given runway a given conditions.
For airports with go-around gradient higher than the minimum certified gradients for the aircraft (2.1% for twin engine and 2.7% for quad engine), significantly short runways or apparent limiting obstacles, Nesma Airlines' performance engineering department generates a landing chart to verify the landing capability of the aircraft.
Landing charts shall be available for new airport studies and shall only be onboard the aircraft for runways which are limited by landing performance weight.

Input Data:

Parameter	Options
Calculation Options	
V/VS1g	Full Optimization/Point Optimization
Additional D.V	Incremental increase to VAPP speed
Wet Check	Yes/No
Approach Gradient	Input
Landing Gradient	Input
Landing Distance Factor	Input (factor of landing distance margins)
Aerial Phase Type	Calculated/Fixed (to account for touchdown zone)
Landing Technique	Autoland/Manual with Auto Thrust/Manual without Auto Thrust
Runway	
Selection of runway from airport manager	
Chart Data	
Row Parameter	Temperature
Column Parameter	Landing configuration/Wind speed
Influence parameters	Runway state/Pressure Altitude/Anti-ice
Common Parameters	Takeoff thrust/Anti-ice/Air conditioning

Output:

A320232 - JAA	IAE V2527-A5 engines	Default -	36	35.0.0 21-Dec-17 AE232C01 V20
AT DISPATCH QNH 1013.25 HPA Air cond. Off Anti-icing Off All reversers inoperative Wet check		Elevation 0 FT Isa temp 15 C Rwy slope 0.00 % LDA 3000 M		DRY

OAT C	CONF 3 GA: CONF 2			CONF FULL GA: CONF 3		
	TAILWIND -10 KT	WIND 0 KT	HEADWIND 10 KT	TAILWIND -10 KT	WIND 0 KT	HEADWIND 10 KT
50	85.3 159 6 1631/ 2719	86.8 161 3 1457/ 2428	86.8 161 3 1389/ 2315	85.8 155 3 1515/ 2525	85.8 155 3 1315/ 2192	85.8 155 3 1252/ 2086
45	85.3 159 6 1631/ 2719	89.9 164 3 1538/ 2563	89.9 164 3 1466/ 2444	88.8 158 3 1594/ 2656	88.8 158 3 1385/ 2308	88.8 158 3 1319/ 2198
40	85.3 159 6 1631/ 2719	89.9 164 3 1538/ 2563	89.9 164 3 1466/ 2444	88.8 158 3 1594/ 2656	88.8 158 3 1385/ 2308	88.8 158 3 1319/ 2198
35	85.3 159 6 1631/ 2719	89.9 164 3 1538/ 2564	89.9 164 3 1467/ 2444	88.8 158 3 1594/ 2656	88.8 158 3 1385/ 2308	88.8 158 3 1319/ 2198
30	85.3 159 6 1631/ 2719	89.9 164 3 1538/ 2564	89.9 164 3 1467/ 2444	88.8 158 3 1594/ 2656	88.8 158 3 1385/ 2308	88.8 158 3 1319/ 2198
25	85.3 159 6 1631/ 2719	89.9 164 3 1538/ 2563	89.9 164 3 1466/ 2444	88.8 158 3 1594/ 2656	88.8 158 3 1385/ 2308	88.8 158 3 1319/ 2198
20	85.3 159 6 1631/ 2719	89.9 164 3 1538/ 2564	89.9 164 3 1467/ 2444	88.9 158 3 1594/ 2657	88.9 158 3 1385/ 2308	88.9 158 3 1319/ 2198
15	85.3 159 6 1631/ 2719	89.9 164 3 1538/ 2564	89.9 164 3 1467/ 2444	88.9 158 3 1594/ 2657	88.9 158 3 1385/ 2308	88.9 158 3 1319/ 2198
10	85.3 159 6 1631/ 2719	89.9 164 3 1538/ 2564	89.9 164 3 1467/ 2445	88.9 158 3 1594/ 2657	88.9 158 3 1385/ 2309	88.9 158 3 1319/ 2198
5	85.3 159 6 1631/ 2719	89.9 164 3 1539/ 2564	89.9 164 3 1467/ 2445	88.9 158 3 1594/ 2657	88.9 158 3 1385/ 2309	88.9 158 3 1319/ 2199
0	85.3 159 6 1631/ 2719	89.9 164 3 1539/ 2564	89.9 164 3 1467/ 2445	88.9 158 3 1595/ 2658	88.9 158 3 1385/ 2309	88.9 158 3 1319/ 2199
	INFLUENCE OF RUNWAY CONDITION					
STANDING WATER	-17.2 -16 -17.2 -16	-6.0 -6 -6.0 -6	-1.3 -1 -1.3 -1	-8.7 -8 -8.7 -8	0.0 0 0.0 0	0.0 0 0.0 0
	INFLUENCE OF ANTI-ICING ONLY AT OR BELOW OAT = 10 C					
Engine & Wing	0.0 0 0.0 0	-2.0 -2 -2.0 -2	-2.0 -2 -2.0 -2	-2.0 -2 -2.0 -2	-2.0 -2 -2.0 -2	-2.0 -2 -2.0 -2

VFA Speed correction VFA 0.8 KT/1000 KG	1=max weight 2=landing distance 3=approach climb 4=landing climb 5=tire speed 6=braking energy
MLW(1000 KG) VFA(kt) code ALD-RLD	LABEL FOR INFLUENCE: NO COMBINATION: DW(1000KG) DVFA(KT) COMBINE: DW(1000KG) DVFA(KT)

For Nesma Airlines' operations, landing charts are no longer used, all the landing related calculations are carried out through the EFB landing performance module as controlled, and documented in 8.12.15.2 Update Procedures. EFB landing performance module includes both in-flight landing and dispatch landing calculations.

14.8 In-Flight Performance (IFP)

The IFP program is part of the Performance Engineers' Package. The IFP program provides the flight operations staff members with an exhaustive and comprehensive tool for aircraft high-speed performance calculation.
The IFP is the official tool provided by Airbus to construct flight performance tables that used to be found in the FCOM. IFP is considered a complementary tool to the flight planning system.
The IFP uses the aircraft high-speed database for calculation of different parameters, this includes each flight phase (climb, cruise, descent, holding) parameters (aircraft weight, TAS, Mach number, fuel flow, drag, lift, angle of attack…) can be assessed accurately.

14.8.1 IFP Calculation Types

IFP enables to compute either instantaneous point performance data or integrated performance data between two points. The user can select from point calculation or integrated calculation from a drop-down menu.

Point Computation

This is typically a snapshot of aircraft performance at given conditions. This is used to compute aircraft instantaneous performance data. In point calculation, the user can calculate the performance parameters for:

- Climb, cruise, descent and holding
- Climb ceiling
- Buffeting
- Optimum/maximum cruising altitude
- Flight parameters at given speed/altitude/CI

Integrated Computation

Integrated calculations result in the fuel consumption time or distance elapsed since a given starting point. Use this option to compute average data between two points.

14.8.2 IFP Calculation Options

There exist two options of calculation modes for IFP module. Standard and standard with FMS speeds.

Standard Option

It is typically the book level performance. For each flight phase, point or integrated calculations can be used. Computation for performance can be carried out for:

- Climb
- Cruise
- Descent
- Acceleration/Deceleration
- Holding
- Buffeting
- Descent/Cruise

Standard with FMS Speeds

This hybrid option allows the calculation of performance data with the standard FMS database that is installed on some types of aircraft.

The available calculations depend greatly on the type of aircraft and the type of the FMS database installed (FMS1 or FMS2). But for Nesma Airlines aircraft the following options are available for calculation:

- Climb
- Cruise
- Descent
- Holding

Point and integrated calculations are available for FMS-based calculations.

14.8.3 Climb

Climb performance is available for point and integrated calculation and is available in both standard option and standard with FMS option.

Standard calculations with FMS speeds allow the calculation of climb characteristics using cost index.

The following calculation options are available for the climb performance.

