Civil Aviation Safety Authority
of Papua New Guinea

Advisory Circular

AC119-4

Guidelines for the Structure and Preparation of Operations Manual

Initial Issue

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GENERAL

Civil Aviation Safety Authority (CASA) Advisory Circular's (AC) contain information about standards, practices and procedures that the Director has found to be an Acceptable Means of Compliance (AMC) with the associated rule.

An AMC is not intended to be the only means of compliance with a rule, and consideration will be given to other methods of compliance that may be presented to the Director. When new standards, practices or procedures are found to be acceptable, they will be added to the appropriate AC.

This AC also includes Explanatory Material (EM) where it has been shown that further explanation is required. EM must not be regarded as an acceptable means of compliance.

PURPOSE

The purpose of this AC is to provide information and guidance relating to the organization and contents of an operations manual required under Civil Aviation Rule (CAR) 119.79. Organisations seeking certification can apply the procedures and practices outlined in this AC to establish such manuals.

RELATED CAR

This AC relates to CAR Part 119.79.

CHANGE NOTICE

There was no previous issue of this AC, consequently no change is in effect.

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ABBREVIATIONS

The following are additional to CAR Part 1;

AC	-	Alternating current
ACAS	-	Airborne collision avoidance system
ADS	-	Automatic dependent surveillance
ADS-C	-	Automatic dependent surveillance – contract
AFCS	-	Automatic flight control system
AFM	-	Aircraft Flight Manual
APU	-	Auxiliary power unit
ASN	-	Aviation Safety Notice
AVSEC	-	Aviation Security
CAA	-	Civil Aviation Authority
CAS	-	Calibrated Airspeed
CASAPNG	-	Civil Aviation Safety Authority of Papua New Guinea
CAT I	-	Category I
CAT II	-	Category II
CAT III	-	Category III
CAT IIIA	-	Category IIIA
CAT IIIB	-	Category IIIB
CAT IIIC	-	Category IIIC
cm	-	Centimetre
CFIT	-	Controlled Flight Into Terrain
CSI	-	Cabin Safety Inspector
C of A	-	Certificate of Airworthiness
C of R	-	Certificate of Registration
CPDLC	-	Controller-Pilot Data Link Communications
CSI	-	Cabin Safety Inspector
CVR	-	Cockpit Voice Recorder
DC	-	Device Control

DCP	-	Designated Check Pilot
D-FIS	-	Data Link-Flight Information Services
DSTRK	-	Desired Track
ECAM	-	Electronic Centralised Aircraft Monitor
EFIS	-	Electronic Flight Instrument System
EGT	-	Exhaust Gas Temperature
EICAS	-	Engine Indication and Crew Alerting System
EPR	-	Engine Pressure Ratio
ETOPS	-	Extended Twin Engine Operations
FDAU	-	Flight Data Acquisition Unit
FDR	-	Flight Data Recorder
FM	-	Frequency Modulation
FOI	-	Flight Operations Inspector
ft.	-	Foot
ft. / min	-	Feet Per Minute
g	-	Normal Acceleration
GCAS	-	Ground Collision Avoidance System
hPa	-	Hectopascal
INS	-	Inertial Navigation System
ISA	-	International Standard Atmosphere
kg	-	Kilogram
kg / m2	-	Kilogram Per Meter squared
km	-	Kilometre
km / h	-	Kilometre Per Hour
kt	-	Knot
kt / s	-	Knot Per Second
lb	-	Pound
LOFT	-	Line Oriented Flight Training
m	-	Meter

MCM	-	Maintenance Control Manual
MHz	-	Megahertz
MLS	-	Microwave Landing System
MOPS	-	Minimum Operational Performance Specification
m / s	-	Meters Per Second
m / s2	-	Meters Per Second Squared
N	-	Newton
N1	-	Low Pressure Compressor Speed (Two-Stage Compressor); fan speed (three-stage compressor)
N2	-	High Pressure Compressor Speed (Two Stage Compressor); Intermediate Pressure Compressor Speed (three stage compressor)
N3	-	Hi Pressure Compressor Speed (Three Stage Compressor)
NAV	-	Navigation
NM	-	Nautical Mile
Ops Specs	-	Operations Specifications
PANS	-	Procedures for Air Navigation Services
RCP	-	Required Communication Performance
Rev	-	Revision
RP	-	Recommended Practice Adopted by the Council which contracting States will Endeavour to conform in accordance with the Convention.
SARPS	-	Standards and Recommended Practices
SICASP	-	Secondary Surveillance Radar Improvements And Collision Avoidance Systems Panel
SOP	-	Standard Operating Procedures
SST	-	Supersonic Transport
STOL	-	Short Take-Off And Landing
TAS	-	True Airspeed
TLA	-	Thrust Lever Angle
TLS	-	Target Level Of Safety
USOAP	-	Universal Safety Oversight Audit Program
VD	-	Design Diving Speed

VSO	-	Stalling Speed or the Minimum Steady Flight Speed in the Landing Configuration
VS1	-	Stalling Speed or the Minimum Steady Flight Speed in a Specified Configuration
VTOL	-	Vertical Take-Off and Landing
WXR	-	Weather

DEFINITIONS

Following definitions are additional to CAR Part 1;

CAS (Calibrated Airspeed). The calibrated airspeed is equal to the airspeed indicator reading corrected for position and instrument error. (As a result of the sea level adiabatic compressible flow correction to the airspeed instrument dial, CAS is equal to the true airspeed (TAS) in Standard Atmosphere at sea level.)

Commercial Air Transport Operation. An aircraft operation involving the transport of passengers, cargo or mail for remuneration or hire.

Declared Temperature. A temperature selected in such a way that when used for performance purposes, over a series of operations, the average level of safety is not less than would be obtained by using official forecast temperatures.

Expected. Used in relation to various aspects of performance (e.g. rate or gradient of climb), this term means the standard performance for the type, in the relevant conditions (e.g. mass, altitude and temperature).

Grooved or Porous Friction Course Runway. A paved runway that has been prepared with lateral grooving or a porous friction course (PFC) surface to improve braking characteristics when wet.

Net Gradient. The net gradient of climb throughout these requirements is the expected gradient of climb diminished by the manoeuvre performance (i.e. that gradient of climb necessary to provide power to manoeuvre) and by the margin (i.e. that gradient of climb necessary to provide for those variations in performance which are not expected to be taken explicit account of operationally).

Reference Humidity. The relationship between temperature and reference humidity is defined as follows:

- At temperatures at and below ISA, 80 per cent relative humidity,
- At temperatures at and above ISA + 28° C, 34 per cent relative humidity,
- At temperatures between ISA and ISA + 28° C, the relative humidity varies linearly between the humidity specified for those temperatures.

Required Communication Performance Type (RCP Type). A label (e.g. RCP 240) that represents the values assigned to RCP parameters for communication transaction time, continuity, availability and integrity.

Rest Period. A continuous and defined period of time, subsequent to and / or prior to duty, during which flight or cabin crew members are free of all duties.

Safety Program. An integrated set of regulations and activities aimed at improving safety.

Serious Injury. An injury which is sustained by a person in an accident and which:

a) Requires hospitalization for more than 48 hours, commencing within seven days from the date the injury was received; or

b) Results in a fracture of any bone (except simple fractures of fingers, toes or nose); or

c) Involves lacerations which cause severe haemorrhage, nerve, muscle or tendon damage; or

d) Involves injury to any internal organ; or

e) Involves second or third degree burns, or any burns affecting more than 5 per cent of the body surface; or

f) Involves verified exposure to infectious substances or injurious radiation. Take-off distance available (TODA). The length of the take-off run available plus the length of the clearway, if provided.

TAS (True airspeed). The speed of the aeroplane relative to undisturbed air.

Total Vertical Error (TVE). The vertical geometric difference between the actual pressure altitude flown by an aircraft and its assigned pressure altitude (flight level).

1. General Rules for the Preparation of Operations Manual

1.1 General Rules

1.1.1 The Operator will be required to submit to CASAPNG the Operations Manual at the time of the submission of the formal application.

1.1.2 The CASAPNG certification team should inform the Operator during the formal application meeting a reasonable time frame that will be needed to evaluate the adequacy of the Operations Manual.

1.2 Manual Standards

1.2.1 The Operations Manual prepared by an applicant for the approval of the CASAPNG shall comply with following specifications in order to ensure effective production, amendment, distribution and / or uniform use of, or compliance with information relating to the company requirements.

(a) Reference Number used to identify the Document

This number shall be printed on top of the right hand corner of the front / cover page and on each page of the Manual / Document.

(b) Trade Mark / logo of the applicant

This shall be printed on front / cover page and top of the left-hand corner on each page of the Manual / Document.

(c) Title of the Manual / Document

This shall be printed on front / cover page and immediate inner page after the cover page.

(d) Edition Number and Year of edition

This shall be printed on front / cover page.

(e) Title of the person under whose authority the document is printed.

The title of the person who authorized the production of the Manual / document front page;

(f) Control Number

In addition to whatever information the applicant may wish to print on the inner page immediately after the cover page, shall contain the control number which indicates the serial number

(g) Record of Revision

This shall contain three running columns to indicate the Revision Number, date entered and name of the person making the revision;

(h) List of Effective Pages

This shall contain three running columns to indicate the Page Number, last date of revision and effective date;

(i) History of Revision

A brief description in regard to each amendment introduced subsequent to the initial issue.

(j) Table of Contents

The table of contents shall be expanded to cover at least two sublevels with page numbers placed on section basis.

(k) Preamble / Forward

This shall at least contain information relating to the purpose of the Manual in brief, the level of compliance expected from the user. The preamble of a Manual /document shall be signed by the Chief Executive Officer or the Accountable Manager;

(l) Abbreviations

All abbreviation and acronyms used in the Manual or documents should be clearly explained in full;

(m) (Definitions

All words, which has or requires a specific meaning in relation to the matter being explained, shall be defined clearly in order to avoid ambiguities. In the absence of a definition for a word or phrase, the CASAPNG will have the right to interpret such word or phrase with due regard to its obligations for safety and security;

(n) Separation of sections / chapters

Manuals should be divided into chapters or sections based on topics being dealt with in view of the necessity of future updating requirements. Each new chapter or section shall start with a new page and such sections / chapters shall be identified with distinctive separators;

(o) Header

There shall be a header for each page of a Manual or document and it shall contain at least the applicant's logo / trade mark, document name, document identification number, volume number, chapter number, page number, subject of the chapter and any other information the applicant may wish to display;

(p) Footer

There shall be a footer for each page which shall contain the revision number, date of revision, name of the organisation and any other information which the applicant may wish to display;

(q) (Index

There shall be an index to a Manual /document for ease of reference.

1.2.2 The applicant shall also maintain a Master Distribution Record in relation to the production and distribution of the Manual and its subsequent amendments.

1.2.3 The Operations Manuals submitted by the applicant to the CASAPNG shall be in duplicate so that one copy will be returned with the appropriate attestation, on approval.

1.2.4 The relevant page or pages of the original document which carries the CASAPNG attestation shall be submitted, whenever an amendment is forwarded to the CASAPNG for approval.

1.2.5 The Operations Manuals, which contain information/instructions which are subject to change, hence shall be compiled in a loose binder (ring binders) and shall be printed on papers of A5

size.

1.2.6 Use of language in the Manual

The applicant shall ensure that the Operations Manual is written in the English language and the following words are used to give the meaning as indicated against such words.

"shall" or "must"	Compliance is mandatory
"will"	The action referred to will not take place at the present moment but there is a commitment to comply with the requirement.
"should"	Compliance is recommended but not compulsory
"may"	There is discretion for the applicant / operator to apply
Any specific instruction issued by the applicant to the operational staff shall be given using the words "shall" or "must".	

2. Administration of Operations Manual

2.1 Preparation of Operations Manual

2.1.1 An operator shall provide, for the use and guidance of operations personnel concerned, an Operations Manual in accordance with guidance material provided in this manual.

2.1.2 An operator shall ensure that the contents of the Operations Manual, including all amendments or revisions, do not contravene the conditions contained in the Air Operator Certificate (AOC) / Operations Specifications or any applicable regulations and are acceptable to, or, where applicable, approved by, the Authority.

2.1.3 An operator shall ensure that the Operations Manual contains all instructions and information necessary for operations personnel to perform their duties.

2.1.4 An operator must ensure that information taken from approved documents, and any amendment of such approved documentation, is correctly reflected in the Operations Manual and that the Operations Manual contains no information contrary to any approved documentation. However, this requirement does not prevent an operator from using more conservative data and procedures.

2.1.5 The operator shall incorporate in the operations manual such mandatory material as the CASAPNG may require.

2.1.6 Unless otherwise approved by CASAPNG, an operator must prepare the Operations Manual in the English language.

2.1.7 An operator may issue an Operations Manual in separate volumes.

2.1.8 An operator must ensure that the contents of the Operations Manual are presented in a form in which they can be used without difficulty. The design of the Operations Manual shall observe human factors principles.

2.2 Master Manuals

2.2.1 The operator shall provide CASAPNG with two master copies of the Operations Manual, for review and acceptance and, where required, approval.

2.2.2 One Master copy of the Operations Manual will be kept at CASAPNG and the other shall be given to the Operator after the required Approval / Acceptance action by CASAPNG.

2.2.3 The Operations Manual at CASAPNG shall be considered the primary master manual. The Inspectors from CASAPNG shall be guided by the contents of the primary master manual kept at CASAPNG for the purposes of audits / inspections and for interpretation during any regulatory functions / enforcement actions.

2.2.4 It is the responsibility of the Operator to ensure that Master Operations Manual at CASAPNG is kept up to date.

2.2.5 Apart from the two master Operations Manuals the Operator shall supply an agreed number of copies of the Operations Manual to CASAPNG for distribution among Authority Inspectors. It is the responsibility of the operator to keep all manuals at CASAPNG up to date.

2.3 Amendments / Revisions to Operations Manual

2.3.1 The Operations Manual (Part A, B, C, D) shall be amended or revised as is necessary to ensure that the information contained therein is kept up to date.

2.3.2 The Operations manual also must contain a statement as to which person of the Operator is

responsible for the contents of the Operations Manual (Part A, B, C, D) and for liaising with CASAPNG in respect of amendments and revisions to the manual.

2.3.3 The delegated person of the Operator who is responsible for the contents of the Operations Manual (as per paragraph 2.3.2) shall also be responsible to keep the Master Operations Manual (Part A, B, C, D) at CASAPNG and all other manuals at the Authority up to date.

2.3.4 An operator shall supply the CASAPNG with intended amendments and revisions in advance of the effective date. Sufficient time must be given to CASAPNG to take appropriate action as necessary

2.3.5 When immediate amendments or revisions are required in the interest of safety, they may be published with the verbal approval of CASAPNG. In such an instance the amendment must be forwarded to CASAPNG within a reasonable period of time.

2.3.6 An operator shall incorporate all amendments and revisions required by CASAPNG.

2.3.7 The operator shall ensure that all operators' relevant personnel are made aware of changes to the Operations Manual that are relevant to their duties without any delay.

2.3.8 All amendments or revisions shall be issued to all personnel who are holders of a copy of the operations manual.

2.4 Access to Operations Manual

2.4.1 An operator shall ensure that all operations personnel have easy access to a copy of each part of the Operations Manual which is relevant to their duties. In addition, the operator shall supply crew members with a personal copy of, Parts A and B of the Operations Manual for personal study.

2.4.2 Each holder of an Operations Manual, or appropriate parts of it, shall keep it up to date with the amendments or revisions supplied by the operator.

2.4.3 Users of Operations Manual should be encouraged to make comments on their contents. In particular, when errors in Operational information is discovered, reports should be made immediately to the person charged with the amendments of the Operations manual (refer paragraph 2.3.2).

2.4.4 Users also should be encouraged to comment on the general presentation of information in the manual and to suggest other subjects that should be addressed.

2.5 Aircraft Copy

2.5.1 The Operator shall ensure that a current copy of the Operations Manual is carried in each aircraft during flight, and a copy is available at each flight control centre and at each line station.

2.5.2 Operator shall appoint a person to be responsible for revisions / amendments to Operations Manual kept in each aircraft.

3. Structure of the Operation Manual

3.1 Structure of the Operations Manual

3.1.1 The Operations manual shall be organized with the following structure.

3.1.2 The Operations Manual may be issued in separate parts corresponding to specific aspects of the operation.

3.2 Part A: General

This part shall comprise of all non-type-related operational policies, instructions and procedures needed for a safe operation.

3.3 Part B: Aircraft Operating Information

This part shall comprise all type-related instructions and procedures needed for a safe operation. It shall take account of any differences between types, variants or individual aeroplanes used by the operator.

3.4 Part C: Areas, Routes and Aerodromes

This part shall comprise all instructions and information needed for the area of operation.

3.5 Part D: Training

This part shall comprise all training instructions for personnel required for a safe operation.

4. Operations Manual - Part A

4.1 Instructions for Compiling Operations Manual – Part A

4.1.1 The Operations manual (PART A) referred to in Section 1 shall contain at least the following and comply with the format given below.

4.1.2 Operations Manual (Part A) may be complied in many volumes by the Operator. However, all applicable requirements as given in this AC for the Operator's operation must be covered.

4.1.3 The Operator shall ensure that Operations Manual (Part A) conform to the format below and is relevant to the area of operation.

4.1.4 . For standardization the following numbering system must be retained in the manual and "Not applicable" should be annotated against a paragraph if it is not applicable for the proposed operation.

4.1.5 If a separate manual is made in respect of any subject paragraph state so instead of "not applicable".

4.2 Contents of the Operations Manual – Part A

- Record of Revisions
  Use format of Record of Revision page from this AC.

- List of Effective Pages
  Use format of List of Effective Page from this AC.

- History of Revisions
  Use format of History of Revisions page from this AC.

- Table of Contents
  Use format of Table of Contents page from this AC.

- Foreword
  Use format of Foreword page from this AC. The foreword shall be signed by the Accountable manager.

- Acronyms / Abbreviations
  Use Acronyms / Abbreviations given in this AC.

- Definitions
  Use Definitions given in this AC.

Chapter 1: Administration and Control of Operations Manual

1.1 Introduction

(a) A statement that the manual complies with all applicable Rules and with the terms and conditions of the applicable Air Operator Certificate / Operations Specifications.

(b) A statement that the manual contains operational instructions that are to be complied with by all personnel.

(c) Operator's instructions to ensure that;

(i) All employees when abroad know that they must comply with the laws, regulations and procedures of those States in which operations are conducted.

(ii) All pilots are familiar with the laws, regulations and procedures, pertinent to the performance of their duties, prescribed for the areas to be traversed, the aerodromes to be used and the air navigation facilities relating thereto.

(iii) All other members of the flight crew are familiar with such of these laws, regulations and procedures as are pertinent to the performance of their respective duties in the operation of the aeroplane.

(d) Various parts of the Operations Manual

(i) A brief description of the following parts of the Operations manual, their applicability and use.

(1) Operations manual Part A

(2) Operations manual Part B

(3) Operations manual Part C

(4) Operations manual Part D

(ii) In addition, list all separate manuals complementing above Parts of the Operations manual and include their applicability and use

1.2 System of Amendment, Revision and Distribution

(a) A statement as to which person of the Operator is responsible for the contents of the Operations Manual (Part A, B, C, D) is kept current at all times and for liaising with CASAPNG in respect of amendments and revisions to the manual and subsequent publication of same.

(b) Operator's procedure to ensure the validity of its manuals at all times.

The procedure shall include the Operations Manual (Part A, B, C and D), latest amendments of the CA Rules after the notice of proposed rulemaking and all other manuals required by the Operator's personnel to discharge their duties and responsibilities.

(c) A statement that handwritten amendments and revisions are not permitted except in situations requiring immediate amendment or revision in the interest of safety.

(d) A description of the system for the annotation of pages and their effective dates.

(e) Annotation of changes (on text, graphics and diagrams)

Operator's procedure to ensure that changes to the manual are marked by a vertical line on the right hand side of the page indicating the changed material.

This procedure shall be applicable to the Operations Manual (Part A, B, C and D) and all other manuals required by the Operator's personnel to discharge their duties and responsibilities.

(f) Temporary revisions.

This procedure shall be applicable to the Operations Manual (Part A, B, C and D) and all other manuals required by the Operator's personnel to discharge their duties and responsibilities.

(g) A description of the distribution system for the manuals, amendments and revisions.

This procedure shall be applicable to the Operations Manual (Part A, B, C and D) and all other manuals required by the Operator's personnel to discharge their duties and responsibilities.

(h) A description of the system for the distribution of the manuals, amendments and revisions to all required personal of the Operator and to maintain a current record of the distribution list. This shall include the required personal of CASAPNG.

(i) A statement to ensure that all operators' personnel (who are holders of the Operations manual) made responsible for the prompt revision of the Operations manual.

(ii) Nomination of a person to be responsible for the revision of the Operations manuals carried on board the aircraft

Chapter 2: Organisation and Responsibilities

2.1 Organisational Structure

(a) Company organogram

A description of the organisational structure, including the general company organogram.

The organogram must depict the relationship between the Operations Department and other Departments of the company. In particular, the subordination and reporting lines of all Divisions, Departments, etc., which pertains to the safety of flight operations, must be shown

(b) Flight Operations department organogram

The organogram must depict the relationship between all Operations Department personnel. In particular, the subordination and reporting lines of all personnel shall be shown.

2.2 Nominated Post Holders

(i) The name of each nominated post holder
(Refer to Appendix 1 of this AC "Qualifications and Level of Experience Nominated Post Holders" for the list of required post holders).

(ii) The contact details of each nominated post holder

(iii) A description of the functions, duties, responsibilities and the authority of each nominated post holder.

(iv) Responsibility must be allocated pertaining to safety of flight operations, and for the compliance with the applicable regulations.

2.3 Authority, Duties and Responsibilities of the Pilot-in-command

Authority, duties and responsibilities of the Pilot-in-command as delegated by the Operator and to include following;

(a) Authority of Pilot-in-command of an aircraft
The Pilot-in-command of an aircraft shall have final authority as to the disposition of the aircraft while in command.

(b) Responsibility of Pilot-in-command for compliance with the rules of the air
The Pilot-in-command of an aircraft shall, whether manipulating the controls or not, be responsible for the operation of the aircraft in accordance with the rules of the air, except that the Pilot-in-command may depart from these rules in circumstances that render such departure absolutely necessary in the interests of safety.

(c) The Pilot-in-command shall be responsible for the safety of all crew members, passengers and cargo on board when the doors are closed. The Pilot-in- command shall also be responsible for the operation and safety of the aeroplane from the moment the aeroplane is ready to move for the purpose of taking off until the moment it finally comes to rest at the end of the flight and the engine(s) used as primary propulsion units are shut down.

(d) The Pilot-in-command shall be responsible for notifying the nearest appropriate authority by the quickest available means of any accident involving the aeroplane, resulting in serious injury (refer to definitions in this manual) or death of any person or substantial damage to the aeroplane or property.

(e) The Pilot-in-command shall be responsible for reporting (in writing) all known or suspected defects in the aeroplane, to the operator, at the termination of the flight.

(f) The Pilot-in-command shall be responsible for the journey log book or the general declaration containing the information listed in Operations Manual, Part A, paragraph 10.1.17.

(g) The Pilot-in-command shall ensure that Hazardous flight conditions encountered during flight, other than those associated with meteorological conditions, shall be reported to the appropriate aeronautical station as soon as possible. The reports so rendered shall give such details as may be pertinent to the safety of other aircraft.

(h) If an emergency situation which endangers the safety of the aeroplane or persons necessitates the taking of action which involves a violation of local regulations or procedures, the Pilot-in-command shall notify the appropriate local authority without delay. If required by the State in which the incident occurs, the Pilot-in-command shall submit a report on any such violation to the appropriate authority of such State; in that event, the Pilot-in-command shall also submit a copy of it to CASAPNG. Such reports shall be submitted as soon as possible and normally within ten days.

(i) Prior to each flight, Pilots-in-command shall ensure that on board the aeroplane there are all the essential information concerning the search and rescue services in the area over which the aeroplane will be flown.

(j) The Pilot-in-command shall ensure that any inadequacy of facilities observed in the course of operations is reported to the authority responsible for them, without undue delay. Such reports shall also be copied to the Accountable Manager.

(k) The Pilot-in-command shall ensure that when passengers or cargo are being carried, no emergency or abnormal situations are simulated.

(l) The Pilot-in-command shall ensure that checklists provided in accordance with Operations Manual, Part B, paragraph 3.1, shall be used by flight crews prior to, during and after all phases of operations, and in emergency, to ensure compliance with the operating procedures contained in the aircraft operating manual and the aeroplane flight manual or other documents associated with the certificate of airworthiness and otherwise in the operations manual, are followed.

(m) Pilot-in-command shall ensure that prior to flight, each aeroplane carry a certified true copy of the air operator certificate (including lease aircraft), and a copy of the operations specifications relevant to the aeroplane type, issued in conjunction with the certificate. When the certificate and the associated operations specifications are issued in a language other than English, an English translation shall be included.

(n) Pilot-in-command shall ensure that, the aeroplane carry following manuals / documents / charts in each flight;

(i) The Operations Manual (Part A, B, C, D), or those parts of it that pertain to flight operations;

(ii) The Flight Manual for the aeroplane, or other documents containing performance data required for the application of requirements in Operations Manual, Part A, Chapter 9 and any other information necessary for the operation of the aeroplane within the terms of its certificate of airworthiness, unless these data are available in the Operations Manual, Part B;

(iii) Current and suitable charts to cover the route of the proposed flight and any route along which it is reasonable to expect that the flight may be diverted;

(iv) A document attesting noise certification;
When the document, or a suitable statement attesting noise certification as contained in another document approved by the State of Registry, is issued in a language other than English, it shall include an English translation.

(o) In respect of flight recorders, the Pilot-in-command shall ensure that;

(i) Flight recorders are not switched off during flight time.

(ii) To preserve flight recorder records, flight recorders shall be deactivated upon completion of flight time following an accident or incident. The flight recorders shall not be reactivated without prior approval from CASAPNG.

(iii) Flight recorders - continued serviceability Operational checks and evaluations of recordings from the flight recorder systems shall be conducted to ensure the continued serviceability of the recorders as per the flight crew SOP's.

(p) Pilot-in-command shall ensure that all flight crew members required to be on flight deck duty shall communicate through boom or throat microphones below the transition level / altitude.

(q) Reporting acts of unlawful interference;

Following an act of unlawful interference, the pilot-in command shall submit, without delay, a report of such an act to CASAPNG with a copy to flight operations management.

(r) Flight preparation;

A flight shall not be commenced until flight preparation forms have been completed certifying that the pilot-in command is satisfied that:

(i) The aeroplane is airworthy;

(ii) The instruments and equipment prescribed in CAR Parts for the particular type of operation to be undertaken, are installed and are sufficient for the flight;

(iii) A maintenance release as prescribed in Operations Manual Part A, paragraph 10.1.14 has been issued in respect of the aeroplane;

(iv) The mass of the aeroplane and centre of gravity location are such that the flight can be conducted safely, taking into account the flight conditions expected;

(v) Any load carried is properly distributed and safely secured;

(vi) A check has been completed indicating that the operating limitations of Operations Manual Part A, Chapter 9 can be complied with for the flight to be undertaken; and
(vii) The requirement of Operations Manual Part A, paragraph 10.1.9 (b) relating to operational flight planning have been complied with.

(s) Pilot-in-command shall convey (as far as practicable) safety-related information to the Flight Operations Officer including information related to any amendments to the flight plan that became necessary in the course of the flight.

(t) Pilot-in-command shall ensure that, prior to flight, each aeroplane shall carry a certified true copy of the transfer agreement of supervisory functions and duties pursuant to Article 83 bis of the Chicago Convention if applicable.

2.4 Authority, Duties and Responsibilities of all Flight Crew member other than the Commander

As delegated by the Operator.

2.5 Authority, Duties and Responsibilities of Cabin Crewmember

As delegated by the Operator.

2.6 Authority, Duties and Responsibilities Flight Operations Officers / Flight Dispatcher

Authority, duties and responsibilities of the Flight Operations Officer as delegated by the Operator and to include the following;

(a) A flight operations officer (if required in conjunction with the approved method of control and supervision of flight operations of the operator) shall:

(i) Assist the Pilot-in-command in flight preparation and provide the relevant information;

(ii) Assist the Pilot-in-command in preparing the operational and ATS flight plans, sign when applicable and file the ATS flight plan with the appropriate ATS unit; and

(iii) Furnish the Pilot-in-command while in flight, by appropriate means, with information which may be necessary for the safe conduct of the flight.

(b) In the event of an emergency, a flight operations officer shall:

(i) Initiate such procedures as outlined in the Operations Manual while avoiding taking any action that would conflict with ATC procedures;

(ii) Convey safety-related information to the Pilot-in-command that may be necessary for the safe conduct of the flight, including information related to any amendments to the flight plan that become necessary in the course of the flight.

(iii) If an emergency situation which endangers the safety of the aeroplane or persons becomes known first to the flight operations officer, he shall, where necessary, notify the appropriate authorities of the nature of the situation without delay, and requests for assistance if required.

(c) In-Flight Operational Instructions
Flight Operations Officer shall ensure that;
Operational instructions involving a change in the ATS flight plan shall, when practicable, be coordinated with the appropriate ATS unit before transmission to the aeroplane.

Chapter 3: Operational Control and Supervision

3.1 Supervision of the Operation by the Operator

A description of the system for supervision of the operation by the operator.

This must show how the safety of flight operations and the qualifications of personnel involved in such operations are supervised and monitored.
In particular, the procedures related to the following items must be described:

(a) Monitoring of validity of Licenses

(b) Monitoring of validity of all other qualifications / requirements as per the Operations Manual

(c) Competence of operations personnel

(d) Control, analysis and storage of records, flight documents and safety related data.

3.2 System of Promulgation of Additional Operational Instructions and Information

A description of a system for promulgating information which may be of an operational nature, but is supplementary to that in the Operations Manual.

The applicability of this information and the responsibilities for its promulgation must be included.

3.3 Operational Control

(a) Operator's organisation and management system for the operational control of all flights (to be in compliance with operating CAR Parts applicable to aircraft operations).

(b) Definition of responsibilities necessary to exercise operational control with respect to flight safety and operation of the aircraft in conformity to Air Operator Certificate / Operations Specifications and all applicable CAR Parts.

(c) Functions and responsibilities of flight crew and flight operations officers for the initiation, continuation, diversion and termination of flights.

(d) Operator's policies, process, standards and procedures in relation to operational control of flight operations.

The following shall be complied with.

(i) Operational control for the entire operation Operator shall designate a representative who shall have responsibility for operational control for all flight operations.

(ii) Operational control for an individual flight
Operator's procedure to ensure that responsibility for operational control for an individual flight shall be delegated only to the Pilot-in-command and to a flight operations officer if the operator's approved method of control and supervision of flight operations requires the use of flight operations officer for flight dispatch.

3.4 General Power of Entry

A description of the powers of the Director prescribed under Section 58 of the Civil Aviation Act and guidance to staff on how to facilitate the right of access at any reasonable time of person duly authorised by the Director.

Chapter 4: Quality System

4.1 A Description of the Safety Management in accordance with Part 100, Subpart B.

4.2 A Description of the Quality Management System in accordance Part 100, Subpart C.

Chapter 5: Crew Composition

5.1 Composition of Crew

(a) Composition of flight crew

(i) Procedure for determining crew composition per each flight, taking account of the following:

(1) Aeroplane Certification standard
(2) The Type of Aeroplane used,
(3) The type of Operation involved
(4) The area of the Operation undertaken
(5) The duration of flight between points where flight crews are changed.
(6) Experience (total and on type), recency and qualification of the crew members;
(7) The minimum crew requirement and flight duty period planned;
(8) Requirement of Flight Crew members who are above the age of 60 years
(9) If necessitated by the duration of the flight, the procedures for the relief of the members of the flight crew, including the relief of crew members who are above 60 years of age
(10) Operator's procedures to include that;
(11) The number and composition of the flight crew for any flight shall not be less than that specified in the Operations Manual.
(12) The flight crews shall include flight crew members in addition to the minimum numbers specified in the flight manual or other documents associated with the certificate of airworthiness, when necessitated by considerations related to the type of aeroplane used, the type of operation involved and the duration of flight between points where flight crews are changed.

(b) Radio Operator
Operator's procedure to ensure the following.

The flight crew to include at least one member, who holds a valid license, issued or rendered valid by CASAPNG authorizing operation of the type of radio transmitting equipment to be used.

(c) Flight Engineer

Operator's procedure to ensure the following.

When a separate flight engineer's station is incorporated in the design of an aeroplane, the flight crew shall include at least one flight engineer especially assigned to that station, unless the duties associated with that station can be satisfactorily performed by another flight crew member, holding a flight engineer license, without interference with regular duties.

(d) Flight Navigator

Operator's procedure to ensure the following.

The flight crew shall include at least one member who holds a flight navigator license in all operations where, as determined by CASAPNG, navigation necessary for the safe conduct of the flight cannot be adequately accomplished by the pilots from the pilot station.

(e) Composition of Cabin Crew

(f) Operator shall establish, the minimum number of cabin crew required for each type of aeroplane, based on seating capacity or the number of passengers carried, in order to effect a safe and expeditious evacuation of the aeroplane, and the necessary functions to be performed in an emergency or a situation requiring emergency evacuation.

The operator shall assign these functions for each type of aeroplane.

(i) Rules applicable to the designation of the senior cabin crew member
(ii) Requirement of minimum cabin crew per type of aeroplane in consideration of the nature / duration of the flight
(iii) If necessitated by the duration of the flight, the procedures for the relief of the senior cabin crew member and any other member of the cabin crew.

5.2 Designation of the Pilot-in-command

The Operator's policy applicable to the designation of the Pilot-in-command. The policy must include;

(a) Procedure to designate one pilot to act as Pilot in command for each flight

(b) If necessitated by the duration of the flight, the procedure for the relief of the Pilot in command

(c) The delegation of duties/ responsibilities of Pilot in command when nominated Pilot in command is taking rest due to duration of the flight

(d) Designation of Pilot in command when two Captains are rostered to fly together when applicable

5.3 Flight Crew Incapacitation

Instructions on the succession of Command in the event of flight crew incapacitation.

5.4 Operation of more than one type

Operator's policy, in respect of following crew members operating more than one type of aeroplane.

(a) Flight crew

(b) Cabin crew

Chapter 6: Qualification Requirements

6.1 Flight Crew

A description of the required license, rating(s), qualification / competency (e.g. for routes and aerodromes), experience, training, checking and recency for following flight crew to conduct their duties.

Consideration must be given to the aeroplane type, kind of operation, composition of the crew.

(a) Pilot-in-command.
(b) Pilot relieving the Pilot-in-command.
(c) Co-pilot.
(d) Pilot under supervision.
(e) Flight engineer
(f) Operation on more than one type or variant.

6.2 Recent Experience – CAR Part 61.37

Operator's procedures to ensure the following requirements.

(a) Recent experience - Pilot-in-command and co-pilot

An operator shall not assign a Pilot-in-command or a co-pilot to operate at the flight controls of a type or variant of a type of aeroplane during take-off and landing unless that pilot has operated the flight controls during at least three take-offs and landings within the preceding 90 days on the same type of aeroplane or in a flight simulator approved for the purpose.

(b) Recent experience - When a Pilot-in-command or a co-pilot is flying several variants of the same type of aeroplane or different types of aeroplanes with similar characteristics in terms of operating procedures, systems and handling, Operator's procedure under which conditions the requirements of paragraph6.2 (a) for each variant or each type of aeroplane can be combined. The above procedure 6.2 (b) shall have the approval of CASAPNG.

(c) Recent experience - cruise relief pilot
An operator shall not assign a pilot to act in the capacity of cruise relief pilot in a type or variant of a type of aeroplane unless, within the preceding 90 days that pilot has either:

(i) Operated as a Pilot-in-command, co-pilot or cruise relief pilot on the same type of aeroplane; or
(ii) Carried out flying skill refresher training including normal, abnormal and emergency procedures specific to cruise flight on the same type of aeroplane or in a flight simulator approved for the purpose, and has practiced approach and landing procedures, where the approach and landing procedure practice may be performed as the pilot who is not flying the aeroplane.

(d) Recent experience - When a cruise relief pilot is flying several variants of the same type of aeroplane or different types of aeroplanes with similar characteristics in terms of operating procedures, systems and handling, Operator's procedure under which conditions the requirements of paragraph 6.2 (c) for each variant or each type of aeroplane can be combined.

The above procedure 6.2 (d) shall have the approval of CASAPNG.

6.3 Pilot-in-command Area, Route and Aerodrome Qualification

Operator's procedures to ensure following requirements.

(a) An operator shall not utilize a pilot as pilot-in command of an aeroplane on a route or route segment for which that pilot is not currently qualified until such pilot has complied with paragraph 6.3 (b) and paragraph 6.3 (c) below.

(b) Each such pilot shall demonstrate to the operator an adequate knowledge of: The route to be flown and the aerodromes which are to be used.

This shall include knowledge of:

(1) The terrain and minimum safe altitudes;
(2) The seasonal meteorological conditions;

(1) The meteorological, communication and air traffic facilities, services and procedures;

(2) The search and rescue procedures; and

(3) The navigational facilities and procedures, including any long- range navigation procedures, associated with the route along which the flight is to take place;

(4) Procedures applicable to flight paths over heavily populated areas and areas of high air traffic density, obstructions, physical layout, lighting, approach aids and arrival, departure, holding and instrument approach procedures, and applicable operating minima.

NOTE: ***That portion of the demonstration relating to arrival, departure, holding and instrument approach procedures may be accomplished in an appropriate approved training device which is adequate for this purpose.***

(c) A Pilot-in-command shall have made an actual approach into each aerodrome of landing on the route, accompanied by a pilot who is qualified for the aerodrome, as a member of the flight crew or as an observer on the flight deck, unless:

(i) The approach to the aerodrome is not over difficult terrain and the instrument approach procedures and aids available are similar to those with which the pilot is familiar, and a margin to be approved by CASAPNG is added to the normal operating minima, or there is reasonable certainty that approach and landing can be made in visual meteorological conditions; or
(ii) The descent from the initial approach altitude can be made by day in visual meteorological conditions; or
(iii) The operator qualifies the Pilot-in-command to land at the aerodrome concerned by means of an adequate pictorial presentation; or
(iv) The aerodrome concerned is adjacent to another aerodrome at which the Pilot-in-command is currently qualified to land.

(d) An operator shall not continue to utilize a pilot as a Pilot-in-command on a route or within an area specified by the operator and approved by CASAPNG unless, within the preceding 12 months, that pilot has made at least one trip as a pilot member of the flight crew, or as a check pilot, or as an observer in the flight crew compartment:

(i) Within that specified area; and
(ii) If appropriate, on any route where procedures associated with that route or with any aerodromes intended to be used for take-off or landing require the application of special skills or knowledge.

(e) In the event that more than 12 months' elapse in which a Pilot-in-command has not

made such a trip on a route in close proximity and over similar terrain, within such a specified area, route or aerodrome, and has not practiced such procedures in a training device which is adequate for this purpose, prior to again serving as a Pilot-in-command within that area or on that route, that pilot must re qualify in accordance with Operations Manual, Part A, paragraph 6.3 (b) and 6.3 (c).

6.4 Pilot Proficiency Check (PPC) or Operational Competency Checks

(a) Operator's procedure to ensure the following.

An operator shall ensure that Piloting technique and the ability to execute emergency procedures is checked in such a way as to demonstrate the pilot's competence on each type or variant of a type of aeroplane. Where the operation may be conducted under instrument flight rules, an operator shall ensure that the pilot's competence to comply with such rules is demonstrated to either a Flight Examiner authorised by CASAPNG or to a Flight Operations Inspector / designated Representative of CASAPNG.

Such checks shall be performed twice within any period of one year. Any two such checks which are similar and which occur within a period of four consecutive months shall not alone satisfy this requirement.

NOTE: Flight simulation training devices validated by CASAPNG may be used for those parts of the checks for which they are specifically approved.

(a) Operator's procedure to conduct the PPC as required in paragraph 6.4 (a) when;
  (i) The operator schedules flight crew on several variants of the same type of aeroplane or different types of aeroplanes with similar characteristics in terms of operating procedures, systems and handling.

  CASAPNG shall decide under which conditions the requirements of paragraph 6.4 (a) for each variant or each type of aeroplane can be combined.

6.5 Language Proficiency – CAR Part 61.11

Operators shall ensure that flight crew members must have the ability acceptable to the Director in reading, speaking, understanding and communicating in the English language to enable the applicant to adequately carry out the responsibilities of a pilot exercising the privileges of the pilot licence or rating.

6.6 Cabin Crew

A description of the required license, rating(s), qualification, experience, training, checking and recency for following cabin crew to conduct their duties.

Consideration must be given to the aeroplane type, kind of operation and composition of the crew

(a) Senior cabin crew member.
(b) Cabin crew member.
  (i) Required cabin crew member.
  (ii) Additional cabin crew member and cabin crew member during familiarisation flights.
(c) Operation on more than one type or variant

6.7 Flight / Ground Instructors and Personnel Delegated with Checking Functions

A description of the required license, rating(s), qualification, experience, training, checking and recency for the following Flight / Ground Instructors conducting required training and personnel delegated with Checking functions to conduct their duties.

(a) For flight crew.
(b) For cabin crew.
(c) For Flight Operations Officer.
(d) Other required training.

6.8 Flight Operations Officer / Flight Dispatcher

A description of the required license, rating(s), qualifications, experience, training, checking and recency for Flight Operations Officers to conduct their duties.
Consideration must be given to the aeroplane type, kind of operation. Operator's requirements shall include following.

(a) Flight operations officer, employed in conjunction with an approved method of control and supervision of flight operations, shall be licensed.
(b) Every flight operations officer shall be a holder of a valid license issued by CASAPNG.
(c) A flight operations officer shall not be assigned to duty unless that person has:

(i) Satisfactorily completed an operator-specific training course that addresses all the specific components of its approved method of control and supervision of flight operations specified in Operations Manual Part D, Chapter 3;
(ii) Made, within the preceding 12 months, at least a one-way qualification flight in the flight crew compartment of an aeroplane over any area for which that individual is authorized to exercise flight supervision. The flight should include landings at as many aerodromes as practicable;

NOTE: ***For the purpose of the qualification flight, the flight operations officer must be able to monitor the flight crew intercommunication system and radio communications, and be able to observe the actions of the flight crew.***

(iii) Demonstrated to the operator a knowledge of:

(1) The contents of the Operator's approved Operations Manual;
(2) The radio equipment in the aeroplanes used;
(3) The navigation equipment in the aeroplanes used;

(iv) Demonstrated to the operator a knowledge of the following details concerning operations for which the officer is responsible and areas in which that individual is authorized to exercise flight supervision:

(1) The seasonal meteorological conditions and the sources of meteorological information;
(2) The effects of meteorological conditions on radio reception in the aeroplanes used;
(3) The peculiarities and limitations of each navigation system which is used by the operation; and
(4) The aeroplane loading instructions;

(v) Demonstrated to the operator knowledge and skills related to human performance relevant to dispatch duties; and

(vi) Demonstrated to the operator the ability to perform the duties specified in Operations Manual Part A, paragraph 2.6.

(vii) Demonstrated to the operator that the flight operations officer assigned to duty maintain complete familiarization with all features of the operation which are pertinent to such duties, including knowledge and skills related to human performance.

(d) A flight operations officer should not be assigned to duty after 12 consecutive months of absence from such duty, unless the provisions of Operations Manual Part D, Chapter 3 are met.

6.9 Other Operations Personnel

A description of the required license, rating(s), qualifications, experience, training, checking and recency for other operations personnel employed by the Operator as applicable.

6.10 Personal Records

(a) The operator shall maintain a record, sufficient to satisfy CASAPNG of the qualification of the pilot and of the manner in which such qualification has been achieved.

(b) The operator shall maintain a record, sufficient to satisfy CASAPNG of the qualification of the cabin crew member and of the manner in which such qualification has been achieved.

(c) The operator shall maintain a record, sufficient to satisfy CASAPNG of the qualification of Flight Operations Officer and of the manner in which such qualification has been achieved.

(d) The operator shall maintain a record, sufficient to satisfy CASAPNG of the qualification of other operations personnel and of the manner in which such qualification has been achieved.

(e) All records listed above shall be stored in a secure place and be available for inspection by CASAPNG.

Chapter 7: Crew Health Precautions

7.1 Crew Health Precautions

The relevant regulations and guidance to crew members concerning health including:

(a) International regulation in respect of cases of illness on board aircraft
(b) Quarantine regulations
(c) Illness or incapacitation while on duty
(d) Alcohol and other intoxicating liquor
(e) Narcotics
(f) Drugs
(g) Sleeping tablets
(h) Pharmaceutical preparations
(i) Immunization
(j) Deep diving
(k) Blood donation
(l) Meal precautions prior to and during flight, symptoms and treatment of poisoning
(m) Sleep and rest
(n) Surgical operations
(o) Vision correction
(p) Humidity
(q) Diurnal rhythm
(r) Fatigue
(s) Pregnancy
(t) Tropical medicine

7.2 Use of Psychoactive Substance, Alcohol and Drugs

Procedures and instructions to ensure that the requirements of CAR Part 91.17 and Part 61.35 are complied with and shall include the following;

(a) A person who holds a pilot licence issued in accordance with Part 61 or a validation permit for a foreign pilot licence must not exercise the privileges of the licence or a permit if the person is using any psychoactive substance.

(b) No person whose function is critical to the safety of aviation (safety sensitive people) undertakes that function while under the influence of any psychoactive substance, by reason of which human performance is impaired. No such person shall engage in any kind of problematic use of substances.

7.3 Offences involving Substances of Abuse

Procedures and instruction to ensure that the requirements of CAR Part 61.45 regarding the conviction for any offence relating to alcohol or drugs, or refusal to submit to any test for alcohol or drugs, relevant in determining whether a person is or remains fit and proper to hold a license or rating.

Such a conviction may result in a refusal-to-grant, suspension or revocation of the license or rating.

7.4 Flight Crew Equipment

Instructions to ensure that

(a) A flight crew member assessed as fit to exercise the privileges of a license, subject to

the use of suitable correcting lenses, shall have a spare set of the correcting lenses readily available when exercising those privileges.