Option	Calculation Type	Mode
Standard	Point	Climb at given CAS/Mach Law
		Climb at given/maximum rate
		Climb at maximum gradient
		Climb versus speed
		Climb ceiling versus speed at given rate
		Climb ceiling versus speed at given gradient
		Climb ceiling versus weight at given rate
		Climb ceiling versus weight at given gradient
	Integrated	Climb at given CAS/Mach Law
		Climb at maximum gradient
		Climb at maximum gradient
	Point	Climb at given cost index
Standard with FMS Speeds		Climb at given CAS/Mach Law
	Integrated	Climb at given cost index
		Climb at given CAS/Mach Law

Input Data:

<table>
<tr><th>Parameter</th><th>Options</th><th>Calculation Type</th></tr>
<tr><td colspan="3">Aerodynamic Data</td></tr>
<tr><td>Configuration</td><td>Clean/CONF 1/CONF 1 + F/CONF 2/CONF 3/CONF 4</td><td rowspan="4">Standard/Standard with FMS speeds</td></tr>
<tr><td>Center of Gravity</td><td>User Input</td></tr>
<tr><td>Drag</td><td>Drag Factor/Drag Correction</td></tr>
<tr><td>Aircraft Status</td><td>CDL list</td></tr>
<tr><td>Buffet Margin</td><td>User Input</td><td rowspan="2">Standard</td></tr>
<tr><td>Moving Parts</td><td>Airbrakes Extended Landing gear extended Landing gear doors open</td></tr>
<tr><td colspan="3">Engine Data</td></tr>
<tr><td>Engine Level</td><td>Average/Minimum</td><td rowspan="7">Standard/Standard with FMS speeds</td></tr>
<tr><td>Thrust</td><td>Max Climb/Max Continuous/Takeoff</td></tr>
<tr><td>Maximum rating</td><td>User Input</td></tr>
<tr><td>Fuel lower heating value</td><td>User input</td></tr>
<tr><td>Bleed selection</td><td>Air conditioning/Anti-ice</td></tr>
<tr><td>Engines situation</td><td>All Engine Operating/One Engine out</td></tr>
<tr><td>Fuel consumption factor</td><td>User Input</td></tr>
<tr><td colspan="3">Atmospheric Data</td></tr>
<tr><td>Temperature</td><td></td><td rowspan="2">Standard/Standard with FMS speeds</td></tr>
<tr><td>Wind</td><td>Analytical/Tabulated</td></tr>
</table>

Calculation Data		
Climb rate	Input List	Standard/Standard with FMS speeds
Climb profile	User input	
Weight	Input list	
Altitude	Input List	For some modules only
Time/Distance/Fuel	User input/Database value	For integrated calculation only

Output Data:

Output from IFP climb performance module can be formatted in either detailed or tabulated formats. They both contain the same data.
At given conditions the following data are obtained.

Label	Description
Alt	Altitude
MACH	Mach number that achieves the required characteristics
CAS/TAS	Calibrated and true airspeeds
Wind	Wind speed (user input)
Rate	Rate of climb (ft/min)
GRDT	Climb gradient
WFE	Fuel consumption (Kg/hr)
EGT	Exhaust Gas Temperature
EPR	Engine Pressure Ratio
CL/CD	Lift/Drag Coefficients

14.8.4 Cruise

Cruise performance is available for point and integrated calculation and is available in both standard option and standard with FMS option as well.
Just like climb calculation, standard calculations with FMS speeds allow the calculation of cruise characteristics using cost index.
The following calculation options are available for the climb performance.

Option	Calculation Type	Mode
Standard	Point	Cruise at given CAS/Mach Law
		Cruise at maximum speed
		Cruise at optimum speed
		Cruise versus speed
		Maximum cruise altitude at given speed
		Maximum cruise altitude at optimum speed
		Optimum cruise altitude at given speed
		Optimum cruise altitude at optimum speed
		Cruise at green dot speed
		Maximum cruise altitude at green dot speed
	Integrated	Cruise at given CAS/Mach Law
		Cruise at maximum speed
		Cruise at optimum speed
		Optimum cruise altitude at given speed
		Optimum cruise altitude at optimum speed
		Cruise at green dot speed
		Optimum cruise altitude at green dot speed
Standard with FMS Speeds	Point	Climb at given cost index
		Climb at given CAS/Mach Law

		Maximum cruise altitude at given Mach/CAS
		Maximum cruise altitude at given cost index
		Optimum cruise altitude at given cost index
	Integrated	Climb at given cost index
		Climb at given CAS/Mach Law
		Cruise at optimum altitude and given cost index

Input Data:

Parameter	Options	Calculation Type
Aerodynamic Data		
Configuration	Clean/CONF 1/CONF 1 + F/CONF 2/CONF 3/CONF 4	Standard/Standard with FMS speeds
Center of Gravity	User Input	
Drag	Drag Factor/Drag Correction	
Aircraft Status	CDL list	
Buffet Margin	User Input	Standard
Moving Parts	Airbrakes Extended Landing gear extended Landing gear doors open	
Engine Data		
Engine Level	Average/Minimum	Standard/Standard with FMS speeds
Thrust	Max Climb/Max Continuous/Takeoff	
Maximum rating	User Input	
Fuel lower heating value	User input	

Bleed selection	Air conditioning/Anti-ice	
Engines situation	All Engine Operating/One Engine out	
Fuel consumption factor	User Input	
Atmospheric Data		
Temperature		Standard/Standard with FMS speeds
Wind	Analytical/Tabulated	
Calculation Data		
Rate of climb limitation	User input	Standard/Standard with FMS speeds
Climb profile	User input	
Weight	Input list	
Altitude	Input List	For some modules only
Speed	Input List	For integrated calculation only

Output Data:

Label	Description
MACH	Mach number that achieves the required characteristics
CAS/TAS	Calibrated and true airspeeds
Wind	Wind speed (user input)
Rate	Rate of climb (ft/min)
GRDT	Climb gradient
WFE	Fuel consumption (Kg/hr)
EGT	Exhaust Gas Temperature
EPR	Engine Pressure Ratio
CL/CD	Lift/Drag Coefficients
SR	Specific Range

14.9 Aircraft Performance Monitoring (APM)

Aircraft performance monitoring is performed in the frame of fuel conservation and of aircraft drag assessment. It is a procedure devoted to gathering aircraft data in order to determine the actual performance level of each airplane of the fleet with respect to the manufacturer's book level. The book level is established by the manufacturer and represents the average performance of a brand new airframes and engines.

Performance monitoring is based on statistical approach and accounts for two deterioration origins; engine performance degradation (fuel consumption increase for a given thrust) and airframe deterioration (increased drag).

The aims of APM is to adjust the aircraft performance factor in both the computerized flight plan and aircraft FMS for better fuel prediction.

The actual performance level - represented by flight and engine parameters - is recorded during cruise by the ACMS (Aircraft Condition Monitoring System) and is provided as Cruise Performance Report <02>.

The APM calculates the aircraft cruise performance in a statistical deterministic way. That is without use of mathematical methods from the field of probability, optimal estimation or filter techniques just by using the familiar equations of lift, drag and fuel flow for a given set of stabilized in-flight measured input values.

Reference to the scientific basis, methodology and results obtained from calculations are elaborated in the PPM-APM User Guide.

Output Date:

Label	Description
DSR	Degradation in specific range due to wear out of engine and fuselage

Aircraft Leasing

Chapter 15

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Chapter 15 Aircraft Leasing

15.1 Definitions

Reference EAC 121-2

Lease: Any agreement by a person (the lessor) to furnish an aircraft to another person (the lessee) to be used for compensation or hire purposes. This does not include an agreement for the sale of an aircraft or a contract of conditional sale.

Dry Lease: Any agreement in which a lessor, (which could be an air carrier, bank, or leasing company) leases an aircraft without cockpit crewmembers to an air carrier (the lessee), and in which the lessee maintains operational control.

Wet Lease: Any agreement in which an Egyptian certificate holder (lessor) leases an aircraft, with at least one pilot cockpit crewmember, to or from either an Egyptian operator, foreign air carrier, or a foreign person (the lessee).

Operational Control: With respect to flight operations, means the exercise of authority over initiating, conducting or terminating a flight.

Lessee: The party using the aircraft under the provisions of a lease.

Lessor: The party furnishing the aircraft under a lease.

Short Term Lease: An agreement that is not longer than two consecutive months and the number of days that may be operated per month does not exceed five days and operational control and the maintenance for the aircraft always remains the responsibility of the lessor.

15.2 Short Term Wet Lease Procedure

Ref: EAC 121-2

A. Procedure for Short Term Wet lease less than 24 Hours

Nesma Airlines is authorized to operate certain numbers of flights for short-term lease less than 24 Hrs.

1. Reason of Lease:
   - Lessee A.O.G.
   - Lessee commercial reason.
2. Documents required:
   Nesma Airlines shall submit Short Term Application Form before intended flight, identifying the following:
   - Subject: short term lease,
   - period of lease,
   - A/C registration mark,
   - Nesma Airlines will exercise the operational control and maintenance for the aircraft, and the operation of the A/C is the responsibility of the Lessee. This application is submitted as follows:
     i. During normal working hours: This form shall be submitted to Air Transport Central Administration (MOCA).
     ii. During non-working hours (Holidays — Weekend). This form shall be submitted to the representative of Air Transport Centre Administration at Cairo international Airport.
3. Attached copy from the Lessee's request requiring operation, (Site/Fax/e-mail)
4. Intended Flight Schedule.
5. Nesma Airlines will perform the short-term lease after receiving acceptance from MOCA.

6. In case the lessee request to extend the operation, Nesma Airlines will follow the procedures in paragraph B.

B. Procedure for Short Term Wet Lease more than 24 Hours

Nesma Airlines is authorized to conduct short-term lease for two consecutive months and number of days that may be five days per month.