Chapter 8: Flight Time, Flight Duty Periods and Rest Periods for Fatigue Management

8.1 Operators Fatigue Management Scheme in accordance with fatigue risk management system (FRMS) prescribed under CAR Part 122, Subpart I or Subparts C, D, E, F & G Flight and Duty Time Limitations schemes that are applicable to a Certificate Holder and a Crew Member performing air operations under CAR Parts 121, 125, 135 and 136.

8.2 Should Variations from the Fatigue Management established per Paragraph 8.1 become necessary, the Operator may establish a scheme for the regulation of flight and duty times in accordance with CAR Part 122, Subpart H and the scheme is acceptable to the Director. Any Variations shall provide an equivalent level of Safety

*NOTE: **It is acknowledged that regulations may not cover every eventuality encountered in a dynamic operational environment. This provision is intended to permit the operator a degree of flexibility, in a means acceptable to the Director, in making adjustments in its fatigue management scheme to account for changing circumstances.***

8.3 OPERATOR'S SCHEME TO MAINTAIN RECORDS IN ACCORDANCE WITH CAR PART 122.51(C) FOR ALL ITS FLIGHT AND CABIN CREW MEMBERS OF FLIGHT TIME, FLIGHT DUTY PERIODS, DUTY PERIODS AND REST PERIODS

The records shall be retained for a period of 12 months from the time it is made and in a secure location by the operator and available for inspection to CASAPNG.

Chapter 9: Aeroplane Performance Operating Limitations

NOTE:

(a) Large aeroplanes, CAR Part 121, Subpart D

Aeroplane performance operating limitations contained in paragraphs 9.2 to

9.10 below are applicable to large aeroplanes to which Parts IIIA and IIIB of ICAO Annex 8 are applicable.

In addition to paragraph 9.2 to 9.10, National requirements contained in National code of performance shall also be complied with.

For aeroplanes for which Parts IIIA and IIIB of ICAO Annex 8 are not applicable because of the exemption provided for in Article 41 of the Convention (refer paragraph (c) below), the level of performance specified in paragraph 9.2 to 9.10 shall be met as far as practicable.

Part III A - *Aeroplanes over 5700 kg for which application for certification was submitted on or after 13 June 1960 but before 2 March 2004.*

Part III B - *Aeroplanes over 5700 kg for which application for certification was submitted after 2 March 2004.*

The provisions of Chapter 9 are applicable to turbine-powered subsonic transport type aeroplanes over 5700 kg maximum certificated take-off mass having two or more engines. However, where relevant, it shall be applied to all subsonic turbine-powered or piston-engine aeroplanes having two, three or four engines.

Piston-engine aeroplanes having two, three or four engines which cannot comply with Chapter 9 of this manual shall continue to be operated in accordance with examples 1 or 2 of Attachment C to ICAO Annex 6, Part 1.

Provisions in this Chapter is not intended for application to aeroplanes having short take-off and landing (STOL) or vertical take-off and landing (VTOL) capabilities.

(b) Small and Medium aeroplanes

CAR Part 125 and Part 135 aeroplanes shall comply with Subpart D of their applicable CAR Part.

(c) Article 41 of the Convention

For reference purposes Article 41 of the Convention is reproduced below.

Recognition of existing standards of airworthiness

The provisions of this Chapter shall not apply to aircraft and aircraft equipment of types of which the prototype is submitted to the appropriated National Authorities for certification prior to a date three years after the date of adoption of an International Standard of airworthiness for such equipment.

9.1 General

Operator's statement to comply with the following.

(a) All aeroplanes shall be operated in accordance with National code of performance established by CASAPNG.

In addition, compliance with Attachment "C "to ICAO Annex 6 is required.

(b) All aeroplanes shall be operated in compliance with the terms of its certificate of

airworthiness and within the approved operating limitations contained in its flight manual.

NOTE 1: ***The procedures scheduled in the flight manual should be followed except where operational circumstances require the use of modified procedures in order to maintain the intended level of safety.***

NOTE 2: ***Compliance with this Chapter should be established using performance data in the flight manual and in accordance with other applicable operating requirements. In no case should the limitations in the flight manual be exceeded. However, additional limitations may be applied when operational conditions not included in the flight manual are encountered. The performance data contained in the flight manual may be supplemented with other data acceptable to the Director, if necessary to show compliance.***

NOTE 3: ***The provisions of this Chapter should be complied with, unless deviations there from are specifically authorized by the Director on the grounds that the special circumstances of a particular case make a literal observance of these provisions unnecessary for safety.***

NOTE 4: ***See the Airworthiness Manual (ICAO Doc 9760) for the related airworthiness performance guidance material.***

9.2 Operators Instructions to ensure compliance with the following paragraph (including compliance with paragraph 9.3 to 9.10 is required)

A flight shall not be commenced unless the performance information provided in the flight manual, supplemented as necessary with other data acceptable to the Director, indicates that following paragraphs (9.3 to 9.10) can be complied with for the flight to be undertaken.

9.3 In complying with paragraph 9.2, account shall be taken of all factors that significantly affect the performance of the aeroplane, including but not limited to:

(a) The mass of the aeroplane, the operating procedures, the pressure altitude appropriate to the elevation of the aerodrome, the ambient temperature, the wind, the runway slope, and surface conditions of the runway i.e., presence of snow, slush, water, and / or ice for landplanes, water surface condition for seaplanes.

(b) Such factors shall be taken into account directly as operational parameters or indirectly by means of allowances or margins, which may be provided in the performance data supplied by the manufacturer, or in the National code of performance

9.4 Mass Limitations

(a) The mass of the aeroplane at the start of take-off shall not exceed the mass at which paragraph 9.5 is complied with, nor the mass at which paragraph 9.8,
9.9 and 9.10 are complied with, allowing for expected reductions in mass as the flight proceeds, and for such fuel jettisoning as is envisaged in applying paragraph 9.8 and 9.9 and, in respect of alternate aerodromes, paragraph 9.4.
(c) and 9.10.

(b) In no case shall the mass at the start of take-off exceed the maximum take-off mass specified in the flight manual for the pressure-altitude appropriate to the elevation of the aerodrome, and, if used as a parameter to determine the maximum take-off mass, any other local atmospheric condition.

(c) In no case shall the estimated mass for the expected time of landing at the aerodrome of intended landing and at any destination alternate aerodrome, exceed the maximum

landing mass specified in the flight manual for the pressure-altitude appropriate to the elevation of those aerodromes, and if used as a parameter to determine the maximum landing mass, any other local atmospheric condition.

(d) In no case shall the mass at the start of take-off, or at the expected time of landing at the aerodrome of intended landing and at any destination alternate aerodrome, exceed the relevant maximum masses at which compliance has been demonstrated with the applicable noise certification Standards in Appendix B of CAR Part 21 and Part 91, Subpart J, unless otherwise authorized in exceptional circumstances for a certain aerodrome or a runway where there is no noise disturbance problem, by the competent authority of the State in which the aerodrome is situated.

9.5 Take Off

(a) No aeroplane should commence a take-off at a mass which exceeds the mass at which, in accordance with the minimum distances for take-off scheduled in the flight manual, compliance with paragraph 9.5(a) (i) to 9.5(a) (iii) inclusive is shown.

(i) The take-off run required should not exceed the take-off run available.
(ii) The accelerate-stop distance required should not exceed the accelerate- stop distance available.
(iii) The take-off distance required should not exceed the take-off distance available.
(iv) When showing compliance with paragraph 9.5 (a) the same value of V1 for the continued and discontinued take-off phases should be used.
(v) When showing compliance with paragraph 9.5 (a) the following parameters should be taken into account:

(1) The pressure altitude at the aerodrome;
(2) The ambient temperature at the aerodrome;
(3) The runway surface condition and the type of the runway surface;
(4) The runway slope in the direction of the take-off;
(5) The runway slope;
(6) Not more than 50 per cent of the reported headwind component or not less than 150 per cent of the reported tailwind component; and
(7) The loss, if any, of runway length due to alignment of the aeroplane prior to take-off.

(vi) Credit is not taken for the length of the stop way or the length of the clearway unless they comply with the relevant specifications in CAR Parts 121.209, 125.209 & 135.209.

(b) The aeroplane shall be able, in the event of a critical engine failing, or for other reasons, at any point in the take-off, either to discontinue the take-off and stop within the accelerate-stop distance available, or to continue the take-off and clear all obstacles along the flight path by an adequate vertical or horizontal distance until the aeroplane is in a position to comply with paragraph 9.8 (a). When determining the resulting take-off obstacle accountability area, the operating conditions, such as the crosswind component and navigation accuracy, must be taken into account.

(c) In determining the length of the runway available, account shall be taken of the loss, if any, of runway length due to alignment of the aeroplane prior to take-off.

9.6 Take-off Obstacle Clearance Limitations

(a) No aeroplane should commence a take-off at a mass in excess of that shown in the flight manual to correspond with a net take-off flight path which clears all obstacles either by

at least a height of 10.7 m (35 ft.) vertically or at least 90 m (300 ft.) plus 0.125D laterally, where D is the horizontal distance the aeroplane has travelled from the end of take-off distance available, except as provided in paragraph 9.6 (c), (d), (e) inclusive.

(b) For aeroplanes with a wingspan of less than 60 m (200 ft.) a horizontal obstacle clearance of half the aeroplane wingspan plus 60 m (200 ft.), plus 0.125D may be used. In determining the allowable deviation of the net take- off flight path in order to avoid obstacles by at least the distances specified, it is assumed that the aeroplane is not banked before the clearance of the net take-off flight path above obstacles is at least one half of the wingspan but not less than 15.2 m (50 ft.) height and that the bank thereafter does not exceed 15°, except as provided in paragraph 9.6 (f). The net take-off flight path considered is for the altitude of the aerodrome and for the ambient temperature and not more than 50 per cent of the reported headwind component or not less than 150 per cent of the reported tailwind component existing at the time of take-off. The take-off obstacle accountability area defined above is considered to include the effect of crosswinds.

(c) Where the intended track does not include any change of heading greater than 15°,

(i) For operations conducted in VMC by day, or
(ii) For operations conducted with navigation aids such that the pilot can maintain the aeroplane on the intended track with the same precision as for operations specified in paragraph 9.6 (c)(i).

Obstacles at a distance greater than 300 m (1000 ft.) on either side of the intended track need not be cleared.

(d) Where the intended track does not include any change of heading greater than 15 for operations conducted in IMC, or in VMC by night, except as provided in paragraph 9.6 (c) (ii), and where the intended track includes changes of heading greater than 15° for operations conducted in VMC by day, obstacles at a distance greater than 600 m (2000 ft.) on either side of the intended track need not be cleared.

(e) Where the intended track includes changes of heading greater than 15° for operations conducted in IMC, or in VMC by night, obstacles at a distance greater than 900 m (3000 ft.) on either side of the intended track need not be cleared.

(f) An aeroplane may be operated with bank angles of more than 15° below 120 m (400 ft.) above the elevation of the end of the take-off run available, provided special procedures are used that allow the pilot to fly the desired bank angles safely under all circumstances. Bank angles should be limited to not more than 20 between 30 m (100 ft.) and 120 m (400 ft.), and not more than 25° above 120 m (400 ft.). Methods approved by the State of the Operator should be used to account for the effect of bank angle on operating speeds and flight path including the distance increments resulting from increased operating speeds. The net take-off flight path in which the aeroplane is banked by more than 15° should clear all obstacles by a vertical distance of at least 10.7 m (35 ft.) relative to the lowest part of the banked aeroplane within the horizontal distance specified in paragraph 9.6.

(g) The use of bank angles greater than those mentioned above shall be subject to the approval from CASAPNG.

(h) Obstacle data

(i) Obstacle data provided by CASAPNG, shall be used by the operator to develop procedures to comply with paragraph 9.5.

(ii) The operator shall take account of charting accuracy when assessing compliance with paragraph 9.5.

NOTE: ICAO Annex 6, Attachment C contains guidance on the vertical and horizontal distances that are considered adequate to show compliance with paragraph 9.5.

9.7 En-Route Limitations (CAR Parts 121.217, 125.217 & 135.217)

General

At no point along the intended track is an aeroplane having three or more engines to be more than 90 minutes at normal cruising speed away from an aerodrome at which the distance specifications for alternate aerodromes paragraph 9.10 (d) are complied with and where it is expected that a safe landing can be made, unless it complies with paragraph 9.9 (b) (i).

9.8 En-Route – One Engine Inoperative (CAR Parts 121.215, 125.215 & 135.215)

(a) The aeroplane shall be able, in the event of the critical engine becoming inoperative at any point along the route or planned diversions there from, to continue the flight to an aerodrome at which the paragraph 9.10 can be met, without flying below the minimum flight altitude at any point.

(b) No aeroplane should commence a take-off at a mass in excess of that which, in accordance with the one-engine inoperative en-route net flight path data shown in the flight manual, permits compliance either with paragraph 9.8 (b) (i) or 9.8 (b) (ii) at all points along the route. The net flight path has a positive slope at 450 m (1500 ft.) above the aerodrome where the landing is assumed to be made after engine failure. The net flight path used is for the ambient temperatures anticipated along the route. In meteorological conditions where icing protection systems are to be operable, the effect of their use on the net flight path data is taken into account.

(i) The slope of the net flight path is positive at an altitude of at least 300 m (1 000 ft.) above all terrain and obstructions along the route within 9.3 km (5 NM) on either side of the intended track.

(ii) The net flight path is such as to permit the aeroplane to continue flight from the cruising altitude to an aerodrome where a landing can be made in accordance with paragraph 9.10 (d), the net flight path clearing vertically, by at least 600 m (2000 ft.), all terrain and obstructions along the route within 9.3 km (5 NM) on either side of the intended track. The provisions of paragraph 9.8 (b) (ii) (1) to 9.8 (b) (ii) (5), inclusive are applied.

(1) The engine is assumed to fail at the most critical point along the route, allowance being made for indecision and navigational error.

(2) Account is taken of the effects of winds on the flight path.

(3) Fuel jettisoning is permitted to an extent consistent with reaching the aerodrome with satisfactory fuel reserves, if a safe procedure is used.

(4) The aerodrome, where the aeroplane is assumed to land after engine failure, is specified in the operational flight plan, and it meets the appropriate aerodrome operating minima at the expected time of use.

(5) The consumption of fuel and oil after the engine becomes inoperative is that which is accounted for in the net flight path data shown in the flight

manual.

9.9 En-Route – Two Engines Inoperative

(a) In the case of aeroplanes having three or more engines, on any part of a route where the location of en-route alternate aerodromes and the total duration of the flight are such that the probability of a second engine becoming inoperative must be allowed for if the general level of safety implied by the Standards of this chapter is to be maintained, the aeroplane shall be able, in the event of any two engines becoming inoperative, to continue the flight to an en-route alternate aerodrome and land.

(b) Two engines inoperative - aeroplanes with three or more engines Aeroplanes which do not comply with paragraph 9.7 should comply with following.

(i) No aeroplane should commence a take-off at a mass in excess of that which, according to the two-engine inoperative en-route net flight path data shown in the flight manual, permits the aeroplane to continue the flight from the point where two engines are assumed to fail simultaneously, to an aerodrome at which the landing distance specification for alternate aerodromes paragraph 9.10 (d) is complied with and where it is expected that a safe landing can be made. The net flight path clears vertically, by at least 600 m (2000 ft.) all terrain and obstructions along the route within 9.3 km (5 NM) on either side of the intended track. The net flight path considered is for the ambient temperatures anticipated along the route. In altitudes and meteorological conditions where icing protection systems are to be operable, the effect of their use on the net flight path data is taken into account.

(ii) The following provisions (1) to (5) shall also apply.

(1) The two engines are assumed to fail at the most critical point of that portion of the route where the aeroplane is at more than 90 minutes at normal cruising speed away from an aerodrome at which the landing distance specification for alternate aerodromes paragraph 9.10 (d) is complied with and where it is expected that a safe landing can be made.

(2) The net flight path has a positive slope at 450 m (1500 ft.) above the aerodrome where the landing is assumed to be made after the failure of two engines.

(3) Fuel jettisoning is permitted to an extent consistent with sub paragraph (d) below, if a safe procedure is used.

(4) The aeroplane mass at the point where the two engines are assumed to fail is considered to be not less than that which would include sufficient fuel to proceed to the aerodrome and to arrive there at an altitude of at least 450 m (1500 ft.) directly over the landing area and thereafter to fly for 15 minutes at cruise power and / or thrust.

9.10 Landing

The consumption of fuel and oil after the engines become inoperative is that which is accounted for in the net flight path data shown in the flight manual.

(a) The aeroplane shall, at the aerodrome of intended landing and at any alternate aerodrome, after clearing all obstacles in the approach path by a safe margin, be able to land, with assurance that it can come to a stop or, for a seaplane, to a satisfactorily low speed, within the landing distance available. Allowance shall be made for expected

variations in the approach and landing techniques, if such allowance has not been made in the scheduling of performance data.

(b) Aerodrome of destination - dry runways

(i) No aeroplane should commence a take-off at a mass in excess of that which permits the aeroplane to be brought to a full stop landing at the aerodrome of intended destination from 15.2 m (50 ft.) above the threshold.

(1) For turbo jet powered aeroplanes, within 60 per cent of the landing distance available; and
(2) For turbo-propeller aeroplanes, within 70 per cent of the landing distance available.

(ii) The mass of the aeroplane is assumed to be reduced by the mass of the fuel and oil expected to be consumed in flight to the aerodrome of intended destination. Compliance is shown with paragraph a. (below) and with either paragraph b. (below) or paragraph c. (below).

(1) It is assumed that the aeroplane is landed on the most favourable runway and in the most favourable direction in still air.
(2) It is assumed that the aeroplane is landed on the runway which is the most suitable for the wind conditions anticipated at the aerodrome at the time of landing, taking due account of the probable wind speed and direction, of the ground handling characteristics of the aeroplane, and of other conditions (i.e. landing aids, terrain).
(3) If full compliance with paragraph 9.10 (b) (ii) (2) (above) is not shown, the aeroplane may be taken off if a destination alternate aerodrome is designated which permits compliance with 9.10 (d).

(iii) When showing compliance with paragraph 9.10 (b) (i) at least the following factors should be taken into account.

(1) The pressure altitude of the aerodrome;

(2) The runway slope in the direction of the landing if greater than +/- 2.0 per cent; and
(3) Not more than 50 per cent of the headwind component or not less than 150 per cent of the tailwind component.

(c) Aerodrome of destination - wet or contaminated runways

(i) When the appropriate weather reports or forecasts or a combination thereof indicate that the runway at the estimated time of arrival may be wet, the landing distance available should be at least 115 per cent of the required landing distance determined in accordance with paragraph 9.10 (b).
(ii) A landing distance on a wet runway shorter than that required by paragraph 9.10(c)(i) above but not less than that required by paragraph 9.10 (b) may be used if the flight manual includes specific additional information about landing distance on wet runways.
(iii) When the appropriate weather reports or forecasts or a combination thereof indicate that the runway at the estimated time of arrival may be contaminated, the landing distance available should be the greater of;

(1) The landing distance determined in accordance with paragraph

9.10 (c) (i); or

(2) The landing distance determined in accordance with contaminated landing distance data with a safety margin acceptable to the Director.

(3) If compliance with paragraph 9.10 (c) (iii) above is not shown, the aeroplane may take off if a destination alternate aerodrome is designated for which compliance is shown with paragraph 9.10 (c) (iii) above and 9.10 (d).

(4) When showing compliance with paragraph 9.10 (c) (ii) and 9.10 (c) (iii), the criteria of paragraph 9.10 (b) should be applied accordingly. However, paragraph 9.10 (b) (i) (1) and 9.10 (b) (i) (2) need not be applied to the wet and contaminated runway landing distance determination required by paragraph9.10 (c) (ii) and 9.10 (c) (iii).

(d) Destination alternate aerodrome

No aerodrome should be designated as a destination alternate aerodrome unless the aeroplane, at the mass anticipated at the time of arrival at such aerodrome, can comply with paragraph 9.10 (b) and either paragraph 9.10 (c) (i) or 9.10 (c) (ii), in accordance with the landing distance required for the altitude of the alternate aerodrome and in accordance with other applicable operating requirements for the alternate aerodrome.

(e) Performance considerations before landing

The operator should provide the flight crew with a method to ensure that a full stop landing, with a safety margin acceptable to the Director, that is at least the minimum specified in the Type Certificate holder's aircraft flight manual (AFM), or equivalent, can be made on the runway to be used in the conditions existing at the time of landing and with the deceleration means that will be used.

Chapter 10: Operating Procedures

10.1 Flight Preparation Instructions (As Applicable to the Operation)

10.1.1 Operator's procedures to ensure following.

(a) An operator shall not engage in commercial air transport operations unless in possession of a valid air operator certificate issued by the Director.

(b) An operator shall ensure that a flight will not be commenced unless it has been ascertained by every reasonable means available that the ground and / or water facilities available and directly required on such flight, for the safe operation of the aeroplane and the protection of the passengers, are adequate for the type of operation under which the flight is to be conducted and are adequately operated for this purpose.

NOTE: ***" Reasonable means" is intended to denote the use, at the point of departure, of information available to the operator either through official information published by the aeronautical information services or readily obtainable from other sources.***

10.1.2 Minimum flight altitudes.

(a) A description of the method of determination and application of minimum flight altitudes including:

(i) A procedure to establish the minimum altitudes / flight levels for VFR flights; and
(ii) A procedure to establish the minimum altitudes / flight levels for IFR flights.

(b) Operator's procedure to comply with following if applicable.

Operator may establish minimum flight altitudes for those routes flown for which minimum flight altitudes have been established by the State flown over or the responsible State, provided that they are not less than those established by that State.

(c) The operator's procedures by which it is intended to determine minimum flight altitudes for operations conducted over routes for which minimum flight altitudes have not been established by the State flown over or the responsible State. The minimum flight altitudes shall observe the VFR meteorological weather minima specified under CAR Part 91.301.

10.1.3 Criteria and responsibilities for the authorization of the use of aerodromes

Taking into account the applicable requirements in CASAPNG VOLUME 2, PART C and directives issued by CASAPNG.

10.1.4 Alternate aerodromes

Operator's procedures to ensure following.

(a) Take-off alternate aerodrome

(i) A take-off alternate aerodrome shall be selected and specified in the operational flight plan if the weather conditions at the aerodrome of departure are at or below the applicable aerodrome operating minima or it would not be possible to return

to the aerodrome of departure for other reasons.

(ii) The take-off alternate aerodrome shall be located within the following distance from the aerodrome of departure:

(1) Aeroplanes having two power-units. Not more than a distance equivalent to a flight time of one hour at the single-engine cruise speed; and

(2) Aeroplanes having three or more power-units. Not more than a distance equivalent to a flight time of two hours at the one - engine inoperative cruise speed.

(iii) For an aerodrome to be selected as a take-off alternate the available information shall indicate that, at the estimated time of use, the conditions will be at or above the aerodrome operating minima for that operation.

(b) En-route alternate aerodromes

(i) En-route alternate aerodromes (one engine in operative) Procedure as required in paragraph 9.8 (b) (ii) (4) is to be included here.

(ii) En-route alternate aerodromes, procedure required for extended range operations to be included in paragraph 10.5.1.