1. Documents required:
   Nesma Airlines shall submit Short Term Application Form before intended flight, identifying the following:
   - Subject: short term lease,
   - period of lease,
   - A/C registration mark,
   - Nesma Airlines will exercise the operational control and maintenance for the aircraft, and the operation of the A/C is the responsibility of the Lessee. This application is submitted as follows:
     - **i.** During normal working hours: This form shall be submitted to Air Transport Central Administration (MOCA).
     - **ii.** During non-working hours (Holidays - Weekend). This form shall be submitted to the representative of Air Transport Central Administration at Cairo international Airport.
2. Attached copy of the agreement.
3. Intended Flight Schedule.
4. Nesma Airlines will perform the short-term lease after receiving acceptance letter and Operations Specifications (Ops. Specs.) A28 from MOCA

APPLICATION FOR SHORT TERM WET LEASE

TAS /..... ....

TO: AIR TRANSPORT ADMINISTRATION

OPERATION SECTOR - MINISTRY OF TRANSPORT

PERIOD OF LEASE: FROM....................... TO.....................

NO. OF DAYS ……………………………………………….

A/CTYPE & REGISTRATION: … … … … … … … … … … …

REASON FOR REQUEST: … … … … … … … … … … … …

NAME OF LESSEE: … … … … … … … … … … … …

TYPE OF OPERATION: … … … … … … … … … … … …

PASSENGER INTENDED FLIGHT SCHEDULE: … … … … … … … … … … …

AS ATTACHED REMARKS:

1. ALL OVER-FLYING AND LANDING PERMITS ARE ARRANGED BY LESSEE.
2. Nesma Airlines WILL EXERCISE THE OPERATION CONTROL AND MAINTENANCE FOR THE AIRCRAFT.
3. OPERATION OF AIRCRAFT IS RESPONSIBILITY OF LESSEE.
4. ATTACHED OPERATION REQUEST:

FAX ☐ SITA ☐ E-MAIL ☐

Application forwarded by Planning Manager	MOCA Acceptance Name: ……………………………………
Signature: Date:	Signature: Date:

Alcohol Misuse Prevention and Drug Testing Programs

Appendix (A)

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Appendix A: Alcohol Misuse Prevention and Drug Testing Programs

A.1 General

The purpose of this Chapter is to establish programs designed to help prevent accidents and injuries resulting from the misuse of alcohol by employees who perform safety-sensitive functions in aviation.

i. **Accident**
Means 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 and the time all such persons have disembarked, and in which any person suffers death or serious injury or in which the aircraft receives substantial damage;

ii. **Alcohol**
Means the intoxicating agent in beverage alcohol, ethyl alcohol, or other low molecular weight alcohols, including methyl or isopropyl alcohol;

iii. **Alcohol Concentration (or content)**
Means the alcohol in a volume of breath expressed in terms of grams of alcohol per 210 liters of breath as indicated by an evidential breath test under this Chapter;

iv. **Alcohol Use**
Means the consumption of any beverage, mixture, or preparation, including any medication, containing alcohol;

v. **Confirmation Test**
Means a second test, following a screening test with a result 0.02 or greater, that provides quantitative data of alcohol concentration;

vi. **Consortium**
Means an entity, including a group or association of employers or contractors, that provides alcohol testing as required by this appendix and that acts on behalf of such employers or contractors, provided that it has submitted an alcohol misuse prevention program certification statement to the ECAA in accordance with this Chapter;

vii. **Contractor Company**
Means a company that has employees who perform safety-sensitive functions by contract for an NESAMA AIRLINES;

viii. **Covered Employee**
Means a person who performs, either directly or by contract, a safety-sensitive function for an NESMA AIRLINES (as defined below). For purposes of pre-employment testing only, the term "covered employee" includes a person applying to perform a safety-sensitive function;

ix. **NESMA AIRLINES**
Means a Part 121 certificate holder; a Part 145 certificate holder; an air traffic control facility and any training agency;

x. **Performing (a safety-sensitive function)**
An employee is considered to be performing a safety-sensitive function during any period in which he or she is actually performing, ready to perform, or immediately available to perform such functions;

xi. **Refuse to submit (to an alcohol test)**
Means that a covered employee fails to provide adequate breath for testing without a valid medical explanation after he or she has received notice of the requirement to be tested in accordance with this chapter, or engages in conduct that clearly obstructs the testing process;

xii. **Screening Test**
Means an analytical procedure to determine whether a covered employee may have a prohibited concentration of alcohol in his or her system; and

xiii. **Violation Rate**
Means the number of covered employees found during random tests given under this Chapter to have an alcohol concentration of 0.04 or greater plus the number of employees who refused a random test required by this appendix, divided by the total reported number of employees in the industry given random alcohol tests under this appendix plus the total reported number of employees in the industry who refuse a random test required by this Chapter;

A.2 Requirement for Notice

a. Before performing an alcohol test under this chapter, NESMA AIRLINES shall notify a covered employee that the alcohol test is required by this chapter;
b. Each employee who performs a function listed in this section directly or by contract for NESMA AIRLINES as defined in this chapter must be subject to alcohol testing under an ECAA-approved alcohol misuse prevention program implemented in accordance with this chapter. The covered safety-sensitive functions are :
   1) Cockpit crewmember duties;
   2) Cabin crew duties;
   3) Flight instruction duties;
   4) Aircraft dispatcher duties;
   5) Aircraft maintenance or preventive maintenance duties;
   6) Ground security coordinator duties;
   7) Aviation screening duties; and
   8) Air traffic control duties.
   9) Ground Handling duties.

A.3 Tests Required

i. **Pre-employment:**

- Prior to the first time a covered employee performs safety-sensitive functions for NESMA AIRLINES, the employee shall undergo testing for alcohol. NESMA AIRLINES shall not allow a covered employee to perform safety-sensitive functions unless the employee has been administered an alcohol test with a result indicating an alcohol concentration less than 0.04. If a pre-employment test, result under this paragraph indicates an alcohol concentration of 0.02 or greater but less than 0.04, the provisions of paragraph (f) of section V of this chapter apply;
- NESMA AIRLINES is not required to administer an alcohol test as required if:
  - The employee has undergone an alcohol test required by this appendix within the previous 6 months, with a result indicating an alcohol concentration less than 0.04; and
  - NESMA AIRLINES ensures that no prior employer of the covered employee of whom the employer has knowledge has records of a violation of this appendix within the previous 6 months

ii. **Post-accident:**

- As soon as practicable following an accident, NESMA AIRLINES shall test each surviving covered employee for alcohol if that employee's performance of a safety-sensitive function either contributed to the accident or cannot be completely discounted as a contributing factor to the accident. The decision not to administer a test under this chapter shall be based on the NESMA AIRLINES determination, using the best available information at the time of the determination, that the covered employee's performance could not have contributed to the accident;
- If a test required by this section is not administered within 2 hours following the accident, NESMA AIRLINES shall prepare and maintain on file a record stating the reasons the test was not promptly administered. If a test required by this section is not administered within 8 hours following the accident, the employer shall cease attempts to administer an alcohol test and shall prepare and maintain the same record. Records shall be submitted to the ECAA upon request of the ECAA or his or her designee;
- NESMA AIRLINES shall submit to the ECAA each record of a test required by this section that is not completed within 8 hours. The employer's records of tests that are not completed within 8 hours shall be submitted to the ECAA by March 15 for the preceding year (from January till December). Each record shall include the following information:
  - **i.** Type of test (reasonable suspicion/post-accident);
  - **ii.** Triggering event (including date, time, and location);
  - **iii.** Employee category (do not include employee name or other identifying information);
  - **iv.** Reason(s) test could not be completed within 8 hours; and
  - **v.** If blood alcohol testing could have been completed within eight hours, the name, address, and telephone number of the testing site where blood testing could have occurred.

- A covered employee who is subject to post-accident testing shall remain readily available for such testing or may be deemed by NESMA AIRLINES to have refused to submit to testing. Nothing in this chapter shall be construed to require the delay of necessary medical attention for injured people following an accident or to prohibit a covered employee from leaving the scene of an accident for the period necessary to obtain assistance in responding to the accident or to obtain necessary emergency medical care.

iii. **Random testing:**

Except as provided in paragraphs 2-4 of this section, the minimum annual percentage rate for random alcohol testing will be 25 percent of the covered employees;

- The ECAA's decision to increase or decrease the minimum annual percentage rate for random alcohol testing is based on the violation rate for the entire industry. In order to ensure reliability of the data, the ECAA considers the quality and completeness of the reported data, may obtain additional information or reports from employers, and may make appropriate modifications in calculating the industry violation rate;
- When the minimum annual percentage rate for random alcohol testing is 25 percent or more, the ECAA may lower this rate to 10 percent of all covered employees if the ECAA determines that the data received under the reporting requirements of this appendix for two consecutive calendar years indicate that the violation rate is less than 0.5 percent;
- When the minimum annual percentage rate for random alcohol testing is 50 percent, the ECAA may lower this rate to 25 percent of all covered employees if the ECAA determines that the data received under the reporting requirements of this appendix for two consecutive calendar years indicate that the violation rate is less than 1.0 percent but equal to or greater than 0.5 percent;
- When the minimum annual percentage rate for random alcohol testing is 10 percent, and the data received under the reporting requirements of this appendix for that calendar year indicate that the violation rate is equal to or greater than 0.5 percent but less than 1.0 percent, the ECAA will increase the minimum annual percentage rate for random alcohol testing to 25 percent of all covered employees;
- When the minimum annual percentage rate for random alcohol testing is 25 percent or less, and the data received under the reporting requirements of this appendix for that calendar year indicate that the violation rate is equal to or greater than 1.0 percent, the ECAA will increase the minimum annual percentage rate for random alcohol testing to 50 percent of all covered employees;
- The selection of employees for random alcohol testing shall be made by a scientifically valid method, such as a random-number table or a computer-based random number generator that is matched with employees' I.D. number, payroll identification numbers, or other comparable identifying numbers. Under the selection process used, each covered employee shall have an equal chance of being tested each time selections are made;
- The employer shall randomly select a sufficient number of covered employees for testing during each calendar year to equal an annual rate not less than the minimum annual percentage rate for random alcohol testing determined by the ECAA. If the employer conducts random testing through a consortium, the number of employees to be tested may be calculated for each individual employer or may be based on the

total number of covered employees who are subject to random alcohol testing at the same minimum annual percentage rate under this appendix;
- Each employer shall ensure that random alcohol tests conducted under this appendix are unannounced and that the dates for administering random tests are spread reasonably throughout the calendar year;
- Each employer shall require that each covered employee who is notified of selection for random testing proceeds to the testing site immediately; provided, however, that if the employee is performing a safety-sensitive function at the time of the notification, the employer shall instead ensure that the employee ceases to perform the safety- sensitive function and proceeds to the testing site as soon as possible;
- A covered employee shall only be randomly tested while the employee is performing safety- sensitive functions; just before the employee is to perform safety-sensitive functions; or just after the employee has ceased performing such functions;
- If a given covered employee is subject to random alcohol testing under the alcohol testing rules of more than one agency, the employee shall be subject to random alcohol testing at the percentage rate established for the calendar year by the agency regulating more than 50 percent of the employee's functions; and
- If an employer is required to conduct random alcohol testing under the alcohol testing rules of more than one agency, the employer may
  - Establish separate pools for random selection, with each pool containing the covered employees who are subject to testing at the same required rate; or
  - Randomly select such employees for testing at the highest percentage rate established for the calendar year by any agency to which NESMA AIRLINES is subject.

iv. **Reasonable suspicion testing:**
- NESMA AIRLINES shall require a covered employee to submit to an alcohol test when NESMA AIRLINES has reasonable suspicion to believe that the employee has violated the alcohol misuse prohibitions in the ECARs;
- The NESMA AIRLINES determination that reasonable suspicion exists to require the covered employee to undergo an alcohol test shall be based on specific, contemporaneous, articulable observations concerning the appearance, behavior, and speech or body odors of the employee. The required observations shall be made by a supervisor who is trained in detecting the symptoms of alcohol misuse. The supervisor who makes the determination that reasonable suspicion exists shall not conduct the breath alcohol test on that employee;
- Alcohol testing is authorized just preceding, or just after the period of the work day that the covered employee is required to be in compliance with this rule. An employee may be directed by NESMA AIRLINES to undergo reasonable suspicion testing for alcohol only while the employee is performing safety-sensitive functions; just before the employee is to perform safety- sensitive functions; or just after the employee has ceased performing such functions;
- If a test required by this chapter is not administered within 2 hours following the determination made under this chapter, NESMA AIRLINES shall prepare and maintain on file a record stating the reasons the test was not promptly administered. If a test required by this chapter is not administered within 8 hours following the determination made under this chapter ,

- NESMA AIRLINES shall cease attempts to administer an alcohol test and shall state in the record the reasons for not administering the test;
- NESMA AIRLINES shall submit to the ECAA each record of a test required by this chapter that is not completed within 8 hours. The NESMA AIRLINES records of tests that are not completed within 8 hours shall be submitted to the ECAA by March for the preceding calendar year. Each record shall include the following information:
  - Type of test (reasonable suspicion/post-accident);
  - Triggering event (including date, time, and location);
  - Employee category (do not include employee name or other identifying information);
  - Reason(s) test could not be completed within 8 hours; and
  - If blood alcohol testing could have been completed within eight hours, the name, address, and telephone number of the testing site where blood testing could have occurred.
- Notwithstanding the absence of a reasonable suspicion alcohol test under this chapter , no covered employee shall report for duty or remain on duty requiring the performance of safety- sensitive functions while the employee is under the influence of or impaired by alcohol, as shown by the behavioral, speech, or performance indicators of alcohol misuse, nor shall NESMA AIRLINES permit the covered employee to perform or continue to perform safety-sensitive functions until:
  - An alcohol test is administered and the employee's alcohol concentration measures less than 0.02; or
  - The start of the employee's next regularly scheduled duty period, but not less than 8 hours following the determination made under paragraph 2 of this chapter that there is reasonable suspicion that the employee has violated the alcohol misuse provisions in the ECARs.

v. Return to duty testing

- NESMA AIRLINES shall ensure that before a covered employee returns to duty requiring the performance of a safety-sensitive function after engaging in conduct prohibited in the ECARs, the employee shall undergo a return to duty alcohol test with a result indicating an alcohol concentration of less than 0.02.

vi. Follow-up testing

Following a determination under this chapter that a covered employee is in need of assistance in resolving problems associated with alcohol misuse, NESMA AIRLINES shall ensure that the employee is subject to unannounced follow-up alcohol testing as directed by a substance abuse professional in accordance with the provisions of this chapter. A covered employee shall be tested under this paragraph only while the employee is performing safety- sensitive functions; just before the employee is to perform safety-sensitive functions; or just after the employee has ceased performing such functions

vii. Re-testing of covered employees

with an alcohol concentration of 0.02 or greater but less than 0.04 NESMA AIRLINES shall retest a covered employee to ensure compliance with the provisions of this chapter, if NESMA AIRLINES chooses to permit the employee to perform a safety-sensitive function within 8 hours following the administration of an alcohol test indicating an alcohol concentration of 0.02 or greater but less than 0.04.

A.4 Handling of Test Results, Record Retention, and Confidentiality

i. Retention of records:

- General Requirement. NESMA AIRLINES shall maintain records of its alcohol misuse prevention program as provided in this chapter. The records shall be maintained in a secure location with controlled access;
- Period of Retention. NESMA AIRLINES shall maintain the records in accordance with the following schedule:
  - Five years: Records of employee alcohol test results with results indicating an alcohol concentration of 0.02 or greater, documentation of refusals to take required alcohol tests, calibration documentation, employee evaluations and referrals, and copies of any annual reports submitted to the ECAA under this chapter shall be maintained for a minimum of 5 years;
  - Two years: Records related to the collection process (except calibration of evidential breath testing devices) and training shall be maintained for a minimum of 2 years; and
  - One year: Records of all test results below 0.02 shall be maintained for a minimum of 1 year.

ii. Types of records:

The following specific records shall be maintained:

- Records related to the collection process:
  - Collection logbooks, if used;
  - Documents relating to the random selection process;
  - Calibration documentation for evidential breath testing devices;
  - Documentation of breath alcohol technician training;
  - Documents generated in connection with decisions to administer reasonable suspicion alcohol tests;
  - Documents generated in connection with decisions on post-accident tests; and
  - Documents verifying existence of a medical explanation of the inability of a covered employee to provide adequate breath for testing.
- Records related to test results:
  - ***The NESMA AIRLINES copy of the alcohol test form, including the results of the test;***
  - Documents related to the refusal of any covered employee to submit to an alcohol test required by this chapter; and
  - Documents presented by a covered employee to dispute the result of an alcohol test administered under this chapter.
- Records related to other violations of ECARs;
- Records related to evaluations;
  - ***Records pertaining to a determination by a substance abuse professional concerning a covered employee's need for assistance;***
  - ***Records concerning a covered employee's compliance with the recommendations of the substance abuse professional; and***
  - Records of notifications to the approved medical examiner of violations of the alcohol misuse prohibitions.

iii. Records related to education and training:

- Materials on alcohol misuse awareness, including a copy of the NESMA AIRLINES policy on alcohol misuse;
- Documentation of compliance with the requirements of this chapter;
- Documentation of training provided to supervisors for the purpose of qualifying the supervisors to make a determination concerning the need for alcohol testing based on reasonable suspicion; and
- Certification that any training conducted under this chapter complies with the requirements for such training.

iv. Reporting of results in a management information system:

- ➢ Annual reports summarizing the results of alcohol misuse prevention programs shall be submitted to the ECAA in the form and manner prescribed by the ECAA by March of each year covering the previous calendar year (January 1 through December 31) in accordance with the provisions below:
  - Each certificate holder shall submit an annual report each year;
  - Each entity conducting an alcohol misuse prevention program under the provisions of this chapter, that has 50 or more covered employees on January 1 of any calendar year shall submit an annual report to the ECAA for that calendar year; and
  - The ECAA reserves the right to require NESMA AIRLINESs not otherwise required to submit annual reports to prepare and submit such reports to the ECAA. NESMA AIRLINES that will be required to submit annual reports under this provision will be notified in writing by the ECAA.
- ➢ Each report shall be submitted in the form and manner prescribed by the ECAA;
- ➢ Each report shall be signed by the NESMA AIRLINES alcohol misuse prevention program manager or other designated representative;
- ➢ Each report that contains information on an alcohol screening test result of 0.02 or greater or a violation of the alcohol misuse provisions of the ECARs shall include the following informational elements:
  - Number of covered employees by employee category;
  - Number of covered employees in each category subject to alcohol testing under the alcohol misuse rule;
  - Number of screening tests by type of test and employee category;
  - Number of confirmation tests, by type of test and employee category;
  - Number of confirmation alcohol tests indicating an alcohol concentration of 0.02 or greater but less than 0.04 by type of test and employee category;
  - Number of confirmation alcohol tests indicating an alcohol concentration of 0.04 or greater, by type of test and employee category;
  - Number of persons denied a position as a covered employee following a pre-employment alcohol test indicating an alcohol concentration of 0.04 or greater;
  - Number of covered employees with a confirmation alcohol test indicating an alcohol concentration of 0.04 or greater who were returned to duty in covered positions (having complied with the recommendations of a substance abuse professional as described in this chapter);
  - Number of covered employees who were administered alcohol and drug tests at the same time, with both a positive drug test result and an alcohol test result indicating an alcohol concentration of 0.04 or greater;

- Number of covered employees who were found to have violated other alcohol misuse provisions of the ECARs, and the action taken in response to the violation;
- Number of covered employees who refused to submit to an alcohol test required under this chapter, the number of such refusals that were for random tests, and the action taken in response to each refusal; and
- Number of supervisors who have received required training during the reporting period in determining the existence of reasonable suspicion of alcohol misuse.

➢ Each report with no screening test results of 0.02 or greater or violations of the alcohol misuse provisions of the ECARs shall include the following informational elements. (This report may only be submitted if the program results meet these criteria):

- ***Number of covered employees by employee category;***
- Number of covered employees in each category subject to alcohol testing under the alcohol misuse rule;
- Number of screening tests by type of test and employee category;
- Number of covered employees who engaged in alcohol misuse who were returned to duty in covered positions (having complied with the recommendations of a substance abuse professional as described this chapter);
- Number of covered employees who refused to submit to an alcohol test required under this chapter, and the action taken in response to each refusal; and
- Number of supervisors who have received required training during the reporting period in determining the existence of reasonable suspicion of alcohol misuse.

i. An ECAA-approved consortium may prepare reports on behalf of individual aviation NESMA AIRLINES for purposes of compliance with this reporting requirement. However, the aviation NESMA AIRLINES shall sign and submit such a report and shall remain responsible for ensuring the accuracy and timeliness of each report prepared on its behalf by a consortium.

Access to records and facilities:

➢ Except as required by law or expressly authorized or required in this chapter, NESMA AIRLINES shall not release covered employee information that is contained in records required to be maintained under this chapter;

➢ A covered employee is entitled, upon written request, to obtain copies of any records pertaining to the employee's use of alcohol, including any records pertaining to his or her alcohol tests. NESMA AIRLINES shall promptly provide the records requested by the employee. Access to an employee's records shall not be contingent upon payment for records other than those specifically requested;

➢ NESMA AIRLINES shall make available copies of all results of alcohol testing conducted under this chapter and any other information pertaining to the NESMA AIRLINES alcohol misuse prevention program, when requested by the ECAA;

➢ When requested by the ECAA as part of an accident investigation, NESMA AIRLINES shall disclose information related to the NESMA AIRLINES administration of a post- accident alcohol test administered following the accident under investigation;

➢ Records shall be made available to a subsequent NESMA AIRLINES upon receipt of written request from the covered employee. Disclosure by the subsequent NESMA AIRLINES is permitted only as expressly authorized by the terms of the employee's request;

- NESMA AIRLINES may disclose information required to be maintained under this chapter pertaining to a covered employee to the employee or to the decision maker in a lawsuit, grievance, or other proceeding initiated by or on behalf of the individual and arising from the results of an alcohol test administered under this chapter or from the NESMA AIRLINES determination that the employee engaged in conduct prohibited under the ECARs (including, but not limited to, a worker's compensation, unemployment compensation, or other proceeding relating to a benefit sought by the employee);
- NESMA AIRLINES shall release information regarding a covered employee's records as directed by the specific, written consent of the employee authorizing release of the information to an identified person. Release of such information by the person receiving the information is permitted only in accordance with the terms of the employee's consent; and
- NESMA AIRLINES shall permit access to all facilities utilized in complying with the requirements of this chapter to the ECAA.

A.5 Consequences for Employees Engaging In Alcohol-Related Conduct

i. Removal from safety-sensitive function:

- Except as provided in this chapter, no covered employee shall perform safety-sensitive functions if the employee has engaged in conduct prohibited by the ECARs or an alcohol misuse rule; and
- NESMA AIRLINES shall not permit any covered employee to perform safety-sensitive functions if NESMA AIRLINES has determined that the employee has violated this paragraph.
- Permanent disqualification from service an employee who violates the ECARs' alcohol misuse requirements, or who engages in alcohol use that violates another alcohol misuse provisions and had previously engaged in alcohol use that violated the provisions of the ECARs after becoming subject to such prohibitions is permanently precluded from performing for NESMA AIRLINES the safety-sensitive duties the employee performed before such violation.

ii. Notice to the approved medical examiner:

- If NESMA AIRLINES determines that a covered employee who holds an airman medical certificate has engaged in alcohol use that violated the alcohol misuse provisions of the ECARs shall notify the approved medical examiner within 2 working days;
- Each such NESMA AIRLINES shall forward to the approved medical examiner a copy of the report of any evaluation performed under the provisions of this chapter within 2 working days of the NESMA AIRLINES receipt of the report;
- All documents shall be sent to the approved medical examiner; and
- No covered employee who holds an airman medical certificate shall perform safety-sensitive duties for NESMA AIRLINES following a violation until and unless the approved medical examiner has recommended that the employee be permitted to perform such duties.

iii. Notice of refusals:

- Except as provided in this paragraph, NESMA AIRLINES shall notify the ECAA within 5 working days of any covered employee who holds a license and/or certificate that has refused to submit to an alcohol test required under this chapter. Notifications should be sent to: approved medical board or approved medical examiner; and
- NESMA AIRLINES is not required to notify the above office of refusals to submit to pre-employment alcohol tests or refusals to submit to return to duty tests.

iv. Required evaluation and testing: No covered employee who has engaged in conduct prohibited by the ECARs shall perform safety-sensitive functions unless the employee has met the requirements of this chapter. NESMA AIRLINES shall not permit a covered employee who has engaged in such conduct to perform safety-sensitive functions unless the employee has met the requirements of this chapter.

v. Other **alcohol-related conduct:**

- No covered employee tested under the provisions of this chapter who is found to have an alcohol concentration of 0.02 or greater but less than 0.04 shall perform or continue to perform safety-sensitive functions for an NESMA AIRLINES , nor shall NESMA AIRLINES permit the employee to perform or continue to perform safety-sensitive functions, until
- The employee's alcohol concentration measures less than 0.02; or

- The start of the employee is next regularly scheduled duty period, but not less than 8 hours following administration of the test.
- Except as provided in this paragraph, NESMA AIRLINES shall not take any action under this rule against an employee based solely on test results showing an alcohol concentration less than 0.04. This does not prohibit NESMA AIRLINES with authority independent of this rule from taking any action otherwise consistent with law.