(c) Destination alternate aerodromes

For a flight to be conducted in accordance with the instrument flight rules, at least one destination alternate aerodrome shall be selected and specified in the operational and ATS flight plans, unless:

(i) The duration of the flight and the meteorological conditions prevailing are such that there is reasonable certainty that, at the estimated time of arrival at the aerodrome of intended landing, and for a reasonable period before and after such time, the approach and landing may be made under visual meteorological conditions; or

(ii) The aerodrome of intended landing is isolated and there is no suitable destination alternate aerodrome.

10.1.5 Methods for establishing of aerodrome operating minima.

(a) Operator's method for establishing aerodrome operating minima for IFR flights.

Reference must be made to procedures for the determination of the visibility and / or runway visual range and for the applicability of the actual visibility observed by pilots, the reported visibility and the reported runway visual range.

When establishing aerodrome operating minima, which will apply to any particular operation the operator shall take full account of:

(i) The type, performance and handling characteristics of the aeroplane;
(ii) The composition of the flight crew, their competence and experience;
(iii) The dimensions and characteristics of the runways which may be selected for use;
(iv) The adequacy and performance of the available visual and non-visual ground aids;
(v) The equipment available on the aeroplane for the purpose of navigation and/or control of the flight path during the approach to landing and the missed approach;

(vi) The obstacles in the approach and missed approach areas and the obstacle clearance altitude / height for the instrument approach procedures;
(vii) The means used to determine and report meteorological conditions;
(viii) The obstacles in the climb-out areas and necessary clearance margins.

NOTE 1: The use of head up display (HUD) or enhanced vision systems (EVS) may allow operations with lower visibilities than normally associated with the aerodrome operating minima.

NOTE 2: When establishing aerodrome operating minima the operator shall be guided by ICAO Doc 9365 "Manual of All-Weather Operations".

(b) Aerodrome operating minima for each aerodrome to be used

The Operator shall establish aerodrome operating minima for each aerodrome to be used in operations. Such minima shall not be lower than any that may be established for such aerodromes by the State in which the aerodrome is located.

(c) Operator's procedure to ensure following.

(i) To conduct Category II and Category III instrument approach and landing operations RVR information is required.
(ii) For instrument approach and landing operations, aerodrome operating minima below 800 m visibility is not authorized unless RVR information is available.

10.1.6 Determination of the Quantities of Fuel, Oil and Water Methanol Carried.

(a) Fuel and Oil supply

The Operator's policy to ensure the following. All aeroplanes.

A flight shall not be commenced unless, taking into account both the meteorological conditions and any delays that are expected in flight, the aeroplane carries sufficient fuel and oil to ensure that it can safely complete the flight.

In addition, a reserve shall be carried to provide for contingencies.

10.1.6.1 An aeroplane shall carry a sufficient amount of usable fuel to complete the planned flight safely and to allow for deviations from the planned operation.

10.1.6.2 The amount of usable fuel to be carried shall, as a minimum, be based on:

(a) the following data:

(i) current aeroplane-specific data derived from a fuel consumption monitoring system, if available; or
(ii) if current aeroplane-specific data are not available, data provided by the aeroplane manufacturer; and

(b) the operating conditions for the planned flight including:

(i) anticipated aeroplane mass;
(ii) Notices to Airmen;
(iii) current meteorological reports or a combination of current reports and forecasts;
(iv) air traffic services procedures, restrictions and anticipated delays; and
(v) the effects of deferred maintenance items and / or configuration deviations.

10.1.6.3 The pre-flight calculation of usable fuel required shall include:

(a) *taxi fuel*, which shall be the amount of fuel expected to be consumed before take-off, taking into account local conditions at the departure aerodrome and auxiliary power unit (APU) fuel consumption;

(b) *trip fuel,* which shall be the amount of fuel required to enable the aeroplane to fly from take-off, or the point of in-flight re-planning, until landing at the destination aerodrome taking into account the operating conditions of ICAO Annex. Part 1, 4.3.6.2

(c) *contingency fuel,* which shall be the amount of fuel required to compensate for unforeseen factors. It shall be five per cent of the planned trip fuel or of the fuel required from the point of in-flight re-planning based on the consumption rate used to plan the trip fuel but, in any case, shall not be lower than the amount required to fly for five minutes at holding speed at 450 m (1 500 ft.) above the destination aerodrome in standard conditions;

NOTE: ***Unforeseen factors are those which could have an influence on the fuel consumption to the destination aerodrome, such as deviations of an individual aeroplane from the expected fuel consumption data, deviations from forecast meteorological conditions, extended delays and deviations from planned routings and/or cruising levels.***

(d) *destination alternate fuel,* which shall be:

(i) where a destination alternate aerodrome is required, the amount of fuel required to enable the aeroplane to:

(1) perform a missed approach at the destination aerodrome;
(2) climb to the expected cruising altitude;
(3) fly the expected routing;
(4) descend to the point where the expected approach is initiated; and
(5) conduct the approach and landing at the destination alternate aerodrome; or

(ii) where two destination alternate aerodromes are required, the amount of fuel, as calculated in paragraph 10.1.6.3 (d) (i) (1), required to enable the aeroplane to proceed to the destination alternate aerodrome which requires the greater amount of alternate fuel; or

(iii) where a flight is operated without a destination alternate aerodrome, the amount of fuel required to enable the aeroplane to fly for 15 minutes at holding speed at 450m (1,500ft) above destination aerodrome elevation in standard conditions; or

(iv) where the aerodrome of intended landing is an isolated aerodrome:

(1) for a reciprocating engine aeroplane, the amount of fuel required to fly for 45 minutes plus 15 per cent of the flight time planned to be spent at cruising level, including final reserve fuel, or two hours, whichever is less; or
(2) for a turbine-engine aeroplane, the amount of fuel required to fly for two hours at normal cruise consumption above the destination aerodrome, including final reserve fuel;

(e) final reserve fuel, which shall be the amount of fuel calculated using the estimated mass on arrival at the destination alternate aerodrome, or the destination aerodrome when no

destination alternate aerodrome is required:

(i) for a reciprocating engine aeroplane, the amount of fuel required to fly for 45 minutes, at holding speed at a height of 1500 feet above aerodrome elevation in standard conditions; or
(ii) for a turbine-engine aeroplane, the amount of fuel required to fly for 30 minutes at holding speed at 450 m (1 500 ft.) above aerodrome elevation in standard conditions;

(f) *additional fuel,* which shall be the supplementary amount of fuel required if the minimum fuel calculated in accordance with 10.1.6.3 (b), (c),(d) and (e) is not sufficient to:

(i) allow the aeroplane to descend as necessary and proceed to an alternate aerodrome in the event of engine failure or loss of pressurization, whichever requires the greater amount of fuel based on the assumption that such a failure occurs at the most critical point along the route;

(1) fly for 15 minutes at holding speed at 1500 ft. above aerodrome elevation in standard conditions; and
(2) make an approach and landing;

(ii) allow an aeroplane engaged in EDTO to comply with the EDTO critical fuel scenario as established under CAR Part 121;
(iii) meet additional requirements not covered above;

NOTE 1: Fuel planning for a failure that occurs at the most critical point along a route (paragraph 10.1.6.3 (f) (i)) may place the aeroplane in a fuel emergency situation based on Operations Manual, Part A, paragraph 10.3.6 (b) and ICAO Annex 6, Part 1, 4.3.7.2.

NOTE 2: Guidance on EDTO critical fuel scenarios is contained in ICAO Annex 6, Part 1, Attachment C;

(g) *discretionary fuel*, which shall be the extra amount of fuel to be carried at the discretion of the pilot-in-command.

10.1.6.4 Operators should determine one final reserve fuel value for each aeroplane type and variant in their fleet rounded up to an easily recalled figure.

10.1.6.5 A flight shall not commence unless the usable fuel on board meets the requirements in paragraph 10.1.6.3 (a), (b), (c), (d), (e) and (f) if required and shall not continue from the point of in-flight re-planning unless the usable fuel on board meets the requirements in paragraph 10.1.6.3 (b), (c), (d), (e) and (f) if required.

10.1.6.6 Notwithstanding the provisions in paragraph 10.1.6.3 (a), (b), (c), (d) and (f), the Director may, based on the results of a specific safety risk assessment conducted by the operator which demonstrates how an equivalent level of safety will be maintained, approve variations to the pre-flight fuel calculation of taxi fuel, trip fuel, contingency fuel, destination alternate fuel, and additional fuel. The specific safety risk assessment shall include at least the:

(a) flight fuel calculations;
(b) capabilities of the operator to include:

(i) a data-driven method that includes a fuel consumption monitoring programme; and/or

(ii) the advanced use of alternate aerodromes; and

(c) specific mitigation measures.

NOTE: ***Guidance on the specific safety risk assessment, fuel consumption monitoring programmes and the advanced use of alternate aerodromes is contained in the Flight Planning and Fuel Management (FPFM) Manual (Doc 9976).***

10.1.6.7 The use of fuel after flight commencement for purposes other than originally intended during pre-flight planning shall require a re-analysis and, if applicable, adjustment of the planned operation.

NOTE: ***Guidance on procedures for in-flight fuel management including re- analysis, adjustment and/or re-planning considerations when a flight begins to consume contingency fuel before take-off is contained in the Flight Planning and Fuel Management (FPFM) Manual (Doc 9976).***

10.1.6.8 The operator's system for maintaining fuel and oil records in compliance with the following.

(i) An Operator shall maintain fuel and oil records to enable CASAPNG to ascertain that, for each flight the requirements of paragraph 10.1.6 has been complied with.

(ii) Fuel and oil records shall be retained by the Operator for one year.

10.1.7 Instructions for Mass and Balance Control.

The general principles of mass and centre of gravity including:

(i) Definitions
(ii) Methods, procedures and responsibilities for preparation and acceptance of mass and centre of gravity calculations.
(iii) The policy for using either standard and/or actual masses.
(iv) The method for determining the applicable passenger, baggage and cargo mass.
(v) The applicable passenger and baggage masses for various types of operations and aeroplane type
(vi) Instructions and information necessary for the completion and verification of mass and balance documentation in use (sample of mass and balance documentation in use must be included).
(vii) Last minute changes procedures
(viii) Specific gravity of fuel, oil and water methanol
(ix) Seating policy / procedures

10.1.8 ATS Flight Plan.

Procedures and responsibilities for the preparation and submission of the air traffic services flight plan. Factors to be considered include the means of submission for both individual and repetitive flight plans.

10.1.9 Operational Flight Plan.

(a) Procedures and responsibilities for the preparation and acceptance of the operational flight plan. Operations manual must describe the use and contents of the operational flight plan, including samples of the operational flight plan formats in use.

(b) Operator's Procedure shall include following.

An operational flight plan shall be completed for every intended flight. The operational

flight plan shall be approved and signed by the Pilot-in-command and, where applicable, signed by the flight operations officer, and a copy shall be filed with the operator or a designated agent, or, if these procedures are not possible, it shall be left with the aerodrome authority or on record in a suitable place at the point of departure.

10.1.10 Meteorological Information.

Operator's procedures to ensure following.

(a) Aircraft observations and reports

Meteorological observations to be made by operator's aircraft, operating on international air routes and for the recording and reporting of these observations.

(i) Types of aircraft observations.

The following aircraft observations shall be made:

(1) Routine aircraft observations during en-route and climb-out phases of the flight; and
(2) Special and other non-routine aircraft observations during any phase of the flight.

NOTE: ***Operator's procedures, to be in compliance with ICAO Annex 3 Meteorological Service for International Air Navigation, Chapter 5.***

(b) Special aircraft observations

Special observations to be made by all aircraft whenever the following conditions are encountered or observed.

(i) Severe turbulence; or
(ii) Severe icing; or
(iii) Severe mountain wave; or
(iv) Thunderstorms, without hail, that are obscured, embedded, widespread or in squall lines; or
(v) Thunderstorms, with hail, that are obscured, embedded, widespread or in squall lines; or
(vi) Heavy dust storm or heavy sandstorm; or
(vii) Volcanic ash cloud; or
(viii) Pre-eruption volcanic activity or a volcanic eruption.

NOTE: ***Pre-eruption volcanic activity in this context means unusual and / or increasing volcanic activity which could presage a volcanic eruption.***

(c) Other non-routine aircraft observations

When other meteorological conditions not listed under paragraph 10.1.10 (b), e.g. wind shear, are encountered and which, in the opinion of the Pilot-in- command, may affect the safety or markedly affect the efficiency of other aircraft operations, the Pilot-in-command shall advise the appropriate air traffic services unit as soon as practicable.

NOTE: ***Icing, turbulence and, to a large extent, wind shear are elements which, for the time being, cannot be satisfactorily observed from the***

ground and for which in most cases aircraft observations represent the only available evidence.

(d) Reporting of aircraft observations during flight

(i) Aircraft observations shall be reported by air-ground data link. Where air-ground data link is not available or appropriate, aircraft observations during flight shall be reported by voice communications.
(ii) Aircraft observations shall be reported during flight at the time the observation is made or as soon thereafter as is practicable.
(iii) Aircraft observations shall be reported as air-reports.

(e) Interpretation of meteorological information

Explanatory material on the decoding of MET forecasts and MET reports relevant to the area of operations, including the interpretation of conditional expressions.

10.1.11 Operator's Maintenance Control Manual

NOTE: ***The operator shall provide, for the use and guidance of maintenance and operational personnel concerned, a maintenance control manual, approved by the Director. The design of the Manual shall observe Human Factors principles.***

Copies of all amendments to the operator's maintenance control manual shall be furnished promptly to all organisations or persons to whom the manual has been issued.

(a) Operator's procedure to ensure that;

(i) Applicable flight operations personnel are issued with a copy of the Maintenance Control Manual.
(ii) Amendments are provided to applicable manual holders

10.1.12 Operator's Maintenance Program

NOTE: ***The operator shall provide, for the use and guidance of maintenance and operational personnel concerned, a maintenance program, approved by the Director. The design and application of the operator's maintenance program shall observe Human Factors principles.***

Copies of all amendments to the maintenance program shall be furnished promptly to all organisations or persons to whom the maintenance program has been issued.

(b) Operator's procedure to ensure that;

(i) Applicable flight operations personnel are issued with a copy of the Maintenance program
(ii) Amendments are provided to applicable manual holders

10.1.13 Continuing Airworthiness Information

NOTE: ***The operator of an aeroplane over 5700 kg maximum certificated take-off mass shall monitor and assess maintenance and operational experience with respect to continuing airworthiness and provide the information as specified by the***

Director and report through the system specified in ICAO Annex 8, Part II, Standard 4.2.3 (f) and 4.2.4.

(a) Operator's procedure to ensure above requirement.

10.1.4 Maintenance Release

Operator's procedure to ensure following.

(a) Requirement for a maintenance release to be completed prior to each flight and signed to certify that the maintenance work performed has been completed satisfactorily and in accordance with approved data and the procedures described in Operator's aircraft technical log which is a part of the CASAPNG approved maintenance organisation's procedures manual.

(b) A maintenance release shall contain a certification including:

(i) Basic details of the maintenance carried out including detailed reference of the approved data used;

(ii) The date such maintenance was completed;

(iii) When applicable, the identity of the approved maintenance organisation; and

(iv) The identity of the person or persons signing the release.

10.1.15 Operator's Aeroplane Technical Log or Equivalent Document.

The responsibilities and the use of the operator's aeroplane technical log must be described, including samples of the format used.

10.1.16 Use of the Minimum Equipment List (MEL) and Configuration Deviation List (CDL).

(a) Operator's Policy on the use of MEL and CDL

(b) Each aircraft is required have an operator produced MEL (Refer to operations Manual, Part B, Chapter 9).

10.1.17 Journey log book

Operator's procedures to ensure the following.

(a) The aeroplane journey log book shall contain the following items and the corresponding roman numerals:

I	Aeroplane nationality and registration
II	Date.
III	Names of crew members
IV	Duty assignments of crew members
V	Place of departure.
VI	Place of arrival
VII	Time of departure.
VIII	Time of arrival.
IX	Hours of flight

X	Nature of flight (Private, aerial work, scheduled or non-scheduled).
XI	Incidents, observations, if any.
XII	Signature of person in charge.

(b) Entries in the journey log book should be made currently and in ink or indelible pencil.
(c) Completed journey log book should be retained to provide a continuous record of the last one year operations.

10.1.18 Operational control and Flight Dispatch procedure

(a) Flight dispatch from main base
(b) Flight dispatch from line stations

Operator's procedures to include
(i) Method of obtaining pre-flight aeronautical information essential for safety, regularity and efficiency of air navigation of the flight
(ii) Provisioning or preparation and dissemination of NOTAM.
(iii) Provisioning or preparation and dissemination of the information contained in the Aeronautical Information Publication (AIP).
(iv) Provisioning or preparation and dissemination of the information contained in the Aeronautical Information Regulation and Control (AIRAC).
(v) Provisioning or preparation and dissemination of the information contained in the Aeronautical Information Circular (AIC) or equivalent document.
(vi) Method of obtaining weather data
(vii) Emergency situations
(viii) Communication procedures

10.1.19 Flight following (monitoring) Procedure

10.1.19.1 Operator's Emergency Response Plan

Operators Emergency Response plan and to include following.

(a) Distribution of duties, responsibility and authority to Company personnel. Clear delineation of functional tasks and lines of reporting must be shown.
(b) Disable aircraft removal program
(c) Assistance to aircraft accident victims and their families (refer to ICAO circular 285 for guidance)

10.1.20 List of Documents, Forms and Additional Information to be carried in the Aeroplane.

The required documents must include;

(a) Prior to flight, each aeroplane shall carry a certified true copy of the air operator certificate, and a copy of the operations specifications relevant to the aeroplane type (including leased aircraft), issued in conjunction with the certificate. When the certificate and the associated operations specifications are issued in a language other than English, an English translation shall be included.

(b) Prior to flight, each aeroplane shall carry a certified true copy of the transfer agreement of supervisory functions and duties pursuant to Article 83 bis of the Chicago Convention.

(c) Current documents of following.

(i) Certificate of Registration

(ii) Certificate of Airworthiness

(iii) Certificate of Insurance

(iv) Airplane Flight Manual (AFM)

(v) Minimum Equipment List (MEL)

(vi) Configuration Deviation List (CDL)

(vii) Weight and Balance manual

(viii) Operations Manual

(ix) Journey log book

(x) Technical Log

(xi) Radio License

10.1.21 Document Storage Periods

Operator's procedure for the preservation and storage of records

(a) Refer Appendix 2 to this manual for required storage periods.
(b) The documents shall be kept in safe custody and made available to the Director whenever required.

10.1.22 Aeroplane Flight Manual

(a) Operator's procedure to ensure that each aeroplane to have a current aeroplane flight manual on board prior to each flight.
(b) Operator's procedure to ensure that the flight manual is updated by implementing changes made mandatory or approved by the Director.
(c) The Flight Manual shall be in English language.

10.2 Ground Handling Arrangements, Procedures and Instructions

NOTE: ***In the event, the air operator is not the designated Ground Handling Agent who has been duly authorized by the Director to provide ground handling services at an airport, the air operator shall enter into agreements with the designated Ground Handling Agent of each airport to which the operations are conducted to / from, for obtaining of requisite ground handling services and the following details of such arrangements shall be provided:***

(i) Airport Name,

(ii) City and the Country of the Airport,

(iii) Name of Ground Handling Agent,

(iv) Address and contact details,

(v) Reference of the Ground Handling Agreement (Reference Number, date)

10.2.1 Operator's ground handling organisation

(a) Operator's organisational structure which includes the responsibilities and authority for the management of all ground handling functions.
(b) Lines of responsibilities must be clearly defined for following ground handling functions if applicable.

(i) Ramp Operations
(ii) Passenger services
(iii) Baggage services
(iv) Cabin services
(v) Weight and balance control
(vi) Ground support equipment
(vii) Fuel services

10.2.2 Operator's policy and procedures in respect of

(a) Subcontracting policy
(b) Handling process, procedures and practices for all ground handling operations

10.2.3 Operator's policy in respect of service providers

Operator's policy in respect of service providers and to include

(a) The Air Operator's responsibility in respect of ground handling as delegated by the Director shall be retained by the operator even when any ground handling function is out sourced to a service provider.

(b) Out sourcing of any ground handling function to a service provider shall have the approval of the Director.

10.2.4 Operator's ground handling arrangements.

The Air Operator Ground Handling arrangements shall include all or part of the following as may be applicable to the intended operations.

After a technical evaluation the ground handling arrangements may be accepted or approval may be granted.

(a) **Ground administration and supervision, comprising:**

(i) Representation and liaison services with local authorities or any other entity, disbursements on behalf of the airport user and provision of office space for its representatives;

(ii) Load control, messaging and telecommunications;

(iii) Handling, storage and administration of unit load devices;

(iv) Any other supervision services before, during or after the flight and any other administrative service requested by the airport user.

(b) **Passenger handling** comprises any kind of assistance to arriving, departing, transfer or transit passengers, including checking tickets and travel documents, registering baggage and carrying it to the sorting area.

(c) **Freight and mail handling** comprising

(i) For freight: handling of related documents, customs procedures and implementation of any security procedure agreed between the parties or required in the circumstances;

(ii) For mail: handling of related documents and implementation of any security procedure between the parties or required by the circumstances.

(d) **Aircraft services**, comprising:

(i) The external and internal cleaning of the aircraft, and the toilet and water services;
(ii) The cooling and heating of the cabin, the removal of snow and ice, the de-icing of the aircraft;
(iii) The rearrangement of the cabin with suitable cabin equipment, the storage of this equipment.

(e) **Aircraft maintenance**, comprising:

(i) Routine services performed before flight;
(ii) Non-routine services requested by the airport user;
(iii) The provision and administration of spare parts and suitable equipment;
(iv) The request for or reservation of a suitable parking and / or hangar space.

(f) **Flight operations and crew administration,** comprising:

(i) Preparation of the flight at the departure airport or at any other point;
(ii) In-flight assistance, including re-dispatching if needed;
(iii) Post-flight activities;
(iv) Crew administration.

(g) **Surface transport** comprising:

(i) The organisation and execution of crew, passenger, baggage, freight and mail transport between different terminals of the same airport, but excluding the same transport between the aircraft and any other point within the perimeter of the same airport;
(ii) Any special transport requested by the airport user.

(h) **Catering services** comprising:

(i) Liaison with suppliers and administrative management;
(ii) Storage of food and beverages and of the equipment needed for their preparation;
(iii) Cleaning of this equipment;
(iv) Preparation and delivery of equipment as well as of bar and food supplies.

(i) **Baggage handling** comprising handling baggage in the sorting area, sorting it, preparing it for departure, loading it onto and unloading it from the devices designed to move it from the aircraft to the sorting area and vice versa, as well as transporting baggage from the sorting area to the reclaim area.

(j) **Freight and mail handling** as regards:

(i) The physical handling of freight and mail whether incoming outgoing or being transferred, between the air terminal and the aircraft.