A.6 Alcohol Misuse Information, Training, and Referral

i. General requirements:

NESMA AIRLINES shall provide educational materials that explain these alcohol misuse requirements and the NESMA AIRLINES policies and procedures with respect to meeting those requirements:

- ***NESMA AIRLINES shall ensure that a copy of these materials is distributed to each covered employee prior to the start of alcohol testing under the NESMA AIRLINES ECAA-mandated alcohol misuse prevention program and to each person subsequently hired for or transferred to a covered position; and***
- ***(ii) NESMA AIRLINES shall provide written notice to representatives of employee organizations of the availability of this information.***

ii. Required content:

The materials to be made available to employees shall include detailed discussion of at least the following:

- The identity of the person designated by NESMA AIRLINES to answer employee questions about the materials;
- The categories of employees who are subject to the provisions of these alcohol misuse requirements;
- Sufficient information about the safety-sensitive functions performed by those employees to make clear what period of the work day the covered employee is required to be in compliance with these alcohol misuse requirements;
- Specific information concerning employee conduct that is prohibited by this chapter;
- The circumstances under which a covered employee will be tested for alcohol under this chapter;
- The procedures that will be used to test for the presence of alcohol, protect the employee and the integrity of the breath testing process, safeguard the validity of the test results, and ensure that those results are attributed to the correct employee;
- The requirement that a covered employee submit to alcohol tests administered in accordance with this chapter;
- An explanation of what constitutes a refusal to submit to an alcohol test and the attendant consequences.
  - The consequences for covered employees found to have violated the prohibitions in this chapter, including the requirement that the employee be removed immediately from performing safety-sensitive functions, and the procedures under this chapter;
  - The consequences for covered employees found to have an alcohol concentration of 0.02 or greater but less than 0.04; and

- Information concerning the effects of alcohol misuse on an individual's health, work, and personal life; signs and symptoms of an alcohol problem; and available methods of evaluating and resolving problems associated with the misuse of alcohol; and intervening when an alcohol problem is suspected, including confrontation, referral to any available employee assistance program, and/or referral to management.

iii. Optional provisions:

The materials supplied to covered employees may also include information on additional NESMA AIRLINES policies with respect to the use or possession of alcohol, including any consequences for an employee found to have a specified alcohol level, that are based on the NESMA AIRLINES authority independent of this chapter. Any such additional policies or consequences must be clearly and obviously described as being based on independent authority:

- Training for supervisors NESMA AIRLINES shall ensure that persons designated to determine whether reasonable suspicion exists to require a covered employee to undergo alcohol testing under section II of this chapter receive at least 60 minutes of training on the physical, behavioral, speech, and performance indicators of probable alcohol misuse;
- Referral, evaluation, and treatment: Each covered employee who has engaged in conduct prohibited by the ECARs shall be advised by NESMA AIRLINES of the resources available to the employee in evaluating and resolving problems associated with the misuse of alcohol, including the names, addresses, and telephone numbers of substance abuse professionals and counseling and treatment programs; and
- Each covered employee who engages in conduct prohibited by the ECARs shall be evaluated by a substance abuse professional who must determine what assistance, if any, the employee needs in resolving problems associated with alcohol misuse.

iv. Before a covered employee returns to duty requiring the performance of a safety-sensitive function after engaging in conduct prohibited by the ECARs, the employee shall undergo a return-to-duty alcohol test with a result indicating an alcohol concentration of less than 0.02.

v. In addition, each covered employee identified as needing assistance in resolving problems associated with alcohol misuse:

- Shall be evaluated by a substance abuse professional to determine whether the employee has properly followed any rehabilitation program prescribed under subparagraph 2 of this paragraph; and
- Shall be subject to unannounced follow-up alcohol tests administered by NESMA AIRLINES following the employee's return to duty. The number and frequency of such follow-up testing shall be determined by a substance abuse professional, but shall consist of at least six tests in the first 12 months following the employee's return to duty. NESMA AIRLINES may direct the employee to undergo testing for drugs (both return to duty and follow-up), in addition to alcohol testing, if the substance abuse professional determines that drug testing is necessary for the particular employee. Any such drug testing shall be conducted in accordance with the requirements of the ECARs. Follow-up testing shall not exceed 60 months from the date of the employee's return to duty. The substance abuse professional may terminate the requirement for follow-up testing at any time after the first six tests have been administered, if the substance abuse professional determines that such testing is no longer necessary.

- Evaluation and rehabilitation may be provided by the NESMA AIRLINES, by a substance abuse professional under contract with the NESMA AIRLINES, or by a substance abuse professional not affiliated with the NESMA AIRLINES. The choice of substance abuse professional and assignment of costs shall be made in accordance with NESMA AIRLINES /employee agreements and NESMA AIRLINES policies.
- NESMA AIRLINES shall ensure that a substance abuse professional who determines that a covered employee requires assistance in resolving problems with alcohol misuse does not refer the employee to the substance abuse professional's private practice or to a person or organization from which the substance abuse professional receives remuneration or in which the substance abuse professional has a financial interest. This paragraph does not prohibit a substance abuse professional from referring an employee for assistance provided through:
  - A public agency;
  - NESMA AIRLINES or a person under contract to provide treatment for alcohol problems on behalf of the NESMA AIRLINES ;
  - The sole source of therapeutically appropriate treatment under the employee's health insurance program; or
  - The sole source of therapeutically appropriate treatment reasonably accessible to the employee.
- ***The requirements of this paragraph with respect to referral, evaluation, and rehabilitation do not apply to applicants who refuse to submit to pre-employment testing or have a pre-employment test with a result indicating an alcohol concentration of 0.04 or greater.***

A.7 NESMA AIRLINES Alcohol Misuse Prevention Program

i. NESMA AIRLINES shall submit an alcohol misuse prevention program (AMPP) as prescribed in this chapter, in duplicate, to the ECAA
   - The ECAA may revoke its authorization in the case of any contractor company that fails to properly implement its AMPP; and
   - NESMA AIRLINES shall not use a contractor company's employee who is not subject to the NESMA AIRLINES AMPP unless NESMA AIRLINES has first determined that the employee is subject to the contractor company's ECAA-mandated AMPP.
   - A consortium may be authorized to establish a consortium AMPP under the auspices of this chapter by submitting a certification statement meeting the requirements of this chapter directly to the ECAA. Each consortium that so certifies shall implement the AMPP on behalf of the consortium members in accordance with the provisions of this chapter:
   - The ECAA may revoke its authorization in the case of any consortium that fails to properly implement the AMPP;
   - NESMA AIRLINES – if participates in ECAA approved consortium - remains individually responsible for ensuring compliance with the provisions of these alcohol misuse requirements and must maintain all records required under this chapter; and
   - Each consortium shall notify the ECAA of any membership termination within 10 days of such termination.
   - Any person who applies for a certificate after the effective date of the final rule shall submit an alcohol misuse prevention program (AMPP) certification statement to the ECAA prior to beginning operations pursuant to the certificate. The AMPP shall be implemented concurrently with beginning such operations or on the date specified in this chapter, whichever is later. Contractor employees to a new certificate holder must be subject to an ECAA-mandated AMPP within 180 days of the implementation of the NESMA AIRLINES AMPP; and
   - NESMA AIRLINES, and each contractor company that submits a certification statement directly to the ECAA, shall notify the ECAA of any proposed change in status. NESMA AIRLINES or Contractor Company must ensure that it is continuously covered by an ECAA- mandated alcohol misuse prevention program.

ii. Required content of AMPP certification statements:
   Each AMPP certification statement submitted by NESMA AIRLINES or a contractor company shall provide the following information:
   – The name, address, and telephone number of NESMA AIRLINES/ contractor company and for the NESMA AIRLINES /contractor company AMPP manager;
   – ECAA operating certificate number (if applicable);
   – The date on which NESMA AIRLINES or contractor company will implement its AMPP;
   – If the submitter is a consortium member, the identity of the consortium; and
   – A statement signed by an authorized representative of NESMA AIRLINES or contractor company certifying an understanding of an agreement to comply with the provisions of the ECAA's alcohol misuse prevention regulations.

- Each consortium certification statement shall provide the following information:
  - The name, address, and telephone number of the consortium's AMPP manager;
  - A list of the specific services the consortium will be providing in implementation of ECAA mandated AMPPs; and
  - A statement signed by an authorized representative of the consortium certifying an understanding of an agreement to comply with the provisions of the ECAA's alcohol misuse prevention regulations.

A.8 Employees Located Outside the Arab Republic of Egypt

i. No covered employee shall be tested for alcohol misuse while located outside the territory of the Arab Republic of Egypt:

- Each covered employee who is assigned to perform safety-sensitive functions solely outside the territory of the Arab Republic of Egypt shall be removed from the random testing pool upon the inception of such assignment; and
- Each covered employee who is removed from the random testing pool under this paragraph shall be returned to the random testing pool when the employee resumes the performance of safety-sensitive functions wholly or partially within the territory of the Arab Republic of Egypt.

ii. The provisions of this chapter shall not apply to any person who performs a safety-sensitive function by contract for NESMA AIRLINES outside the territory of the Arab Republic of Egypt.