(k) **Ramp handling** comprising:

(i) marshalling the aircraft on the ground at arrival and departure (*);
(ii) assistance to aircraft parking and provision of suitable devices (*);

(iii) communication between the aircraft and the air-side supplier of services (*);

NOTE: (*) Provided that these services are not provided by the air traffic service

(iv) The loading and unloading of the aircraft, including the provision and operation of suitable means, as well as the transport of crew and passengers between the aircraft and the terminal, and baggage transport between the aircraft and the terminal;

(v) The provision and operation of appropriate units for engine starting;

(vi) The moving of the aircraft at arrival and departure, as well as the provision and operation of suitable devices;

(vii) The transport, loading on to and unloading from the aircraft of food and beverages.

(l) **Fuel and oil handling,** comprising:

(i) The organisation and execution of fuelling and defueling operations, including the storage of fuel and the control of the quality and quantity of fuel deliveries;

(ii) The replenishing of oil and other fluids.

10.2.5 Fuelling procedures.

A description of fuelling procedures including instructions to comply with the following.

(a) Safety precautions during refuelling and defueling including when an APU is in operation or when a turbine engine is running and the prop-brakes are on;

(b) Re fuelling and de fuelling when passengers are embarking, on board or disembarking shall not be conducted unless it is properly attended by qualified personnel ready to initiate and direct evacuation of the aeroplane by the most practical and expeditious means available;

(c) When refuelling with passengers embarking, on board or disembarking, two- way communication shall be maintained by the aeroplane's inter- communication system or other suitable means between the ground crew supervising the refuelling and the qualified personnel on board the aeroplane.

(d) Precautions to be taken to avoid mixing fuels.

NOTE 1: The provisions of paragraph 10.2.5 (b) do not necessarily require the deployment of integral aeroplane stairs or the opening of emergency exits as a prerequisite to refuelling.

NOTE 2: Provisions and guidance on safe refuelling practices is contained in the Airport Services Manual, (ICAO Doc 9137), Parts 1 and 8.

NOTE 3: Additional precautions are required when refuelling with fuels other than aviation kerosene or when refuelling results in a mixture of aviation kerosene with other aviation turbine fuels, or when an open line is used.

10.2.6 Safety on the ramp

Operator's Procedures, aimed at achieving safety whilst the aeroplane is on the ramp. Procedures to include:

(a) Aircraft Loading operations and securing of items in the aeroplane;

(b) Special loads and classification of load compartments;

(c) Positioning of ground support equipment and passenger boarding equipment;
(d) Aircraft handling and servicing operations
(e) Operation of aeroplane doors;
(f) Safety on the ramp, including fire prevention, blast and suction areas;
(g) Start-up, ramp departure and arrival procedures including push-back, taxi, towing operations and instructions to ensure;

(i) An aeroplane shall not be taxied on the movement area of an aerodrome unless the person at the controls:

(1) Has been duly authorized by the operator or a designated agent;
(2) Is fully competent to taxi the aeroplane;
(3) Is qualified to use the radiotelephone; and
(4) Has received instruction from a competent person in respect of aerodrome layout, routes, signs, marking, lights, air traffic control (ATC) signals and instructions, phraseology and procedures, and is able to conform to the operational standards required for safe aeroplane movement at the aerodrome.

10.2.7 Procedures for the refusal of embarkation.

Operators Procedures, to ensure that persons who appear to be intoxicated or who demonstrate by manner or physical indications that they are under the influence of drugs, are refused embarkation. This does not apply to medical patients under proper care.

10.2.8 De-icing and anti-icing on the ground

De-icing and anti-icing policy and procedures for aeroplanes on the ground. These shall include descriptions of the types and effects of icing and other contaminants on aeroplanes whilst stationary, during ground movements and during take-off.

In addition, a description of the fluid types used must be given including:

(a) Proprietary or commercial names;
(b) Characteristics;
(c) Effects on aeroplane performance;
(d) Hold-over times; and
(e) Precautions during usage.

10.3 Flight Procedures

10.3.1 VFR / IFR policy.

(a) A description of the policy for allowing flights to be made under VFR, or IFR, or of changing from one to the other and to include;

(i) A flight to be conducted in accordance with the visual flight rules shall not be commenced 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 the visual flight rules will, at the appropriate time, be such as to render compliance with VFR rules possible.

(ii) Flight to be conducted in accordance with instrument flight rules shall not be commenced unless information is available which indicates that conditions at the aerodrome of intended landing or, where a destination alternate is required, at least one destination alternate aerodrome will, at the estimated time of arrival, be

at or above the aerodrome operating minima.

(b) Requirement for all aeroplanes operated in accordance with instrument flight rules to comply with the instrument flight procedures approved by the State in which the aerodrome is located.

10.3.2 Navigation procedures.

(a) A list of navigational equipment to be carried by aircraft type, route and area of operation.

(b) A description of all navigation procedures relevant to the type(s) and area(s) of operation.

Procedures must include;

(i) Standard navigational procedures and to include;

(1) Policy for carrying out independent cross-checks of keyboard entries where these affect the flight path to be followed by the aeroplane;
(2) In-flight re-planning;
(3) Procedures in the event of system degradation;

(ii) When relevant to the operation;

(1) Long range navigation procedures

(c) Performance based navigation (PBN)

Operator's procedures and training requirement for operations, where a navigation specification for performance-based navigation has been prescribed.

NOTE 1: For operations where a navigation specification for performance-based navigation has been prescribed, the Operator shall have approval from CASAPNG for operations in such airspace.

NOTE 2: Information on performance-based navigation, and guidance concerning the implementation and operational approval process, are contained in the Performance-based Navigation Manual (ICAO Doc 9613). This document also contains a comprehensive list of references to other documents produced by States and international bodies concerning navigation systems.

(d) Minimum Navigation Performance Specifications (MNPS)

Operator's procedures and training requirement for operations where Minimum Navigation Performance Specifications (MNPS) are prescribed.

NOTE 1: For flights in defined portions of airspace where, based on Regional Air Navigation Agreement, Minimum Navigation Performance Specifications (MNPS) are prescribed, the Operator shall have approval from the Director for operations in such airspace.

NOTE 2: The prescribed minimum navigation performance specifications and the procedures governing their application are published in the Regional Supplementary Procedures (ICAO Doc 7030).

(e) Reduced Vertical Separation Minimum (RVSM)

Operator's procedures for operations and training requirement where based on Regional Air Navigation Agreement, a reduced vertical separation minimum (RVSM) of 300 m (1000 ft.) is applied between FL 290 and FL 410 inclusive.

NOTE 1: For flights in defined portions of airspace where, based on Regional Air Navigation Agreement, a reduced vertical separation minimum (RVSM) of 300 m (1000 ft.) is applied between FL 290 and FL 410 inclusive, the Operator shall have approval from the Director for operations in such airspace.

Refer AC 91-4 for requirements for approval of Reduced Vertical Separation Minimum (RVSM).

NOTE 2: An RVSM approval is valid globally on the understanding that any operating procedures specific to a given region will be stated in the operations manual or appropriate crew guidance.

NOTE 3: Guidance material relating to the approval for operation in RVSM airspace is contained in the Manual on Implementation of a 300 m (1000 ft.) Vertical Separation Minimum between FL 290 and FL 410 inclusive (ICAO Doc 9574).

NOTE 4: Refer to Annex 6 Appendix 4 for Altimetry system performance requirements for operations in RVSM Airspace.

(f) Electronic navigation data management

(i) Operator's procedures to ensure following.

An operator shall not employ electronic navigation data products that have been processed for application in the air and on the ground unless the Director has approved the operator's procedures for ensuring that the process applied and the products delivered have met acceptable standards of integrity and that the products are compatible with the intended function of the equipment that will use them.

NOTE: Guidance relating to the processes that data suppliers may follow is contained in RTCA DO-200A / EUROCAE ED-76 and RTCA DO-201A / EUROCAE ED-77.

(ii) Operator's procedure to ensure continues monitoring of both the process and products.

(iii) Operator's procedures that ensure the timely distribution and insertion of current and unaltered electronic navigation data to all aircraft that require it.

(g) Provisioning of Charts

Operator's procedure to ensure following.

(i) Each aeroplane shall have prior to each departure, current and suitable charts to

cover the route of the proposed flight and any route along which it is reasonable to expect that the flight may be diverted.

(ii) Flight Operations Officers shall have adequate Charts to discharge their duties.

(iii) Provisioning and timely distribution and insertion of current revisions to Charts.

10.3.3 Operation in portions of airspace or on routes where an RCP (required communication performance) type has been prescribed.

Operator's procedures, training requirement for operation in portions of airspace or on routes where an RCP type has been prescribed.

NOTE 1: For flights in defined portions of airspace or on routes where an RCP type has been prescribed, the Operator shall have approval from the Director for operations in such airspace.

NOTE 2: Information on RCP and associated procedures, and guidance concerning the approval process, are contained in the Manual on Required Communications Performance (RCP) (ICAO Doc 9869). This document also contains references to other documents produced by States and international bodies concerning communication systems and RCP.

10.3.4 Altimeter setting procedures

(a) Operator's Altimeter setting procedure, including use

(b) Where appropriate, use of metric altimetry system and conversion tables

(c) QFE operating procedures.

10.3.5 Altitude alerting system procedures

Operator's procedure, including instructions on the maintenance of altitude awareness and the use of automated or flight crew altitude callout.

10.3.6 In-flight fuel management Policy and Procedures

(a) An operator shall establish policies and procedures, approved by CASAPNG, to ensure that in-flight fuel checks and fuel management are performed.

(b) 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.

(c) 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 or the fuel required to operate to an isolated aerodrome.

(d) 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 the planned final reserve fuel.

NOTE 1: 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 the planned final reserve fuel. This is not an emergency situation but an indication that an emergency situation is possible should any additional delay occur.

NOTE 2: Guidance on declaring minimum fuel is contained in the Flight Planning and Fuel Management Manual (Doc 9976).

(e) 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 ICAO Annex 6, Part I, 4.3.6.3 e) 1) or 2) 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 ICAO Annex 10, Volume II, 5.3.2.1.1 b) 3.

NOTE 3: Guidance on procedures for in-flight fuel management is contained in the Flight Planning and Fuel Management.

10.3.7 Flight procedures in icing conditions

Operator's instructions in respect of flight in icing condition and to include;

(a) Flight to be operated in known or expected icing conditions shall not be commenced unless the aeroplane is certificated and equipped to cope with such conditions.
(b) A flight to be planned or expected to operate in suspected or known ground icing conditions shall not take off unless the aeroplane has been inspected for icing and, if necessary, has been given appropriate de- icing/anti-icing treatment.

Accumulation of ice or other naturally occurring contaminants shall be removed so that the aeroplane is kept in an airworthy condition prior to take- off.

10.3.8 Use of autopilot and auto throttle in IMC

Operator's instructions on the use of autopilot and auto throttle in IMC.

10.3.9 Aeroplane operating procedures for noise abatement

(a) Operator's Aeroplane operating procedures for noise abatement (should comply with the provisions of PANS-OPS (ICAO Doc 8168), Volume I).
(b) Noise abatement procedures specified by an operator for any one aeroplane type should be the same for all aerodromes.

10.3.10 Standard Operating Procedures (SOP) for each Phases of Flight

(a) Operator's instructions to establish Standard Operating Procedures (SOP) which provide guidance to flight operations personnel.
(b) Check lists for the guidance of flight operations personnel shall be integral part of SOP.
(c) Refer to Operations Manual Part B, Chapter 3 for additional requirements.

10.3.11 Instruction on the use of Normal Checklists and the Timing of their use

Operator's Instructions on the use of Normal Checklist and the Timing of their use. Refer to Operations Manual Part B, Chapter 3 for additional information.

10.3.12 Instructions on the Clarification and Acceptance of ATC clearances, particularly where terrain clearance is involved.

10.3.13 Departure Briefing

10.3.13.1 Departure Contingency Procedures

Procedures and information necessary for flight crew in case of contingency on departure, such as (not limited to):

(a) Need for and selection of a take-off alternate

(i) A take-off alternate aerodrome shall be selected and specified in the operational flight plan if the weather conditions at the aerodrome of departure are at or below the applicable aerodrome operating minima or it would not be possible to return to the aerodrome of departure for other reasons.

(ii) The take-off alternate aerodrome shall be located within the following distance from the aerodrome of departure:

(1) Aeroplanes having two power-units. Not more than a distance equivalent to a flight time of one hour at the single- engine cruise speed; and

(2) Aeroplanes having three or more power-units. Not more than a distance equivalent to a flight time of two hours at the one- engine inoperative cruise speed.

(iii) For an aerodrome to be selected as a take-off alternate the available information shall indicate that, at the estimated time of use, the conditions will be at or above the aerodrome operating minima for that operation.

(b) Procedures for complying with Chapter 9 of this manual

This includes the instruction for finding / computing the performance data (referring possibly to a specific instruction for use of the data, the eventual programming of the data, the standard engine-out routing in cases where no obstacle exist and the specific engine-out routing in cases where an obstacle forces an "escape route" to be followed with details of where the routing can be found (FMS, chart, text description and the procedure to fly the routing (bank angles, LNAV, hand flown), the acceleration height, etc.

(c) Other operational contingency procedures on departure (FMS failure, loss of com, pressurization failure, engine fire etc…).

(d) Fuel jettisoning policy where a return to departure airport is required and jettisoning area (minimum altitude, allowed area or where to find the information).

10.3.14 Approach Briefing

10.3.14.1 Instructions for the Conduct of Precision and Non Precision Approach Procedures Including;

(a) Threshold crossing height for precision approaches

Operational procedures designed to ensure that an aeroplane being used to conduct precision approaches crosses the threshold by a safe margin, with the aeroplane in the landing configuration and attitude.

10.3.15 Stabilized Approach Procedure

10.3.15.1 The parameters for the stabilized approach shall be defined by the operator's standard operating procedures (SOPs). These parameters shall be included in the operator's operations manual and shall provide details regarding at least the following:

(a) range of speeds specific to each aircraft type;

(b) minimum power setting(s) specific to each aircraft type;
(c) range of attitudes specific to each aircraft type;
(d) crossing altitude deviation tolerances;
(e) configuration(s) specific to each aircraft type;
(f) maximum sink rate; and
(g) completion of checklists and crew briefings.

10.3.15.2 Elements of stabilized approach.

The elements of a stabilized approach (according to the parameters in paragraph 10.3.15.1) shall be stated in the operator's SOPs. These elements should include as a minimum:

(a) That in instrument meteorological conditions (IMC), all flights shall be stabilized by no lower than 300m (1000 ft.) height above threshold;
(b) That all flights of any nature shall be stabilized by no lower than 150m (500 ft.) height above threshold.
(c) The aircraft is on the correct flight path;
(d) Only small changes in heading / pitch are required to maintain the correct flight path;
(e) The aircraft speed is not more than Vref +20 indicated airspeed and not less than Vref;
(f) Sink rate is no greater than 1000 ft. per minute. If an approach requires a sink rate greater than 1000 ft. per minute, a special briefing should be conducted;
(g) Power setting is appropriate for the aircraft configuration and is not below the minimum power for approach as defined by the aircraft operating manual;
(h) All briefings and checklist have been completed;
(i) Specific types of approaches are stabilized if they also fulfil the following; ILS approaches must be flown within the one dot of the glideslope and localizer; during a circling approach, wings should be level on final when the aircraft reaches 300ft above airport elevation; and
(j) Unique approach procedures or abnormal conditions requiring a deviation from the above elements of a stabilized approach require a special briefing.
(k) If a deviation exists at or below the stable approach gates (1000 ft. AGL in IMC or 500 ft. AGL in VMC) the PM shall make the relevant deviation call followed by the words "unstable". The PIC shall announce "Go-around" and an immediate go-around procedure shall be conducted.

10.3.15.3 Conditions required to commence or to continue an Instrument Approach

Operator's instructions in respect of Conditions required to commence or to continue an instrument approach and to include following.

(a) A flight shall not be continued towards the aerodrome of intended landing, unless the latest available information indicates that at the expected time of arrival, a landing can be effected at that aerodrome or at least one destination alternate aerodrome, in compliance with the operating minima established in accordance with paragraph 10.1.5.
(b) An instrument approach shall not be continued beyond the outer marker fix in case of precision approach, or below 300 m (1000 ft.) above the aerodrome in case of non-precision approach, unless the reported visibility or controlling RVR is above the specified minimum.
(c) If, after passing the outer marker fix in case of precision approach, or after descending below 300 m (1000 ft.) above the aerodrome in case of non- precision approach, the reported visibility or controlling RVR falls below the specified minimum, the approach may be continued to DA / H or MDA / H. In any case, an aeroplane shall not continue

its approach-to-land at any aerodrome beyond a point at which the limits of the operating minima specified for that aerodrome would be infringed.

NOTE: ***Controlling RVR means the reported values of one or more RVR reporting locations (touchdown, mid-point and stop-end) used to determine whether operating minima are or are not met. Where RVR is used, the controlling RVR is the touchdown RVR, unless otherwise specified by State criteria.***

10.3.16 Allocation of Flight Crew Duties and Procedures for the management of Crew work load during Night and IMC Instrument and Landing Operations

10.3.17 Procedure for familiarization with areas, routes and aerodromes.

10.4 All Weather Operations (AWO). (Low Visibility Take off, Category II and III Operations)

A description of the operational procedures associated with All Weather Operations (Low visibility take off, Category 11 and 111 Operations).

10.5 EDTO

Additional requirements for operations by aeroplanes with turbine engines beyond 60 minutes to an en-route alternate aerodrome including extended diversion time operations (EDTO).

10.5.1 Requirements for operations beyond 60 minutes to an en-route alternate aerodrome

Operators conducting operations beyond 60 minutes from a point on a route to an en-route alternate aerodrome shall ensure that:

(a) for all aeroplanes:

(1) en-route alternate aerodromes are identified; and
(2) the most up-to-date information is provided to the flight crew on identified en-route alternate aerodromes, including operational status and meteorological conditions;

(b) for aeroplanes with two turbine engines, the most up-to-date information provided to the flight crew indicates that conditions at identified en-route alternate aerodromes will be at or above the operator's established aerodrome operating minima for the operation at the estimated time of use.

NOTE: ***Guidance on compliance with the requirements of these provisions is contained in Appendix 6, Part 1, Attachment C.***

10.5.2 In addition to the requirements in paragraph 10.5.1, all operators shall ensure that the following are taken into account and provide the overall level of safety intended by the provisions of ICAO Annex 6, Part I:

(a) operational control and flight dispatch procedures;
(b) operating procedures; and
(c) training programmes.

10.5.3 Requirements for extended diversion time operations (EDTO)

Unless the operation has been specifically approved by the Director, an aeroplane with two or more turbine engines shall not be operated on a route where the diversion time to an en-route alternate aerodrome from any point on the route, calculated in ISA and still-air conditions at the one-engine-inoperative cruise speed for aeroplanes with two turbine engines and at the all engines

operating cruise speed for aeroplanes with more than two turbine engines, exceeds a threshold time authorised for such operations.

NOTE 1: When the diversion time exceeds the threshold time, the operation is considered to be an extended diversion time operation (EDTO).

NOTE 2: Guidance on the establishment of an appropriate threshold time and on approval of extended diversion time operations is contained in Annex 6 Part 1, Attachment C.

NOTE 3: For the purpose of EDTO, the take-off and/or destination aerodromes may be considered en-route alternate aerodromes.

10.5.4. The maximum diversion time for the operator of a particular aeroplane type engaged in extended diversion time operations shall be approved by the Director.

NOTE: Guidance on the conditions to be used when converting diversion times to distances is contained in ICAO Annex 6, Part 1, Attachment C.

10.5.5 When approving the appropriate maximum diversion time for the operator of a particular aeroplane type engaged in extended diversion time operations, the CASAPNG Inspector shall ensure that:

(a) *for all aeroplanes:* the most limiting EDTO significant system time limitation, if any, indicated in the aeroplane flight manual (directly or by reference) and relevant to that particular operation is not exceeded; and
(b) *for aeroplanes:* with two turbine engines: the aeroplane is EDTO certified.

NOTE 1: EDTO may be referred to as ETOPS in some documents.

NOTE 2: Guidance on compliance with the requirements of this provision is contained in ICAO Annex 6, Part 1, Attachment C.

10.5.6 Notwithstanding the provisions in paragraph 10.5.2, the Director may, based on the results of a specific safety risk assessment conducted by the operator which demonstrates how an equivalent level of safety will be maintained, approve operations beyond the time limits of the most time-limited system. The specific safety risk assessment shall include at least the:

(a) capabilities of the operator;
(b) overall reliability of the aeroplane;
(c) reliability of each time-limited system;
(d) relevant information from the aeroplane manufacturer; and
(e) specific mitigation measures.

NOTE: Guidance on the specific safety risk assessment is contained in ICAO Annex 6, Part 1, Attachment C.

10.5.7 For aeroplanes engaged in EDTO, the additional fuel required by CAR Part 121.71 (iv) and shall include the fuel necessary to comply with the EDTO critical fuel scenario acceptable to the Director.

NOTE: Guidance on compliance with the requirements of this provision is in ICAO Annex 6, Part 1, Attachment C.

10.5.8 A flight shall not proceed beyond the threshold time in accordance with ICAO Annex 6, Part 1, 4.7.2.1 unless the identified en-route alternate aerodromes have been re- evaluated for availability and

the most up-to-date information indicates that, during the estimated time of use, conditions at those aerodromes will be at or above the operator's established aerodrome operating minima for the operation. If any conditions are identified that would preclude a safe approach and landing at that aerodrome during the estimated time of use, an alternative course of action shall be determined.

10.5.9 The Inspector of CASAPNG shall, when approving maximum diversion times for aeroplanes with two turbine engines, ensure that the following are taken into account in providing the overall level of safety intended by the provisions of ICAO Annex 8:

(a) reliability of the propulsion system;
(b) airworthiness certification for EDTO of the aeroplane type; and
(c) EDTO maintenance programme.

NOTE 1: EDTO may be referred to as ETOPS in some documents.

NOTE 2: The Airworthiness Manual (Doc 9760) contains guidance on the level of performance and reliability of aeroplane systems intended by ICAO Annex 6, Part 1, 4.7.2.6, as well a guidance on continuing airworthiness aspects of the requirements of ICAO Annex 6, Part 1, 4.7.2.6.

NOTE 3: Any aeroplane type with two turbine engines which, prior to 25 March 1986 was authorised and operating on a route where the flight time at single-engine cruise speed to an adequate en-route alternate aerodrome exceeded the threshold time of established for such operations in accordance with paragraph 10.5.3, shall be permitted such an operation to continue on that route after that date on application to CASAPNG.

10.5.10 ETOPS Operational Procedures

(a) Operational procedures of the Operator who wish to operate an aeroplane with two turbine power units as per Note 3 above.
(b) Operator's operational procedures shall include engine failure procedure for ETOPS and the nomination and utilization of diversion aerodromes.
(c) En-route alternate aerodromes
Operator's procedures shall specify that, En-route alternate aerodromes, required for extended range operations by aeroplanes with two turbine engines, shall be selected and specified in the operational and air traffic services (ATS) flight plans.
(d) Operator's procedures shall specify that, a flight to be conducted in accordance with approved ETOPS operational procedures, shall not be commenced unless, during the possible period of arrival, the required en-route alternate aerodrome(s) will be available and the available information indicates that conditions at those aerodromes will be at or above the aerodrome operating minima approved for the operation.

10.6 Ground Proximity Warning System (GPWS)

(a) Instructions and training requirements for the avoidance of controlled flight into terrain (CFIT) and policy for the use of Ground Proximity Warning System / Ground Proximity Warning System which has a forward looking terrain avoidance function.
(b) Limitations on high rates of descent near the surface.

10.7 Airborne Collision Avoidance System (ACAS / TCAS)

Policy, Instructions, Procedures and Training requirement for the avoidance of collisions and the use of the Airborne Collision Avoidance System.

Use of phraseology under 6.2.2 of the ENR section of PNG AIP.

Operational procedures and training requirement to be in line with, PANS OPS (Doc 8168) Attachment A to Part III, Section 3, Chapter 3 and PANS-ATM (Doc 4444) Chapter 12 and 15.

10.8 Weather Radar

Operating Instructions and training requirement for the use of weather radar

10.9 Pressure Altitude Reporting Transponders

Operating Instructions and training requirements for the use of Transponders

10.10 Forward looking Wind Shear Warning System

Operating Instructions and training requirements for the use of forward looking Wind Shear Warning System

10.11 Oxygen Supply – CAR Part 91.209

10.11.1 An explanation of the conditions under which oxygen must be provided and used.

The oxygen requirements specified for:

(a) Flight crew;
(b) Cabin crew;
(c) Passengers.

The following Oxygen requirements must be satisfied.

(a) A flight to be operated at flight altitudes at which the atmospheric pressure in personnel compartments will be less than 700 hPa shall not be commenced unless sufficient stored breathing oxygen is carried to supply:

(i) All crew members and 10 per cent of the passengers for any period in excess of 30 minutes that the pressure in compartments occupied by them will be between 700 hPa and 620 hPa; and

(ii) The crew and passengers for any period that the atmospheric pressure in compartments occupied by them will be less than 620 hPa.

(b) A flight to be operated with a pressurized aeroplane shall not be commenced unless a sufficient quantity of stored breathing oxygen is carried to supply all the crew members and passengers, as is appropriate to the circumstances of the flight being undertaken, in the event of loss of pressurization, for any period that the atmospheric pressure in any compartment occupied by them would be less than 700 hPa. In addition, when an aeroplane is operated at flight altitudes at which the atmospheric pressure is less than 376 hPa, or which, if operated at flight altitudes at which the atmospheric pressure is more than 376 hPa and cannot descend safely within four minutes to a flight altitude at which the atmospheric pressure is equal to 620 hPa, there shall be no less than a 10-minute supply for the occupants of the passenger compartment.

NOTE: ***Approximate altitudes in the Standard Atmosphere corresponding to the values of absolute pressure used in the above text are as follows:***

Absolute pressure	***Meters***	***Feet***
700 hPa	*3000*	*10,000*
620 hPa	*4000*	*13,000*

376 hPa	*7600*	*25,000*

10.11.2 Use of Oxygen

Operator's procedures to ensure that, all flight crew members, when engaged in performing duties essential to the safe operation of an aeroplane in flight, to use breathing oxygen continuously whenever the circumstances prevail for which its supply has been required in paragraph 10.11.

10.11.3 Oxygen Mask

Operator's procedure to ensure that, all flight crew members of pressurized aeroplanes operating above an altitude where the atmospheric pressure is less than 376 hPa shall have available at the flight duty station a quick-donning type of oxygen mask which will readily supply oxygen upon demand.

10.12 Loss of Pressurisation

Safeguarding of cabin crew and passengers in pressurized aeroplanes in the event of loss of pressurization.

Operator's procedure to ensure the following.

(a) Cabin crew should be safeguarded so as to ensure reasonable probability of their retaining consciousness during any emergency descent which may be necessary in the event of loss of pressurization and, in addition, they should have such means of protection as will enable them to administer first aid to passengers during stabilized flight following the emergency.

(b) Passengers should be safeguarded by such devices or operational procedures as will ensure reasonable probability of their surviving the effects of hypoxia in the event of loss of pressurization.

NOTE: ***It is not envisaged that cabin crew will always be able to provide assistance to passengers during emergency descent procedures which may be required in the event of loss of pressurization.***

10.13 Crew Members at their Stations

(a) Instructions to comply with the following.

The requirements for crew members to occupy their assigned stations or seats during the different phases of flight or whenever deemed necessary in the interest of safety;

(i) *Take-off and landing*. All flight crew members required to be on flight deck duty shall be at their stations.

(ii) *En route*. All flight crew members required to be on flight deck duty shall remain at their stations except when their absence is necessary for the

performance of duties in connection with the operation of the aeroplane or for physiological needs.

(b) Procedure to ensure that each cabin crew member assigned to emergency evacuation duties occupy a seat, specially designed and allocated for cabin crew during take-off and landing and whenever the pilot-in-command so directs.

10.14 Use of Safety Belts for Crew and Passengers

(a) Instructions to comply with following.

The requirements for crew members to use safety belts and / or harnesses during the different phases of flight or whenever deemed necessary in the interest of safety.

(i) *Seat belts.* All flight crew members shall keep their seat belts fastened when at their stations.

(ii) *Safety harness.* Any flight crew member occupying a pilot's seat shall keep the safety harness fastened during the take-off and landing phases; all other flight crew members shall keep their safety harnesses fastened during the take-off and landing phases unless the shoulder straps interfere with the performance of their duties, in which case the shoulder straps may be unfastened but the seat belt must remain fastened.

NOTE: Safety harness includes shoulder straps and a seat belt which may be used independently.

(b) Instructions to comply with following.

Each cabin crew member shall be seated with seat belt or, when provided, safety harness fastened during take-off and landing and whenever the Pilot-in- command so directs.

NOTE: The foregoing does not preclude the pilot-in-command from directing the fastening of the seat belt only, at times other than during take-off and landing.

(c) Procedures to ensure that, during take-off and landing and whenever considered necessary by reason of turbulence or any emergency occurring during flight, all passengers on board an aeroplane shall be secured in their seats by means of the seat belts or harnesses provided.

10.15 Cabin Safety Requirements

10.15.1 Cabin Safety Procedures Covering;

(a) Cabin preparation for flight, in-flight requirements and preparation for landing including procedures for securing cabin and galleys;
(b) Procedures to ensure that passengers are seated where, in the event that an emergency evacuation is required, they may best assist and not hinder evacuation from the aeroplane;
(c) Procedures to be followed during passenger embarkation and disembarkation;
(d) Carry - on baggage
Procedures to ensure that all baggage carried onto an aeroplane and taken into the passenger cabin is adequately and securely stowed.

10.15.2 Accessible and Adequate Medical Supplies

Operator's procedure to ensure the following.

An aeroplane shall be equipped with accessible and adequate medical supplies that comprise with;

(a) One or more first-aid kits for the use of cabin crew in managing incidents of ill health; and
(b) For aeroplanes required to carry cabin crew as part of the operating crew, one universal precaution kit (two for aeroplanes authorized to carry more than 250 passengers) for the use of cabin crew members in managing incidents of ill health associated with a case of

suspected communicable disease, or in the case of illness involving contact with body fluids; and

(c) For aeroplanes authorized to carry more than 100 passengers, on a sector length of more than two hours, a medical kit, for the use of medical doctors or other qualified persons in treating in-flight medical emergencies.

NOTE: Guidance on the types, number, location and contents of the medical supplies is given in ICAO Annex 6, Attachment B.

10.15.3 Fire Extinguishers

Operator's instructions to ensure the following.

The number and type of fire extinguishers per aeroplane type shall be in accordance with CAR Part 91, Appendix A13 and Table 13.

Portable fire extinguishers of a type which, when discharged, will not cause dangerous contamination of the air within the aeroplane. At least one shall be located in:

(a) The pilot's compartment; and

(b) Each passenger compartment that is separate from the pilot's compartment and that is not readily accessible to the flight crew;

NOTE: Any portable fire extinguisher so fitted in accordance with the certificate of airworthiness of the aeroplane may count as one prescribed.

10.15.4 Portable Breathing Equipment (PBE)

The number and location of PBE per aeroplane type shall be in accordance with CAR Part 91, Appendix A20.

10.16 Passenger Briefing Procedures

(a) The contents, means and timing of passenger briefings as per Rule requirements.

(b) Procedures to ensure that passengers are made familiar with the location and use of:

(i) Seat belts;
(ii) Emergency exits;
(iii) Life jackets, if the carriage of life jackets is prescribed;
(iv) Oxygen dispensing equipment, if the provision of oxygen for the use of passengers is prescribed;
(v) Other emergency equipment provided for individual use, including passenger emergency briefing cards.

(c) Procedures to inform the passengers of the location and general manner of use of the principal emergency equipment carried for collective use.

(d) Procedures to ensure that;
In an emergency during flight, passengers shall be instructed in such emergency action as may be appropriate to the circumstances.

(e) Passenger information cards
Means of ensuring that the following information and instructions are conveyed to passengers.

(i) When seat belts are to be fastened;
(ii) When and how oxygen equipment is to be used if the carriage of oxygen is required;

(iii) Restrictions on smoking;

(iv) Location and use of life jackets or equivalent individual flotation devices where their carriage is required;

(v) Location and method of opening emergency exits;

10.17 Incapacitation of Crew Members

Procedures to be followed in the event of incapacitation of crew members in flight.

Examples of the types of incapacitation and the means for recognising them must be included.

10.18 Admission to Flight Deck

The conditions for the admission to the flight deck of persons other than the flight crew.

The policy regarding the admission of Inspectors from the CASAPNG must be included.

10.19 Use of vacant Crew seats

The conditions and procedures for the use of vacant crew seats.

10.20 Adverse and Potentially Hazardous Atmospheric Conditions

Procedures for operating in, and/or avoiding adverse and potentially hazardous atmospheric conditions including:

(a) Thunderstorms;
(b) Icing conditions;
(c) Turbulence;
(d) Wind shear;
(e) Jet stream;
(f) Volcanic ash clouds;
(g) Heavy precipitation;
(h) Sand storms;
(i) Mountain waves; and
(j) Significant temperature inversions.

10.21 Wake Turbulence

Wake turbulence separation criteria, taking into account aeroplane types, wind conditions and runway location.

10.22 For Aeroplanes intended to be operated above 15000 meters (49000 feet)

(a) Radiation indicator

Operators procedure to ensure that all aeroplanes intended to be operated above 15 000 m (49 000 ft.) shall carry equipment to measure and indicate continuously the dose rate of total cosmic radiation being received (i.e. the total of ionizing and neutron radiation of galactic and solar origin) and the cumulative dose on each flight. The display unit of the equipment shall be readily visible to a flight crew member.

The equipment shall be calibrated on the basis of assumptions acceptable to the Director.

(b) Procedures for aeroplanes operated whenever required cosmic or solar radiation detection equipment is carried.

(c) Procedures for the use of cosmic or solar radiation detection equipment and for recording its readings

(d) Information which will enable the pilot to determine the best course of action to take in

the event of exposure to solar cosmic radiation, including actions to be taken in the event that limit values specified in the Operations Manual are exceeded.

(e) In addition, the procedures, including ATS procedures, to be followed in the event that a decision to descend or re-route is taken, covering;

(i) The necessity of giving the appropriate ATS unit prior warning of the situation and of obtaining a provisional decent clearance;

(ii) The action to be taken in the event that communication with ATS unit cannot be established or is interrupted.

(f) Procedure to ensure the following.
For each flight of an aeroplane above 15 000 m (49 000 ft.), the operator shall maintain records so that the total cosmic radiation dose received by each crew member over a period of 12 consecutive months can be determined.

10.23 Additional requirementsfor Single Pilot Operations under the Instrument Flight Rules (IFR) or at night

Operator's procedures and instructions to ensure the following.

(a) An aeroplane shall not be operated under the IFR or at night by a single pilot unless approved by the Director.

(b) An aeroplane shall not be operated under the IFR or at night by a single pilot unless:

(i) The flight manual does not require a flight crew of more than one;
(ii) The aeroplane is propeller-driven;
(iii) The maximum approved passenger seating configuration is not more than nine;
(iv) The maximum certificated take-off mass does not exceed 5700 kg;
(v) The aeroplane is equipped as described under CAR Part 125.905.
(vi) The pilot-in command has satisfied requirements of experience, training, checking and recency described in paragraph 10.23 (c).

(c) Requirements of experience, recency and training applicable to single pilot operations intended to be carried out under the IFR or at night and shall include the following.

The Pilot-in-command should:

(i) For operations under the IFR or at night, have accumulated at least 50 hours' flight time on the class of aeroplane, of which at least 10 hours shall be as pilot in- command;

(ii) For operations under the IFR, have accumulated at least 25 hours' flight time under the IFR on the class of aeroplane, which may form part of the 50 hours flight time in sub-paragraph a);

(iii) For operations at night, have accumulated at least 15 hours' flight time at night, which may form part of the 50 hours flight time in sub-paragraph a);

(iv) For operations under the IFR, have acquired recent experience as a pilot engaged in a single pilot operation under the IFR of:

(1) At least five IFR flights, including three instrument approaches carried out during the preceding 90 days on the class of aeroplane in the single pilot role; or

(2) An IFR instrument approach check carried out on such an aeroplane during the preceding 90 days;

(v) For operations at night, have made at least three take-offs and landings at night on the class of aeroplane in the single pilot role in the preceding 90 days; and

(vi) Have successfully completed training programs that include, in addition to the requirements of Operations Manual Part D, Chapter 1, passenger briefing with respect to emergency evacuation, autopilot management, and the use of simplified in- flight documentation.

(vii) The initial and recurrent flight training indicated in Operations Manual Part D, Chapter 1 and Pilot Proficiency Check indicated in Operations Manual Part A, paragraph 6.4 shall be performed by the Pilot-in- command in the single pilot role on the class of aeroplane in an environment representative of the operation.

10.24 Operation of Single Engine Aeroplanes

Operator's instructions to ensure the following.

Except as provided in paragraph 10.25, single-engine aeroplanes shall only be operated in conditions of weather and light, and over such routes and diversions there from, that permit a safe forced landing to be executed in the event of engine failure.

10.25 Operations of Single Engine Turbine-Powered Aeroplanes at Night and / or in Instrument Meteorological Conditions (IMC)

NOTE 1: Additional requirements for approved operations by single-engine turbine-powered aeroplanes at night and / or in Instrument Meteorological Conditions (IMC) are contained in ICAO Annex 6, Chapter 5, Standard 5.4.1, 5.4.2, Appendix 3 to ICAO Annex 6 and Attachment I to ICAO Annex 6.

NOTE 2: The Operator shall demonstrate the ability to conduct operations by single engine turbine powered aeroplanes at night and / or in IMC through a certification and approval process conducted by CASAPNG.

10.25.1 Operations Manual Requirement

Following is the requirement that should be included in the Operations Manual in respect of operations of single engine turbine powered aeroplanes at night or in IMC.

Operator's policy on Operations by single-engine turbine-powered aeroplanes at night and / or in IMC under following headings.

(a) Standard Operating Procedures
(b) Flight Dispatch Procedure

(i) Operator route planning shall take account of all relevant information in the assessment of intended routes or areas of operations, including the following:

(1) The nature of the terrain to be over flown, including the potential for carrying out a safe forced landing in the event of an engine failure or major malfunction;
(2) Weather information, including seasonal and other adverse meteorological influences that may affect the flight; and
(3) Aerodrome information and operating minima
(4) Other criteria and limitations as specified by CASAPNG.

(ii) Operator shall identify aerodromes or safe forced landing areas available for use in the event of engine failure, and the position of these shall be programmed into the area navigation system.

NOTE 1: A 'safe' forced landing in this context means a landing in an area at which it can reasonably be expected that it will not lead to

serious injury or loss of life, even though the aeroplane may incur extensive damage.

NOTE 2: ***Operation over routes and in weather conditions that permit a safe forced landing in the event of an engine failure, as specified in ICAO Annex 6, Part 1, Chapter 5, 5.1.2, is not required by Appendix 3, 6.1 and 6.2 for aeroplanes approved in accordance with ICAO Annex 6, Part 1, Chapter 5, 5.4. The availability of forced landing areas at all points along a route is not specified for these aeroplanes because of the very high engine reliability, additional systems and operational equipment, procedures and training requirements specified in Appendix 3 to Annex 6, Part 1.***

(iii) Route limitations over water
Route limitation criteria for single-engine turbine-powered aeroplanes operating at night and / or in IMC on over water operations if beyond gliding distance from an area suitable for a safe forced landing / ditching having regard to the characteristics of the aeroplane, seasonal weather influences, including likely sea state and temperature, and the availability of search and rescue services.

(c) Flight crew experience
(i) Minimum flight crew experience required for night / IMC operations by single-engine turbine-powered aeroplanes.

(d) Flight crew training program

(ii) Operator's flight crew training program
To be appropriate to night and / or IMC operations by single engine turbine-powered aeroplanes, covering normal, abnormal and emergency procedures and, in particular, engine failure, including descent to a forced landing in night and / or in IMC conditions.

(iii) Flight dispatcher training program

(e) Checking requirement for Flight crew and Flight Dispatchers

(f) Minimum equipment list
Minimum equipment list approved in accordance with Operations Manual Part B, Chapter 9 shall specify the operating equipment required for night and / or IMC operations, and for day / VMC operations.

(g) Flight manual information
The flight manual shall include limitations, procedures, approval status and other information relevant to operations by single-engine turbine- powered aeroplanes at night and / or in IMC.

(h) Event reporting
Operator's procedure to comply with the following
An operator approved for operations by single-engine turbine-powered aeroplanes at night and / or in IMC shall report all significant failures, malfunctions or defects to CASAPNG, who in turn will notify the State of Design.

10.26 Operation of Aeroplanes Equipped with Head-Up Displays (HUD) and / or Enhanced Vision Systems (EVS)

(a) Operator's procedures and training requirements for the operation of aeroplanes equipped with head-up displays (HUD) and / or enhanced vision systems (EVS)

(b) Any use of HUD and / or EVS systems and any operational credit to be gained from their use shall have the approval from CASAPNG.

NOTE 1: Where aeroplanes are equipped with HUD and / or EVS, the use of such systems to gain operational benefit shall be approved by the State of the Operator.

NOTE 2: Guidance on HUD and EVS is contained in ICAO Annex 6, Attachment J.

10.27 Non Revenue Flights

Procedures and limitations for:

(a) Training flights;

(b) Test flights;

(c) Delivery flights;

(d) Ferry flights;

(e) Demonstration flights; and

(f) Positioning flights, including the kind of persons who may be carried on such flights.

Chapter 11: Dangerous Goods and Weapons

Information and instructions by the Operator, on the Safe Transport of Dangerous Goods by air, including action to be taken in the event of an emergency.

11.1 Operator's Policy on Safe Transport of Dangerous Goods by Air

11.2 Operator's Instructions in respect of Safe Transport of Dangerous Goods by Air

Operator's instructions, to be in conformity with CAR Part 92 "Requirements for handling or carriage of Dangerous Goods by air" and PNG CAP Volume 2, Part G2 "Dangerous Goods Manual".

11.3 Weapons, Munitions of War and Sporting Weapons

The conditions under which weapons, munitions of war and sporting weapons may be carried and procedures to be followed.

(a) If the operator is authorized to accepts the carriage of weapons removed from passengers, the aeroplane should have provision for stowing such weapons in a place so that they are inaccessible to any person during flight time. Appropriate procedures to ensure compliance of this requirement.

Chapter 12: Security

In the context of this Chapter, the word "security" is used in the sense of prevention of illicit acts against civil aviation.

12. 1 Security Instructions and Guidance

Operator's security program to be in compliance with CAR Part 108 and the PNG National Civil Aviation Security Program.

12.2 Security of the Flight Crew Compartment

Air Operators are required to comply with the following:

(a) All aeroplanes which are equipped with a flight crew compartment door, this door shall be capable of being locked, and means shall be provided by which cabin crew can discreetly notify the flight crew in the event of suspicious activity or security breaches

in the cabin.

(b) All passenger-carrying aeroplanes of a maximum certificated take-off mass in excess of 45,500 kg or with a passenger seating capacity greater than 60 shall be equipped with an approved flight crew compartment door that is designed to resist penetration by small arms fire and grenade shrapnel, and to resist forcible intrusions by unauthorized persons. This door shall be capable of being locked and unlocked from either pilot's station.

(c) Operator's instruction to ensure that all aeroplanes which are equipped with a flight crew compartment door in accordance with (a) above:

(i) the 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 permit access and egress by authorized persons; and

(ii) means shall be provided for monitoring from either pilot's station the entire door area outside the flight crew compartment to identify persons requesting entry and to detect suspicious behaviour or potential threat

12.3 Aeroplane Search Procedure Checklist

Operator's procedure to comply with the following.

(a) Aeroplane search procedure check list to be on board the aircraft.
(b) Checklist shall comprise of the procedures to be followed in searching for a bomb in case of suspected sabotage and for inspecting aeroplanes for concealed weapons, explosives or other dangerous devices when a well- founded suspicion exists that the aeroplane may be the object of an act of unlawful interference.
(c) The checklist shall be supported by guidance on the appropriate course of action to be taken should a bomb or suspicious object be found and information on the least-risk bomb location specific to the aeroplane.
(d) Specialized means of attenuating and directing the blast should be provided for use at the least-risk bomb location.

12.4 Bomb Threat or Warning

Operator's policy and procedures in relation to a bomb threat or warning, when the aircraft is on the ground or in flight.

12.5 Domestic Commercial Operations

Operator's procedure to comply with following

Security requirements tabulated in PART 2, Chapter 12 shall be applicable to International and Domestic flight operations equally.

Chapter 13: Handling, Notifying and Reporting Occurrences

13.1 Procedures for the Handling, Notifying and Reporting Occurrences

This section must include:
(a) Definitions of occurrences and of the relevant responsibilities of all persons involved;
(b) Illustrations of forms used for reporting all types of occurrences (or copies of the forms themselves), instructions on how they are to be completed, the addresses to which they should be sent and the time allowed for this to be done;
(c) In the event of an accident, descriptions of which company departments, Authorities

and other organisations that have to be notified, how this will be done and in what sequence;

(d) Procedures for verbal notification to air traffic service units of incidents involving ACAS RAs, bird hazards and hazardous conditions;

(e) Procedures for submitting written reports to CASAPNG on air traffic incidents, ACAS RAs, bird strikes, dangerous goods incidents or accidents, and unlawful interference;

All Reporting procedures to ensure compliance with CAR Part 12 and directives issued by CASAPNG.
These procedures must include internal safety related reporting procedures to be followed by crew members, designed to ensure that the Commander is informed immediately of any incident that has endangered, or may have endangered, safety during flight and that he is provided with all relevant information.

13.2 Flight Recorder Records

Operators' procedure to ensure the following.

An operator shall ensure, to the extent possible, in the event the aeroplane becomes involved in an accident or incident, the preservation of all related flight recorder records and, if necessary, the associated flight recorders, and their retention in safe custody pending their disposition as determined by CASAPNG.

13.3 Flight Recorder Electronic Documentation

Operators' procedure to ensure the following.

The documentation requirement concerning FDR and ADRS parameters provided by operators to accident investigation authorities should be in electronic format and take account of industry specifications.

NOTE: Industry specification for documentation concerning flight recorder parameters may be found in the ARINC 647A, Flight Recorder Electronic Documentation, or equivalent document.