A.9 Drug Testing Program General

i. NESMA AIRLINES shall ensure that drug-testing programs conducted pursuant to and comply with the requirements of ECARs.

ii. **Accident** means 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 and all such persons have disembarked, and in which any person suffers death or serious injury, or in which the aircraft receives substantial damage;

iii. **Annualized rate** for the purposes of unannounced testing of employees based on random selection means the percentage of specimen collection and testing of employees performing a safety-sensitive function during a calendar year. NESMA AIRLINES shall determine the annualized rate by referring to the total number of employees performing a safety-sensitive function for NESMA AIRLINES at the beginning of the calendar year;

iv. **Contractor company** means a company that has employees who perform safety-sensitive functions by contract for Nesma Airlines;

v. **Employee** is a person who performs, either directly or by contract, a safety-sensitive function for Nesma Airlines, as defined below;

vi. **NESMA AIRLINES** is a certificate holder, an air traffic control facility, an approved maintenance organization or any approved aviation training center;

vii. **Performing (a safety-sensitive function)** an employee is considered to be performing a safety-sensitive function during any period in which he or she is actually performing, ready to perform such function;

viii. **Positive rate** means the number of positive results for random drug tests conducted plus the number of refusals to take random tests required by this:

ix. chapter, divided by the total number of random drug tests conducted plus the number of refusals to take random tests required by this chapter;

x. **Prohibited drug** means marijuana, cocaine, opiates, phencyclidine (PCP), amphetamines, or any substance specified in the Egyptian laws, unless the drug is being used as authorized by a legal prescription;

xi. **Refusal to submit** means that an individual failed to provide a urine sample, without a genuine inability to provide a specimen (as determined by a medical evaluation), after he or she has received notice of the requirement to be tested in accordance with this chapter, or engaged in conduct that clearly obstructed the testing process;

xii. **Verified negative drug test result** means that the test result of a urine sample collected and tested has been verified by an approved medical examiner as negative; and

xiii. **Verified positive drug test result** means that the test result of a urine sample collected and tested has been verified by an approved medical examiner as positive.

A.9.1 Employees Who Must Be Tested

Each person who performs a safety-sensitive function directly or by contract for NESMA AIRLINES must be tested pursuant to an ECAA approved anti-drug program as follows:

- **i.** Cockpit crewmember duties;
- **ii.** Cabin crew duties;
- **iii.** Flight instruction duties;
- **iv.** Aircraft dispatcher duties;
- **v.** Aircraft maintenance or preventive maintenance duties;
- **vi.** Ground security coordinator duties;
- **vii.** Aviation screening duties; and
- **viii.** Air traffic control duties.
- **ix.** Ground Handling duties.

A.9.2 Substances for Which Testing Must be Conducted

NESMA AIRLINES hall test each employee who performs a safety-sensitive function for evidence of marijuana, cocaine, opiates, phencyclidine (PCP), and amphetamines during each test required. As part of a reasonable cause drug testing program established, NESMA AIRLINES may test for additional drugs only with approval granted by the ECAA.

Types of drug testing required

NESMA AIRLINES shall conduct the following types of testing:

- **i. Pre-employment testing:**

  Prior to the first time an individual performs a safety-sensitive function for Nesma Airlines, NESMA AIRLINES shall require the individual to undergo testing for prohibited drug use.

  - ➢ NESMA AIRLINES is permitted to require pre-employment testing of an individual if the following criteria are met:
    - – The individual previously performed a covered function for Nesma Airlines;
    - – NESMA AIRLINES removed the individual from NESMA AIRLINES random testing program conducted for reasons other than a verified positive test result on an ECAA mandated drug test or a refusal to submit to such testing;
    - – The individual will be returning to the performance of a safety-sensitive function.
  - ➢ NESMA AIRLINES shall not allow an individual, required to undergo pre-employment testing, to perform a safety-sensitive function unless NESMA AIRLINES has received a verified negative drug test result for the individual; and
- **ii.** NESMA AIRLINES shall advise each individual applying to perform a safety-sensitive function at the time of application that the individual will be required to undergo pre-employment testing to determine the presence of marijuana, cocaine, opiates, phencyclidine (PCP), and amphetamines, or a metabolite of those drugs in the individual's system.
- **iii. Periodic testing:**

  Each employee who performs a safety-sensitive function for NESMA AIRLINES and who is required to undergo a medical assessment that is required by ECAR shall submit to a periodic drug test. The employee shall be tested for the presence of marijuana, cocaine, opiates, phencyclidine (PCP), and amphetamines, or a metabolite of those drugs during the first calendar year of implementation of NESMA AIRLINES anti-drug program. The tests shall be conducted in conjunction with the first medical evaluation of the employee or in accordance with an alternative method for collecting periodic test specimens detailed in NESMA AIRLINES approved anti-drug program. NESMA AIRLINES may discontinue periodic testing of its employees after the first calendar year of implementation of NESMA AIRLINES anti-drug program when NESMA AIRLINES has implemented an unannounced testing program based on random selection of employees;

iv. **Random testing:**

- Except as provided in this chapter, the minimum annual percentage rate for random drug testing shall be 50 percent of covered employees;
- When the minimum annual percentage rate for random drug testing is 50 percent, the ECAA may lower this rate to 25 percent of all covered employees if the ECAA determines that the data received under the reporting requirements for two consecutive calendar years indicate that the reported positive rate is less than 1.0 percent;
- When the minimum annual percentage rate for random drug testing is 25 percent, and the data received under the reporting requirements for any calendar year indicate that the reported positive rate is equal to or greater than 1.0 percent, the ECAA will increase the minimum annual percentage rate for random drug testing to 50 percent of all covered employees;
- The selection of employees for random drug testing shall be made by a scientifically valid method, such as a random-number table or a computer-based random number generator that is matched with employees' payroll identification numbers, or other comparable identifying numbers. Under the selection process used, each covered employee shall have an equal chance of being tested each time selections are made;
- NESMA AIRLINES shall randomly select a sufficient number of covered employees for testing during each calendar year to equal an annual rate not less than the minimum annual percentage rate for random drug testing determined by the ECAA.
- NESMA AIRLINES shall ensure that random drug tests conducted are unannounced and that the dates for administering random tests are spread reasonably throughout the calendar year. Moreover NESMA AIRLINES shall provide access to NESMA AIRLINES records of random drug testing, as determined to be necessary by the approved medical examiner to ensure NESMA AIRLINES compliance with the rule.

v. **Post-accident testing:**

NESMA AIRLINES shall test each employee who performs a safety-sensitive function for the presence of marijuana, cocaine, opiates, phencyclidine (PCP), and amphetamines, or a metabolite of those drugs in the employee's system if that employee's performance either contributed to an accident or cannot be completely discounted as a contributing factor to the accident. The employee shall be tested as soon as possible but not later than 32 hours after the accident. The decision not to administer a test must be based on a determination, using the best information available at the time of the determination that the employee's performance could not have contributed to the accident.

vi. **Testing based on reasonable cause:**

Reasonably suspected of using a prohibited drug. NESMA AIRLINES shall test an employee's specimen for the presence of marijuana, cocaine, opiates, phencyclidine (PCP), and amphetamines, or a metabolite of those drugs. NESMA AIRLINES may test an employee's specimen for the presence of other prohibited drugs or drug metabolites. At least two of the employee's supervisors, one of whom is trained in detection of the symptoms of possible drug use, shall substantiate and concur in the decision to test an employee who is reasonably suspected of drug use.

vii. Return to duty testing.

NESMA AIRLINES shall ensure that before an individual is returned to duty to perform a safety- sensitive function after refusing to submit to a drug test required or receiving a verified positive drug test result on a test conducted, the individual shall undergo a drug test. NESMA AIRLINES shall not allow an individual required to undergo return to duty testing to perform a safety-sensitive function unless NESMA AIRLINES has received a verified negative drug test result for the individual.

viii.Follow-up testing:

- NESMA AIRLINES shall implement a reasonable program of unannounced testing of each individual who has been hired to perform or who has been returned to the performance of a safety-sensitive function after refusing to submit to a drug test required by this chapter or receiving a verified positive drug test result.
- The number and frequency of such testing shall be determined by NESMA AIRLINES medical review officer. In the case of any individual evaluated and determined to be in need of assistance in resolving problems associated with illegal use of drugs, follow-up testing shall consist of at least six tests in the first 12 months following the employee's return to duty;
- NESMA AIRLINES may direct the employee to undergo testing for alcohol, in addition to drugs, if the medical review officer determines that alcohol testing is necessary for the particular employee; and Follow-up testing shall not exceed 60 months after the date the individual begins to perform or returns to the performance of a safety-sensitive function. The medical review officer may terminate the requirement for follow-up testing at any time after the first six tests have been conducted, if the medical review officer determines that such testing is no longer necessary.