13.4 Flight Data Recorders and Aircraft Data Recording Systems

13.4.1 Types

(a) Types I and IA FDR shall record the parameters required to determine accurately the aeroplane flight path, speed, attitude, engine power, configuration and operation.

(b) Types II and IIA FDRs shall record the parameters required to determine accurately the aeroplane flight path, speed, attitude, engine power and configuration of lift and drag devices.

13.4.2 Operation

(a) All turbine-engine aeroplanes of a maximum certificated take-off mass of 5 700 kg or less for which the application for type certification is submitted to the Director on or after 1 January 2016 shall be equipped with:

(i) a Type II FDR; or
(ii) a Class C AIR or AIRS capable of recording flight path and speed parameters displayed to the pilot(s); or
(iii) an ADRS capable of recording the essential parameters defined in Table A8-3 of Appendix 8, Annex 6 Part 1.

NOTE 1: "The application for type certification is submitted to a Contracting State" refers to the date of application of the original "Type Certificate" for the aeroplane type, not the date of certification of particular aeroplane variants or derivative models.

NOTE 1: AIR or AIRS classification is defined in 5.1 of Appendix 8, Annex 6 Part 1.

(b) All aeroplanes of a maximum certificated take-off mass of over 27 000 kg for which the individual certificate of airworthiness is first issued on or after 1 January 1989 shall be equipped with a Type I FDR.

(c) All aeroplanes of a maximum certificated take-off mass of over 5 700 kg, up to and including 27 000 kg, for which the individual certificate of airworthiness is first issued on or after 1 January 1989, shall be equipped with a Type II FDR.

(d) All turbine-engine aeroplanes, for which the individual certificate of airworthiness was first issued on or after 1 January 1987 but before 1 January 1989, with a maximum certificated take-off mass of over 5 700 kg, except those in 13.4.2(e), shall be equipped with an FDR which shall record time, altitude, airspeed, normal acceleration and heading.

(e) All turbine-engine aeroplanes, for which the individual certificate of airworthiness was first issued on or after 1 January 1987 but before 1 January 1989, with a maximum certificated take-off mass of over 27 000 kg that are of types of which the prototype was certificated by the appropriate national authority after 30 September 1969 shall be equipped with a Type II FDR.

(f) All turbine-engine aeroplanes, for which the individual certificate of airworthiness was first issued before 1 January 1987, with a maximum certificated take-off mass of over 5 700 kg shall be equipped with an FDR which shall record time, altitude, airspeed, normal acceleration and heading.

(g) All aeroplanes of a maximum certificated take-off mass of over 5 700 kg for which the individual certificate of airworthiness is first issued after 1 January 2005 shall be equipped with a Type IA FDR.

(h) All aeroplanes which are required to record normal acceleration, lateral acceleration and longitudinal acceleration for which the application for type certification is submitted to the Director on or after 1 January 2016 and which are required to be fitted with an FDR shall record those parameters at a maximum sampling and recording interval of 0.0625 seconds.

(i) All aeroplanes which are required to record pilot input and/or control surface position of primary controls (pitch, roll, yaw) for which the application for type certification is submitted to the Director on or after 1 January 2016 and which are required to be fitted with an FDR shall record those parameters at a maximum sampling and recording interval of 0.125 seconds.

10.4.3 Discontinuation

(a) The use of engraving metal foil FDRs shall be discontinued.

(b) The use of analogue FDRs using frequency modulation (FM) shall be discontinued.

(c) The use of photographic film FDRs shall be discontinued.

The use of magnetic tape FDRs shall be discontinued by 1 January 2016.

10.4.4 Duration

All FDRs shall be capable of retaining the information recorded during at least the last 25 hours of their operation, except for the Type IIA FDR which shall be capable of retaining the information

recorded during at least the last 30 minutes of its operation.

13.5 Cockpit Voice Recorders and Cockpit Audio Recording Systems

13.5.1 Operation

(a) All turbine-engine aeroplanes of a maximum certificated take-off mass of over 2 250 kg, up to and including 5 700 kg, for which the application for type certification is submitted to the Director on or after 1 January 2016 and required to be operated by more than one pilot shall be equipped with either a CVR or a CARS.

(b) All aeroplanes of a maximum certificated take-off mass of over 5 700 kg for which the individual certificate of airworthiness is first issued on or after 1 January 2003 shall be equipped with a CVR capable of retaining the information recorded during at least the last two hours of its operation.

(c) All aeroplanes of a maximum certificated take-off mass of over 5 700 kg for which the individual certificate of airworthiness is first issued on or after 1 January 1987 shall be equipped with a CVR.

(d) All turbine-engine aeroplanes, for which the individual certificate of airworthiness was first issued before 1 January 1987, with a maximum certificated take-off mass of over 27 000 kg that are of types of which the prototype was certificated by the appropriate national authority after 30 September 1969 shall be equipped with a CVR.

13.5.2 Discontinuation

(a) The use of magnetic tape and wire CVRs shall be discontinued by 1 January 2016.

13.5.3 Duration

(a) All CVRs shall be capable of retaining the information recorded during at least the last 30 minutes of their operation.

(b) From 1 January 2016, all CVRs shall be capable of retaining the information recorded during at least the last two (2) hours of their operation.

(c) All aeroplanes of a maximum certificated take-off mass of over 27 000 kg for which the individual certificate of airworthiness is first issued on or after 1 January 2021 shall be equipped with a CVR capable of retaining the information recorded during at least the last twenty-five hours of its operation.

13.5.4 Cockpit Voice Recorder Alternate Power

(a) An alternate power source shall automatically engage and provide ten minutes, plus or minus one minute, of operation whenever aeroplane power to the recorder ceases, either by normal shutdown or by any other loss of power. The alternate power source shall power the CVR and its associated cockpit area microphone components. The CVR shall be located as close as practicable to the alternate power source.

NOTE 1: ***"Alternate" means separate from the power source that normally provides power to the CVR. The use of aeroplane batteries or other power sources is acceptable provided that the requirements above are met and electrical power to essential and critical loads is not compromised.***

NOTE 2: ***When the CVR function is combined with other recording functions within the same unit, powering the other functions is allowed.***

(b) All aeroplanes of a maximum certificated take-off mass of over 27 000 kg for which the application for type certification is submitted to the Director on or after 1 January 2018

shall be provided with an alternate power source, as defined in 13.5.4(a), that powers the forward CVR in the case of combination recorders.

13.6 Data Link Recorders

13.6.1 Applicability

(a) All aeroplanes for which the individual certificate of airworthiness is first issued on or after 1 January 2016, which utilise any of the data link communications applications listed in 6.1.2 of Appendix 8, Annex 6 Part I and are required to carry a CVR, shall record on a flight recorder the data link communications messages.

(b) All aeroplanes which are modified on or after 1 January 2016 to install and utilise any of the data link communications applications listed in 6.1.2 of Appendix 8, Annex 6 Part I and are required to carry a CVR shall record on a flight recorder the data link communications messages.

NOTE 2: A Class B AIR could be a means for recording data link communications applications messages to and from the aeroplanes where it is not practical or is prohibitively expensive to record those data link communications applications messages on FDR or CVR.

13.6.2 Duration

The minimum recording duration shall be equal to the duration of the CVR

13.6.3 Correlation

Data link recording shall be able to be correlated to the recorded cockpit audio

13.7 Flight Recorders — General

13.7.1 Construction and Installation

Flight recorders shall be constructed, located and installed so as to provide maximum practical protection for the recordings in order that the recorded information may be preserved, recovered and transcribed. Flight recorders shall meet the prescribed crashworthiness and fire protection specifications.

13.7.2 Operation

(a) Flight recorders shall not be switched off during flight time.

(b) To preserve flight recorder records, flight recorders shall be deactivated upon completion of flight time following an accident or incident. The flight recorders shall not be reactivated before their disposition as determined in accordance with Annex 13.

NOTE 1: The need for removal of the flight recorder records from the aircraft will be determined by the investigation authority in the State conducting the investigation with due regard to the seriousness of an occurrence and the circumstances, including the impact on the operation.

NOTE 2: The operator's responsibilities regarding the retention of flight recorder records are contained in 11.6 of Annex 6 Part 1

13.7.3 Continued Serviceability

(a) Operational checks and evaluations of recordings from the flight recorder systems shall be conducted to ensure the continued serviceability of the recorders.

NOTE: Procedures for the inspections of the flight recorder systems are given in Appendix 8, Annex 6 Part 1

(b) All aeroplanes of a maximum certificated take-off mass of over 15 000 kg for which the application for type certification is submitted to the Director on or after 1 January 2016, and which are required to be equipped with both a CVR and an FDR, shall be equipped with two combination recorders (FDR/CVR). One recorder shall be located as close to the cockpit as practicable and the other recorder located as far aft as practicable.

13.8 Flight Recorder Data Recovery

(a) All aeroplanes of a maximum certificated take-off mass of over 27 000 kg and authorized to carry more than nineteen passengers for which the application for type certification is submitted to the Director on or after 1 January 2021, shall be equipped with a means approved by the Director, to recover flight recorder data and make it available in a timely manner.

(b) In approving the means to make flight recorder data available in a timely manner, the Director shall take into account the following:

(i) the capabilities of the operator;

(ii) overall capability of the aeroplane and its systems as certified by the State of Design;

(iii) the reliability of the means to recover the appropriate CVR channels and appropriate FDR data; and

(iv) specific mitigation measures.

NOTE 1: Guidance on approving the means to make flight recorder data available in a timely manner is contained in the **Manual on Location of Aircraft in Distress and Flight Recorder Data Recovery** *(Doc 10054)*

Chapter 14: Rules of the Air

14.1 Rules of the Air including

(a) Visual and instrument flight rules;
(b) Territorial application of the Rules of the Air;
(c) Communication procedures including COM-failure procedures;
(d) Information and instructions relating to the interception of civil aeroplanes;
  (i) Procedures for Pilot-in-command of intercepted aircraft.
  (ii) (ii) Visual signals for use by intercepting and intercepted aircraft.

(e) The circumstances in which a radio listening watch is to be maintained;

(f) Signals;
(g) Time system used in operation;
(h) ATC clearances, adherence to flight plan and position reports;
(i) Visual signals used to warn an un authorised aeroplane flying in or about to enter a restricted, prohibited or danger area;
(j) Procedures, as prescribed in CAR Part 12, for Pilot-in-command observing an accident;
(k) Procedures for pilots receiving a distress transmission;
(l) The ground / air visual codes for use by survivors, description and use of signal aids;

and

(m) Distress and urgency signals.

14.2 All aeroplanes on long-range over-water flights

(a) In addition to the equipment prescribed in Annex 6 Part 1 Chapter 6, paragraphs 6.5.1 or 6.5.2 whichever is applicable, the following equipment shall be installed in all aeroplanes when used over routes on which the aeroplane may be over water and at more than a distance corresponding to 120 minutes at cruising speed or 740 km (400 NM), whichever is the lesser, away from land suitable for making an emergency landing in the case of aircraft operated in accordance with Annex 6 Part 1 Chapter 6, paragraphs
5.2.9 or 5.2.10 of Annex 6 Part 1, and 30 minutes or 185 km (100 NM), whichever is the lesser, for all other aeroplanes:

(i) life-saving rafts in sufficient numbers to carry all persons on board, stowed so as to facilitate their ready use in emergency, provided with such life-saving equipment including means of sustaining life as is appropriate to the flight to be undertaken;

(ii) equipment for making the pyrotechnical distress signals described in Annex 2; and

(iii) at the earliest practicable date, but not later than 1 January 2018, on all aeroplanes of a maximum certificated take-off mass of over 27 000 kg, a securely attached underwater locating device operating at a frequency of
8.8 kHz. This automatically activated underwater locating device shall operate for a minimum of 30 days and shall not be installed in wings or empennage.

*NOTE: **Underwater locator beacon (ULB) performance requirements are as contained in the SAE AS6254, Minimum Performance Standard for Low Frequency Underwater Locating Devices (Acoustic) (Self- Powered), or equivalent documents.***

(b) Each life jacket and equivalent individual flotation device, when carried in accordance with Annex 6 Part 1 Chapter 6, paragraphs 6.5.1 a), 6.5.2.1 and

(c) shall be equipped with a means of electric illumination for the purpose of facilitating the location of persons, except where the requirement of Annex 6 Part 1 Chapter 6, paragraph 6.5.2.1 c) is met by the provision of individual flotation devices other than life jackets

5. Operations Manual - Part B

5.1 Instructions for Compiling Operations Manual – PART B

5.1.1 The Operations manual (PART B) referred to in Section 5 shall contain at least the following and comply with the format given below.

5.1.2 Operations Manual (Part B) may be complied in many volumes by the Operator. However, all applicable requirements as given in this AC for the Operator's operation must be covered.

5.1.3 Volumes produced by aircraft manufacturer with the approval of the regulatory Authority of the country of manufacture may be accepted as Operations Manual Part B.

5.1.4 If any manufacturers' manuals are accepted ensure that all requirements given in Section 5 are covered. The Operator will be required to compile information in a separate manual if manufactures documents do not cover the required information in Section 5.

5.1.5 If any manufacturers' manuals are accepted ensure that the Operator has a system to obtain amendments from the manufacturer.

5.1.6 The Operator shall ensure that Operations Manual (Part B) conform to the format below and is relevant to the area of operation.

5.1.7 For standardization the following numbering system must be retained in the manual and "Not applicable" should be annotated against a paragraph if it is not applicable for the proposed operation.

5.1.8 If a separate manual is made in respect of any subject paragraph state so instead of "not applicable".

5.2 Contents of the Operations Manual – Part B

- Record of Revisions
  Use format of Record of Revision page from this AC.

- List of Effective Pages
  Use format of List of Effective Pages from this AC.

- History of Revisions
  Use format of History of Revisions page from this AC.

- Table of Contents
  Use format of Table of Contents page from this AC.

- Foreword
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- Acronyms / Abbreviations
  Use Acronyms / Abbreviations given in this AC.

- Definitions
  Use Definitions given in this AC.

Aircraft operating information, taking account of the differences between types, and variants of types, under the following headings.

Chapter 1: General Information and Units of Measurement

1.1 Operator's Procedure and the Established System to Provide Aircraft Operating Information to its Operating staff and Flight Crew, including Mandatory Revisions

The operator's system shall include;

(a) The organisation
(b) Method of obtaining updates and revisions
(c) Method of distribution of updates and revisions

1.2 General Information of the Aeroplane (e.g. Aeroplane Dimensions)

1.3 Description of the Units of Measurement used for the Operation of the Aeroplane Type Concerned and Conversion Tables

Chapter 2: Limitations

2.1 A Description of the Certification Limitations and Operating Limitations including;

(a) Passenger seating configuration for each aeroplane type including a pictorial presentation;
(b) Types of operation that are approved (e.g. VFR / IFR, CAT II / III, RNP Type, flight in known icing conditions, etc.);
(c) Crew composition;
(d) Mass and centre of gravity;
(e) Speed limitations;
(f) Flight envelope;
(g) Performance limitations for applicable configurations;
(h) Runway slope;
(i) Limitations on wet or contaminated runways;
(j) Airframe contamination;
(k) System limitations;
(l) Power plant limitations;

2.2 The Maximum Crosswind and Tailwind Components for each Aeroplane Type operated and the Reductions to be Applied to these Values having regard to Gusts, Low Visibility, Runway Surface Conditions, Crew Experience, use of Autopilot, Abnormal or Emergency Circumstances, or any other Relevant Operational Factors

Chapter 3: Operating Procedures

3.1 Aircraft Operating Manual

(a) The Operator shall provide operations staff and flight crew with an Aircraft Operating Manual, for each aircraft type operated, containing the normal, abnormal and emergency procedures (SOP) relating to the operation of the aircraft in respect of each phase of flight.
(b) The manual shall include details of the aircraft systems, associated controls, indications and instructions for their use.
(c) The manual shall include checklists and instructions on how to use them.
(d) The manual shall include crew coordination and assignments
(e) The design of the manual shall observe Human Factors principles.

3.2 Standard operating procedures (SOP) for each phase of flight-The Aircraft Operating Manual shall contain the following Normal, Abnormal and Emergency Procedures as a minimum

(a) Normal procedures

(i) (The normal procedures and duties assigned to the crew, the appropriate check-lists, the system for use of the checklists and a statement covering the necessary coordination procedures between flight crew and flight /cabin crew.

(ii) The following normal procedures and duties must be included:

(1) Pre-flight;
(2) Pre-departure;
(3) Altimeter setting and checking;
(4) Taxi, take-off and climb;
(5) Noise abatement;
(6) Cruise and descent;
(7) Approach, landing preparation and briefing;
(8) VFR approach;
(9) Instrument approach;
(10) Visual approach and circling;
(11) Missed approach;
(12) Normal landing;
(13) Post landing; and
(14) Operation on wet and contaminated runways.

(b) Abnormal and emergency procedures

(c)

(i) The abnormal and emergency procedures and duties assigned to the crew, the appropriate check-lists, the system for use of the check-lists and a statement covering the necessary coordination procedures between flight crew and flight/cabin crew.

(ii) The following abnormal and emergency procedures and duties must be included if applicable:

(1) Crew incapacitation;
(2) Fire and smoke drills;
(3) Unpressurised and partially pressurised flight;
(4) Exceeding structural limits such as overweight landing;
(5) Exceeding cosmic radiation limits;
(6) Lightning strikes;
(7) Distress communications and alerting ATC to emergencies;
(8) Engine failure;
(9) System failures;
(10) Guidance for diversion in case of serious technical failure;
(11) Ground proximity warning;
(12) TCAS warning;
(13) Wind shear;
(14) Emergency landing / ditching;

Chapter 4: Performance

4.1 Performance Data must be provided in a form in which it can be used without difficulty

4.2 Performance Data

Performance material which provides the necessary data for compliance with the performance requirements prescribed in Operations Manual Part A.

Data must be included to allow the determination of;

(a) Take-off climb limits - mass, altitude, temperature;
(b) Take-off field length (dry, wet, contaminated);
(c) Net flight path data for obstacle clearance calculation or, where applicable, take-off flight path;
(d) The gradient losses for banked climb outs;
(e) En-route climb limits;
(f) Approach climb limits;
(g) Landing climb limits;
(h) Landing field length (dry, wet, contaminated) including the effects of an in- flight failure of a system or device, if it affects the landing distance;
(i) Brake energy limits;
(j) Speeds applicable for the various flight stages (also considering wet or contaminated runways).

4.3 Operating Instructions and Information on Aeroplane Climb Performance with all Engines operating to enable the calculation of the Climb Gradient that can be achieved during the Departure Phase for the existing Take off Conditions and intended Take off Technique

4.4 Supplementary Data covering Flights in Icing conditions. Any Certificated Performance related to an Allowable Configuration, or Configuration Deviation, such as Anti-Skid Inoperative, must be included

4.5 Additional Performance Data

Additional performance data where applicable including;

(a) All engine climb gradients;
(b) Drift-down data;
(c) Effect of de-icing / anti-icing fluids;
(d) Flight with landing gear down;
(e) For aeroplanes with three or more engines, one engine inoperative ferry flights; and
(f) Flights conducted under the provisions of the CDL.

Chapter 5: Flight Planning

5.1 Flight Planning Data for Pre Flight and in Flight Planning with different Thrust / Power and Speed settings

5.2 Where applicable, Procedures for Engine(s)-out Operations, ETOPS (particularly the One-engine Inoperative Cruise Speed and Maximum Distance to an adequate Aerodrome determined in accordance, Operations Manual Part A, paragraph 10.5) and Flights to isolated Aerodromes must be included

5.3 The Method for Calculating Fuel needed for the various stages of Flight, in accordance with Operations Manual Part A, paragraph 10.1.6

5.4 Performance Data for ETOPS Critical Fuel Reserve and Area of Operation including sufficient Data to support the Critical Fuel Reserve and Area of Operation calculation based on approved Aeroplane Performance Data

The following data is required:

(a) Detailed engine(s) inoperative performance data including fuel flow for standard and non-standard atmospheric conditions and as a function of airspeed and power setting, where appropriate, covering;

(i) Drift down (includes net performance). See Operations Manual Part A, paragraph 9.8 where applicable;

(ii) Cruise altitude coverage including 10 000 feet;

(iii) Holding;

(iv) Altitude capability (includes net performance); and

(v) Missed approach.

(b) Detailed all-engine-operating performance data, including nominal fuel flow data, for standard and nonstandard atmospheric conditions and as a function of airspeed and power setting, where appropriate, covering:

(i) Cruise (altitude coverage including 10,000 feet); and
(ii) Holding.

(c) Details of any other conditions relevant to ETOPS operations which can cause significant deterioration of performance, such as ice accumulation on the unprotected surfaces of the aeroplane, ram air turbine (RAT) deployment, thrust-reverser deployment, etc.

(d) The altitudes, airspeeds, thrust settings, and fuel flow used in establishing the ETOPS area of operations for each airframe-engine combination. Corresponding terrain and obstruction clearances must be shown.

Chapter 6: Mass and Balance

6.1 Instructions and Data for the Calculation of the Mass and Balance including;

(a) Calculation system (e.g. index system);
(b) Information and instructions for completion of mass and balance documentation used, including manual and computer generated types;
(c) Limiting masses and centre of gravity for the types, variants or individual aeroplanes used by the operator; and
(d) Dry operating mass and corresponding centre of gravity or index.

Chapter 7: Loading

7.1 Instructions for Aircraft Loading and Securing of Load.

Chapter 8: Configuration Deviation List

8.1 The Operator shall provide as applicable, a Configuration Deviation List (CDL) for the approval of CASAPNG

(a) Taking account of the aeroplane types and variants operated
(b) Include specific operations authorized (ETOPS, All weather operations, RVSM, RNP etc.)
(c) Include procedures to be followed when an aeroplane is being dispatched under the terms of its CDL.

8.2 Operator's arrangement to maintain the CDL current, at all times

Chapter 9: Minimum Equipment List

9.1 The Operator shall include in the Operations Manual a Minimum Equipment List (MEL), for the approval of CASAPNG which will enable the Pilot-in-command to determine whether a flight may be commenced or continued from any intermediate stop should any Instrument, Equipment or Systems become inoperative

9.2 The Preparation of the MEL shall comply with Instructions issued by CASAPNG

9.3 The MEL shall be based on the Master Minimum Equipment List (MMEL) established for the aircraft type by the Organisation responsible for the Type Design in Conjunction with the State of Design

9.4 There shall be A MEL for each type of Aircraft operated, taking account of the Area of operation and Specific Operations authorized

9.5 The MEL must include The Navigational Equipment and take into account the required performance for the Route, including any requirements relating to operations where Performance Based Navigation is prescribed, RVSM, ETOPS and all Weather Operations

Chapter 10: Survival and Emergency Equipment Including Oxygen

10.1 Checklist of Emergency and Safety Equipment and Instructions for its use

(a) A list of the survival and emergency equipment to be carried for the routes to be flown and the procedures for checking the serviceability of this equipment prior to take-off.

Instructions regarding the location, accessibility and use of survival and emergency equipment and its associated check list (s) must also be included.

(b) Emergency Locator Transmitter (ELT)
Operational procedures and training requirements in respect of ELT. Requirements of below note must be complied with.