A.9.3 Administrative and Other Matters

i. Collection, testing, and rehabilitation records

NESMA AIRLINES shall maintain all records related to the collection process, including all logbooks and certification statements, for two years. NESMA AIRLINES shall maintain records of employee confirmed positive drug test results and employee rehabilitation for five years. NESMA AIRLINES shall maintain records of negative test results for 12 months. NESMA AIRLINES shall permit the ECAA representative to examine these records.

ii. Laboratory inspections

NESMA AIRLINES shall contract only with a laboratory that permits pre-award inspections by NESMA AIRLINES before the laboratory is awarded a testing contract and unannounced inspections, including examination of any and all records at any time by NESMA AIRLINES or the ECAA representative.

iii. Release of drug testing information:

NESMA AIRLINES shall release information regarding an employee's drug testing results, evaluation, or rehabilitation to a third party in accordance with the specific, written consent of the employee authorizing release of the information to an identified person, as part of an accident investigation.

iv. **Refusal to submit to testing:**
- NESMA AIRLINES shall notify the ECAA within 5 working days of any employee who holds a license issued under the ECARs who has refused to submit to a drug test required under this chapter; and
- NESMA AIRLINES are not required to notify the above office of refusals to submit to pre- employment or return to duty testing.

v. **Permanent disqualification from service:**
- An employee who has verified positive drug test results on two drug tests required by this chapter and conducted after September 1, 2001 is permanently precluded from performing for NESMA AIRLINES the safety-sensitive duties the employee performed prior to the second drug test.
- An employee who has engaged in prohibited drug use during the performance of a safety- sensitive function after September 1, 2001 is permanently precluded from performing that safety-sensitive function for Nesma Airlines.

A.10 Employee Assistance Program (EAP)

NESMA AIRLINES shall provide an EAP for employees. NESMA AIRLINES may establish the EAP as a part of its internal personnel services or NESMA AIRLINES may contract with an entity that will provide EAP services to an employee. Each EAP must include education and training on drug use for employees and training for supervisors making determinations for testing of employees based on reasonable cause:

i. **EAP Education Program:**
Each EAP education program must include at least the following elements: display and distribution of informational material; display and distribution of a community service hot-line telephone number for employee assistance; and display and distribution of NESMA AIRLINES policy regarding drug use in the workplace. NESMA AIRLINES policy shall include information regarding the consequences under the rule of using drugs while performing safety-sensitive functions, receiving a verified positive drug test result, or refusing to submit to a drug test required under the rule.

ii. **EAP training program:**
NESMA AIRLINES shall implement a reasonable program of initial training for employees. The employee training program must include at least the following elements: The effects and consequences of drug use on personal health, safety, and work environment; the manifestations and behavioral cues that may indicate drug use and abuse; and documentation of training given to employees and NESMA AIRLINES supervisory personnel. NESMA AIRLINES supervisory personnel who will determine when an employee is subject to testing based on reasonable cause shall receive specific training on specific, contemporaneous physical, behavioral, and performance indicators of probable drug use in addition to the training specified above. NESMA AIRLINES shall ensure that supervisors who will make reasonable cause determinations receive at least 60 minutes of initial training. NESMA AIRLINES shall implement a reasonable recurrent training program for supervisory personnel making reasonable cause determinations during subsequent years. NESMA AIRLINES shall identify the employee and supervisor EAP training in NESMA AIRLINES drug testing plan submitted to the ECAA for approval.

A.11 NESMA AIRLINES Anti-Drug Program Plan

i. Schedule for submission of plans and implementation:

- NESMA AIRLINES shall submit an anti-drug program plan to the ECAA for approval and must obtain such approval prior to beginning operations under the certificate. The program shall be implemented not later than the date of inception of operations. Contractor employees must be subject to an ECAA-approved anti-drug program within 60 days of the implementation of NESMA AIRLINES program;
- An entity or individual that holds a repair station certificate issued by the ECAA pursuant to Part 145 and employs individuals who perform a safety-sensitive function pursuant to a primary or direct contract with NESMA AIRLINES may submit an anti-drug program plan (specifying the procedures for complying with this chapter) to the ECAA for approval. Each certificated repair station shall implement its approved anti-drug program in accordance with the terms of this chapter
- Any entity or individual whose employees perform safety-sensitive functions pursuant to a contract with Nesma Airlines(as defined in this chapter), and any consortium may submit an anti-drug program plan to the ECAA for approval on a form and in a manner prescribed by the ECAA:
  – The plan shall specify the procedures that will be used to comply with the requirements of this chapter;
  – Each consortium program must provide for reporting changes in consortium membership to the ECAA within 10 working days of such changes; and
  – Each contractor or consortium shall implement its anti-drug program in accordance with the terms of its approved plan.
- Nesma Airlines, or Contractor Company that has submitted an anti-drug plan directly to the ECAA, shall ensure that it is continuously covered by an ECAA-approved anti- drug program, and shall obtain appropriate approval from the ECAA prior to changing programs (e.g., joining another carrier's program, joining a consortium, or transferring to another consortium).

ii. NESMA AIRLINES anti-drug plan must specify the methods by which NESMA AIRLINES will comply with the testing requirements of this chapter. The plan must provide the name and address of the laboratory which has been selected by NESMA AIRLINES for analysis of the specimens collected during NESMA AIRLINES anti-drug testing program.

iii. NESMA AIRLINES anti-drug plan must specify the procedures and personnel NESMA AIRLINES will use to ensure that a determination is made as to the veracity of test results and possible legitimate explanations for an employee receiving a verified positive drug test result.

iv. NESMA AIRLINES shall consider its anti-drug program to be approved by the ECAA, unless notified to the contrary by the ECAA, within 60 days after submission of the plan to the ECAA.

A.12 Reporting of Anti-Drug Program Results

i. Annual reports of anti-drug program results shall be submitted to the ECAA in the form and manner prescribed by the ECAA by March 15 of the succeeding calendar year for the prior calendar year (January 1 through December 31) in accordance with the provisions below:
   - ➢ NESMA AIRLINES shall submit an annual report each year;
   - ➢ Each entity conducting an anti-drug program under an ECAA-approved anti-drug plan that has 50 or more employees performing a safety-sensitive function on January 1 of any calendar year shall submit an annual report to the ECAA for that calendar year; and
   - ➢ The ECAA reserves the right to require NESMA AIRLINES not otherwise required to submit annual reports prepare and submit such reports to the ECAA. NESMA AIRLINES that will be required to submit annual reports under this provision will be notified in writing by the ECAA.

ii. Each report shall be submitted in the form and manner prescribed by the ECAA.

iii. Each report shall be signed by NESMA AIRLINES anti-drug (Q & S director) or other designated representative as a program manager.

iv. Each report with verified positive drug test results shall include all of the following informational elements.
   - Number of covered employees by employee category;
   - Number of covered employees affected by the anti-drug rule of another operating administration identified and reported by number and employee category;
   - Number of specimens collected by type of test and employee category;
   - Number of positive drug test results verified by an approved medical examiner by type of test, type of drug, and employee category;
   - Number of negative drug test results reported by an approved medical examiner by type of test and employee category;
   - Number of persons denied a safety-sensitive position based on a verified positive pre- employment drug test result reported by an approved medical examiner;
   - Action taken following a verified positive drug test result(s), by type of action;
   - Number of employees returned to duty during the reporting period after having received a verified positive drug test result on or refused to submit to a drug test required under the ECAA rule;
   - Number of employees by employee category with tests verified positive for multiple drugs by an approved medical examiner;
   - Number of employees who refused to submit to a drug test and the action taken in response to the refusal(s);
   - Number of covered employees who have received required initial training;
   - Number of supervisory personnel who have received required initial training; and
   - Number of supervisors who have received required recurrent training.

v. Each report with only negative drug test results shall include all of the following informational elements. (This report may only be submitted by NESMA AIRLINES with no verified positive drug test results during the reporting year):

- Number of covered employees by employee category;
- Number of covered employees affected by the anti-drug rule of another operating administration identified and reported by number and employee category;
- Number of specimens collected by type of test and employee category;
- Number of negative tests reported by an approved medical examiner by type of test and employee category;
- Number of employees who refused to submit to a drug test and the action taken in response to the refusal(s);
- Number of employees returned to duty during the reporting period after having received a verified positive drug test result on or refused to submit to a drug test required under the ECAA rule;
- Number of covered employees who have received required initial training;
- Number of supervisory personnel who have received required initial training; and
- Number of supervisors who have received required recurrent training.

vi. An ECAA-approved consortium may prepare reports on behalf of individual aviation operators for purposes of compliance with this reporting requirement. However, the aviation NESMA AIRLINES shall sign and submit such a report and shall remain responsible for ensuring the accuracy and timeliness of each report prepared on its behalf by a consortium.

A.13 Employees Located Outside the Territory of the Arab Republic of Egypt

i. No individual shall undergo a drug test required under the provisions of this chapter while located outside the territory of the Arab Republic of Egypt:

- Each employee who is assigned to perform safety-sensitive functions solely outside the territory of the Arab Republic of Egypt shall be removed from the random testing pool upon the inception of such assignment; and
- Each covered employee who is removed from the random testing pool under this paragraph A shall be returned to the random testing pool when the employee resumes the performance of safety-sensitive functions wholly or partially within the territory of the Arab Republic of Egypt.
- The provisions of this chapter shall not apply to any person who performs a function by contract for NESMA AIRLINES outside the territory of the Arab Republic of Egypt.