NOTE: ***The judicious choice of numbers of ELTs, their type and placement on aircraft and associated floatable life support systems will ensure the greatest chance of ELT activation in the event of an accident for aircraft operating over water or land, including areas especially difficult for search and rescue. Placement of transmitter units is a vital factor in ensuring optimal crash and fire protection. The placement of the control and switching devices (activation monitors) of automatic fixed ELTs and their associated operational procedures will also take into consideration the need for rapid detection of inadvertent activation and convenient manual switching by crew members.***

10.2 Records of Emergency and Survival Equipment carried

Procedure to ensure the following:
Operators shall at all times have available for immediate communication to rescue coordination centres, lists containing information on the emergency and survival equipment carried on board any of their aeroplanes engaged in international air navigation. The information shall include, as applicable, the number, colour and type of life rafts and pyrotechnics, details of emergency medical supplies, water supplies and the type and frequencies of the emergency portable radio equipment.

10.3 Oxygen

The procedure for determining the amount of oxygen required and the quantity that is available. The flight profile, number of occupants and possible cabin decompression must be considered. The information provided must be in a form in which it can be used without difficulty.

Chapter 11: Emergency Evacuation Procedures

11.1 Flight Crew Member Emergency Duties.

Operator's procedures to ensure the following:

(a) An operator shall, for each type of aeroplane, assign to all flight crew members the necessary functions they are to perform in an emergency or in a situation requiring emergency evacuation.

(b) Annual training in accomplishing these functions shall be contained in the operator's training program (to be included in Operations Manual - Part D) and shall include instruction in the use of all emergency and lifesaving equipment required to be carried, and drills in the emergency evacuation of the aeroplane.

11.2 Emergency Evacuation Procedures, including Type Specific Procedures, Crew Coordination, assignment of Crews Emergency Positions and the Emergency Duties assigned to each Flight / Cabin Crew member.

11.3 The Normal, Abnormal and Emergency Procedures to be used by the Cabin Crew, the Checklists relating thereto and Aircraft Systems information as required, including a statement related to the necessary procedures for the coordination between Flight and Cabin Crew.

Chapter 12: Ground Air Visual Codes

12.1 The Ground Air Visual Signal Code, for use by Survivors.

6. Operations Manual – Part C

6.1 Instructions for Compiling Operations Manual – Part C

6.1.1 The Operations manual (PART C) referred to in Section 3 shall contain at least the following and comply with the format given below.

6.1.2 Operations Manual (Part C) may be complied in many volumes by the Operator. However, all applicable requirements as given in this AC for the Operators operation must be covered.

6.1.3 The Operator shall ensure that Operations Manual (Part C) conform to the format below and is relevant to the area of operation.

6.1.4 For standardization the following numbering system must be retained in the manual and "Not applicable" should be annotated against a paragraph if it is not applicable for the proposed operation.

6.1.5 If a separate manual is made in respect of any subject paragraph state so instead of "not applicable".

6.2 Contents of the Operations Manual – Part C

- Record of Revisions
  Use format of Record of Revision page from this AC.

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- Definitions
  Use Definitions given in this manual AC.

Aircraft operating information, taking account of the differences between types, and variants of types, under the following headings.

1.1 A Route Guide to ensure that the Flight Crew will have, for each Flight, Information relating to Communication Facilities, Navigation Aids, Aerodromes, Instrument Approaches, Instrument Arrivals and Instrument Departures as applicable for the operation, and such other information as the Operator may deem necessary for the proper conduct of Flight Operations.

1.2 Instructions and Information to include;

(a) Minimum flight level / altitude for each route to be flown;

(b) Aerodrome Operating Minima for each of the aerodromes that are likely to be used as aerodromes of intended landing or as alternate aerodromes;

(c) The increase of Aerodrome Operating Minima in case of degradation of approach or aerodrome facilities;

(d) Instructions for determining aerodrome operating minima for instrument approaches using HUD and EVS.

(e) Communication facilities and navigation aids;

(f) Runway data and aerodrome facilities;

(g) Approach, missed approach and departure procedures including noise abatement procedures;

(h) COM-failure procedures;

(i) Search and rescue facilities in the area over which the aeroplane is to be flown;

(j) A description of the aeronautical charts that must be carried on board in relation to the type of flight and the route to be flown, including the method to check their validity;

(k) Availability of aeronautical information and MET services;

(l) En-route COM / NAV procedures;

(m) Aerodrome categorization for flight crew competence qualification;

(n) Special aerodrome limitations (performance limitations and operating procedures).

1.3 The necessary information for compliance with all Flight Profiles required by regulations, including but not limited to, the determination of:

(a) Take-off runway length requirements for dry, wet and contaminated conditions, including those dictated by system failures which affect the take-off distance;

(b) Take-off climb limitations;

(c) En-route climb limitations;

(d) Approach climb limitations and landing climb limitations;

(e) Landing runway length requirements for dry, wet and contaminated conditions, including systems failures which affect the landing distance; and

(f) Supplementary information, such as tire speed limitations.

7. Operations Manual – Part D

7.1 Instructions for Compiling Operations Manual – Part D

7.1.1 The Operations manual (PART D) referred to in Section 3 shall contain at least the following and comply with the format given below.

7.1.2 Operations Manual (Part D) may be complied in many volumes by the Operator. However, all applicable requirements as given in this AC for the Operators operation must be covered.

7.1.3 The Operator shall ensure that Operations Manual (Part D) conform to the format below and is relevant to the flight operations authorized.

7.1.4 For standardization the following numbering system must be retained in the manual and "Not applicable" should be annotated against a paragraph if it is not applicable for the proposed operation.

7.1.5 If a separate manual is made in respect of any subject paragraph state so instead of "not applicable".

7.2 Contents of the Operations Manual – Part D

- Record of Revisions
  Use format of Record of Revision page from this AC.

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  Use Acronyms / Abbreviations given in this AC.

- Definitions
  Use Definitions given in this AC.

Chapter 1: Flight Crew

1.1 Operator shall establish and maintain Ground and Flight Training Programs for Flight Crew that,

(a) Include ground and flight training facilities and properly qualified instructors as determined by CASAPNG;
(b) Consist of ground and flight training in the type(s) of aeroplane on which the flight crew member serves;
(c) Include proper flight crew coordination and training in all types of emergency and abnormal situations or procedures caused by power plant, airframe or systems malfunctions, fire or other abnormalities;
(d) Include upset prevention recovery training (UPRT)
(e) Include training in knowledge and skills related to visual and instrument flight procedures for the intended area of operation, human performance including threat and error management and in the transport of dangerous goods;
(f) Ensure that all flight crew members know the functions for which they are responsible and the relation of these functions to the functions of other crew members, particularly in regard to abnormal or emergency procedures;
(g) Include initial training as required in OM Part B, paragraph 11.1 (b).

NOTE 1: In-flight simulation of emergency or abnormal situations when passengers or cargo are being carried is prohibited

NOTE 2: Provisions for training in the transport of dangerous goods are contained in CAR Part 92.

NOTE 3: Guidance material to design training programs to develop knowledge and skills in human performance can be found in the Human Factors Training Manual (ICAO Doc 9683).

NOTE 4: Information for pilots and flight operations personnel on flight procedure parameters and operational procedures is contained in PANS-OPS, Volume I. Criteria for the construction of visual and instrument flight procedures are contained in PANS-OPS, Volume II. Obstacle clearance criteria and procedures used in certain States may differ from PANS-OPS, and knowledge of these differences is important for safety reasons.

NOTE 5: Guidance material to design flight crew training programs can be found in the Preparation of an Operations Manual (ICAO Doc 9376).

NOTE 6: Guidance material on the different means used to assess competence can be found in the Attachment to Chapter 2 of the Procedures for Air Navigation Services - Training (PANS- TRG, ICAO Doc 9868).

1.2 Required Training Programs

Following training programs are required (as applicable)

(a) Introduction or Initial
(b) Transition (conversion)
(c) Upgrade
(d) Recurrent or Re qualification
(e) Recency of experience

(f) Familiarization
(g) Differences
(h) Safety management
(i) Initial training as required in PNGCAP VOLUME 2, PART C, OM Part B, paragraph 11.1 (b).

(j) Other specialized training (refer Chapter 7 of this section for details)

1.3 Recurrent Training

(a) All Flight crew, Ground / Flight training programs as required in Section 9. paragraph 1.2 above shall be conducted on a recurrent basis, as outlined in Operating Rule and as determined by CASAPNG.
(b) The scope of the training required by Section 9, paragraph 1.2 (i) above and OM / Part B, Chapter 11, paragraph 11.1 (b) may be varied and need not be as extensive as the initial training given in a particular type of aeroplane for recurrent training requirement.
(c) The requirement for recurrent flight training in a particular type of aeroplane shall be considered fulfilled by;
  (i) The use, to the extent deemed feasible by CASAPNG, of flight simulation training devices approved by Authority for that purpose; or
(d) The completion within the appropriate period of the Pilot Proficiency Check (PPC) required by OM Part A, paragraph 6.4
(a) in that type of aeroplane.

1.4 Use of Flight Simulation Training Devices

(a) Flight training may, to the extent deemed appropriate by CASAPNG be given in flight simulation training devices validated by CASAPNG for that purpose.

(b) Data of all validated flight training devices shall be documented and retained at CASAPNG.

1.5 Ground Training Facilities

(a) All ground training facilities to be used by flight crew to complete a training program as required by this manual shall have the approval of the Director, preceded by a technical evaluation.

(b) Data of all approved ground training facilities shall be documented and retained at CASAPNG.

1.6 Use of Correspondence Courses

The use of correspondence courses and written examinations as well as other means may, to the extent deemed feasible by the CASAPNG may be utilized in meeting the requirements for periodic ground training.

1.7 Assessment of Competence

All training programs (initial / recurrent) shall include an assessment of competence.

1.8 Instructors

(a) Ground Instructors
  (i) All ground instructors for Flight crew training programs shall have the approval of the Director, preceded by a technical evaluation.

  (ii) Data of all approved ground instructors shall be documented and

retained at CASAPNG.

(b) Flight Instructors

(i) All Flight Instructors for Flight crew training programs shall have the approval of the Director, preceded by a technical evaluation.

(ii) Data of all approved Flight Instructors shall be documented and retained at CASAPNG.

1.9 Regulatory Approval

The operator shall provide ground and flight training facilities, simulators and/or cockpit procedure training devices (e.g. fixed-based simulator [FBS], computer based training [CBT], etc.) and syllabus materials.

All flight crew training programs (Ground / Flight) including all training material shall have the approval of the Director.

Chapter 2: Cabin Crew

2.1 An Operator shall establish and maintain a Training Program as specified under CAR Part 121.

2.2 These Training Programs shall ensure that each person is:

(a) Competent to execute those safety duties and functions which the cabin crew member is assigned to perform in the event of an emergency or in a situation requiring emergency evacuation;

(b) Drilled and capable in the use of emergency and lifesaving equipment required to be carried, such as life jackets, life rafts, evacuation slides, emergency exits, portable fire extinguishers, oxygen equipment, first-aid and universal precaution kits, and automated external defibrillators;

(c) When serving on aeroplanes operated above 3000 m (10000 ft.), knowledgeable as regards the effect of lack of oxygen and, in the case of pressurized aeroplanes, as regards physiological phenomena accompanying a loss of pressurization;

(d) Aware of other crew members' assignments and functions in the event of an emergency so far as is necessary for the fulfilment of the cabin crew member's own duties;

(e) Aware of the types of dangerous goods which may, and may not, be carried in a passenger cabin;

NOTE 1: Training of cabin crewmembers in the transport of dangerous goods are to be in compliance with PNG CAR Part 92.

(f) Knowledgeable about human performance as related to passenger cabin safety duties including flight crew cabin crew coordination.

2.3 As a minimum following Theoretical and Practical training shall be included in the Cabin Crew Training Program

(a) Basic indoctrination in the different functions, duties and responsibilities of cabin crew members

(b) Introduction to applicable aircraft systems and limitations

(c) Aircraft emergency evacuation, life-safety equipment and related information to passengers

(d) Cabin crew member's assignment, coordination and two-way communication

(e) Knowledge and skills related to the transport of dangerous goods

(f) Security procedures

2.4 Cabin Crewmembers shall complete a recurrent Training Program annually

2.5 All initial / recurrent Training Programs shall have an assessment of competence

2.6 Ground Training Facilities

(a) All ground training facilities to be used by cabin crew to complete a training program as required by this manual shall have the approval of the Director, preceded by a technical evaluation.

(b) Data of all approved ground training facilities shall be documented and retained at CASAPNG.

2.7 Instructors

(a) All Instructors conducting safety training for Cabin crew shall have the approval of the Director preceded by a technical evaluation.

(b) The minimum qualification requirement to be assigned as a safety Instructor for cabin crew shall be:

(i) Minimum of five (5) years' experience as a Flight Crewmember; or

(ii) Minimum of five (5) years' experience as a Cabin Crewmember out of which one (1) year experience as a supervisor; and

(iii) Followed a course on "Train the Trainer" program or any other program to be certified as a trainer in order to be able to develop and deliver training programs; and

(iv) Any other requirement as stipulated by CASAPNG from time to time.

(c) Data of all approved Instructors shall be documented and retained at CASAPNG.

2.8 Regulatory Approval

All cabin crew training programs (Ground / Flight) including all training material shall have the approval of the Director.

Chapter 3: Flight Operations Officer

3.1 A Flight Operations Officer shall satisfactorily complete an Operator- Specific Training course that addresses all the Specific Components of its approved method of control and supervision of Flight Operations prior being authorized to commence flight dispatch / flight following duties.

3.2 The Training required as above shall be conducted on a recurrent basis.

3.3 The following Training as a minimum is required:

(a) Civil Aviation Act and Rules
(b) Aviation Indoctrination
(c) The contents and use of the Operations Manual
(d) Aircraft performance
(e) The radio equipment in the aeroplanes used
(f) Navigation (general)
(g) The navigation equipment in the aeroplanes used. The peculiarities and limitations of each navigation system which is used by the operation;
(h) Meteorology (general)
(i) The seasonal meteorological conditions and the sources of meteorological information applicable to the area of operation
(j) The effects of meteorological conditions on radio reception in the aeroplanes used;
(k) Mass and balance control
(l) The aeroplane loading instructions;
(m) Flight planning and monitoring
(n) Use of MEL / CDL
(o) Rules of the Air, communication and air traffic management
(p) Transport of Dangerous goods by air
(q) Security procedures (refer to Chapter 6 of Operations Manual Part D)
(r) Emergency response plan (refer to Part 2, OM Part A, Chapter 10, paragraph 10.1 20)
(s) Flight observation (refer to Part 2, OM Part A, Chapter 6, paragraph 6.8 (c) (11)
(t) Knowledge and skills related to human performance relevant to dispatch duties;

3.4 In addition to the Training required as in paragraph 3.3, the Flight Operations Officer shall demonstrate to the Operator the ability to perform the duties as specified below

(a) Assist the Pilot-in-command in flight preparation and provide the relevant information
(b) Assist the Pilot-in-command in preparing the Operational and ATS flight plans, sign when applicable and file the ATS flight plan with the appropriate ATS unit
(c) Furnish the Pilot-in-command while in flight, by appropriate means, with information which may be necessary for the safe conduct of the flight
(d) In the event of an emergency;
    (i) To initiate such procedures as outlined in the operations manual while avoiding taking any action that would conflict with ATC procedures
    (ii) Convey safety-related information to the Pilot-in-command that may be necessary for the safe conduct of the flight, including information related to any amendments to the flight plan that become necessary in the course of the flight.

3.5 All initial / recurrent Training Programs shall have an assessment of competence

3.6 Ground Training Facilities

(a) All ground training facilities to be used by flight operations officers to complete a

training program as required by this manual shall have the approval of the Director preceded by a technical evaluation.

(b) Data of all approved ground training facilities shall be documented and retained at CASAPNG.

3.7 Ground Instructors

(a) All ground instructors for Flight Operations Officer training programs shall have the approval of the Director preceded by a technical evaluation.

(b) The minimum qualification requirement to be assigned as a ground Instructor shall be
  (i) A Pilot-in-command of the Operator
  (ii) A first Officer with two years' experience with the Operator
  (iii) A senior Flight Operations Officer with five years' experience with the Operator

(c) Data of all approved ground instructors shall be documented and retained at CASAPNG.

3.8 All Flight Operations Officer training programs including all training material require a technical evaluation and the program may be accepted or approval granted.

Chapter 4: Training for Instructors and Examiners

4.1 Appropriate initial Training Programs for following Instructors and Examiners to ensure that they attain the required knowledge, skills and qualifications

(a) Ground Instructors
  (i) Instructors for flight crew
  (ii) Instructors for cabin crew
  (iii) Instructors for flight operations officers
  (iv) Instructors for Ground staff

(b) Flight Instructors

(c) Operator personnel delegated with Checking functions

4.2 Appropriate recurrent Training Programs for all Instructors and Examiners (as specified in paragraph 4.1 above) to ensure that they maintain the required knowledge, skills and qualifications.

4.3 All initial / recurrent Training Programs shall have an assessment of competence.

4.4 All Training Programs including all training material shall have the approval of the Director.

4.5 All Ground Training Facilities and Flight Simulation Training Devices used for training modules in this chapter shall have the approval of the Director.

4.6 All Ground Instructors and Flight Instructors (conducting training modules in this chapter) shall have the approval of the Director.

Chapter 5: Training on "The Safe Transport of Dangerous Goods by Air"

5.1 Operators who are authorized to carry Dangerous Goods by air

For appropriate employees of the Operator (flight dispatchers/ ground handling staff/ security staff etc.),

including all crew members:

(a) Appropriate training as prescribed in CAR Part 92.
(b) All initial/ recurrent training programs shall have an assessment of competence.
(c) All initial and recurrent training programs including all training material shall have the approval of the Director.
(d) All ground training facilities used for training modules in this chapter shall have the approval of the Director.
(e) All ground instructors used for training modules in this chapter shall have the approval of the Director.

5.2 Operators who are not authorized to carry Dangerous Goods by air for appropriate employees of the Operator (Flight Dispatchers / Ground Handling staff / Security staff etc.;), including all Crew members to enable them to recognize and refuse transportation of Dangerous Goods by air.

(a) Appropriate training as prescribed in CAR Part 92.
(b) All Initial/ recurrent training programs shall have an assessment of competence.
(c) All initial and recurrent training programs including all training material shall have the approval of the Director.
(d) All ground training facilities used for training modules in this chapter shall have the approval of the Director.
(e) All ground instructors used for training modules in this chapter shall have the approval of the Director.

Chapter 6: Training Security

NOTE: ***In the context of this Chapter, the word "security" is used in the sense of prevention of illicit acts against civil aviation.***

6.1 The Operator shall establish and maintain an approved Security Training Program which ensures Flight and Cabin Crew members act in the most appropriate manner to minimize the consequences of acts of unlawful Interference

As a minimum, above program shall include the following elements:

(a) Determination of the seriousness of any occurrence;
(b) Crew communication and coordination;
(c) Appropriate self-defence responses;
(d) Use of non-lethal protective devices assigned to crew members whose use is authorized by CASAPNG.
(e) Understanding of behaviour of terrorists so as to facilitate the ability of crew members to cope with hijacker behaviour and passenger responses;
(f) Live situational training exercises regarding various threat conditions;
(g) Flight deck procedures to protect the aeroplane;
(h) Aeroplane search procedures and guidance on least-risk bomb locations where practicable.
(i) Aircraft search procedure check list
(j) Security of the flight crew compartment
(k) Post flight concerns for the crew

The training program shall be in compliance with National Civil Aviation Security Program of Papua New Guinea and any instructions issued by CASAPNG.

6.2 Operator shall establish and maintain Security Training Programs for appropriate employees of the Operator (Flight Dispatchers / Ground Handling staff / Security staff etc.),

The training program shall be designed to acquaint appropriate employees with preventive measures and techniques in relation to passengers, baggage, cargo, mail, equipment, stores and supplies intended for carriage on an aeroplane so that they contribute to the prevention of acts of sabotage or other forms of unlawful interference.

The training program shall be in compliance with National Civil Aviation Security Program of Papua New Guinea and any instructions issued by CASAPNG.

6.3 Training as required in paragraph 6.1 and 6.2 above shall be conducted on recurrent basis

6.4 All initial / recurrent Training Programs shall have an assessment of competence

6.5 All initial / recurrent Training Programs including all Training material shall have the approval of the Director.

6.6 All Ground Training Facilities used for training modules in this chapter shall have the approval of the Director.

6.7 All Ground Instructors used for training modules in this chapter shall have the approval of the Director.

Chapter 7: Specialised Training Requirements

7.1 Operator's Training/ recurrent Training Programs for following subjects as applicable;

(a) Company Indoctrination to include

  (i) Study of Operations Manual
  (ii) Structure of Civil Aviation Authority
  (iii) Rules and regulations applicable to the Air Operator

(b) CRM
(c) SMS
(d) MNPS
(e) PBN / GNSS / RVSM
(f) RCP
(g) Flight in icing conditions
(h) All Weather Operations (Low visibility take-off, Category 11, Category 111 operations)
(i) ETOPS
(j) GPWS / EGPWS
(k) ACAS / TCAS
(l) MEL / MMEL
(m) Weather radar
(n) Transponders
(o) Forward looking wind shear warning system
(p) Loss of pressurization and use of oxygen
(q) Incapacitation of crew members
(r) Flight in adverse and potentially hazardous atmospheric conditions
(s) Wake turbulence
(t) Flight in volcanic ash
(u) HUD
(v) EVS
(w) ELT

(x) Any other Training programs necessary to impart knowledge to Operator's flight crew to conduct duties in compliance with the Operations Manual.

7.2 All initial / recurrent Training Programs shall have an assessment of competence

7.3 All initial / recurrent Training Programs including all Training Material shall have the approval of the Director.

7.4 All Ground Training Facilities, Flight Simulation Training Devices used for training modules in this chapter shall have the approval of the Director.

7.5 All Ground / Flight Instructors used for training modules in this chapter shall have the approval of the Director.

Chapter 8: Training Programs for Operator's Ground Handling Staff

8.1 Training / recurrent Training Programs necessary to impart knowledge to Operator's Ground Handling staff to conduct duties in respect of the requirements in Part 2, chapter 10, paragraph 10.2 (Ground Handling)

8.2 All initial / recurrent Training Programs shall have an assessment of competence.

8.3 All Ground Instructors used for training modules in this chapter shall have the approval of the Director.

8.4 All initial / recurrent Training Programs including all training material shall have the approval of the Director.

Chapter 9: Procedures

9.1 Procedures for Training and Checking.

9.2 Procedures to be applied in the event that personnel do not achieve or maintain the required standards.

9.3 Use of External Training Organisations- CAR Part 119.53.

(a) CAR Part 119.53(b) requires an air operator who contracts with an external organisation or person to satisfy the checking and training requirements of Parts 121, 125, 135 and 136 must include in its exposition details of—

(i) the functions to be transferred to the organisation or person; and

(ii) the scope of the checking or training to be carried out by the organisation or person; and

(iii) the authority of the organisation or person in respect of the checking or training functions to be carried out.

(b) CAR Part 121.53(i) states that an air operator may—

(i) conduct the training programme; or

(ii) contract with the holder of an aviation training organisation certificate issued under Part 141, to conduct the training programme where the Part 141 certificate authorises the holder to conduct that training; or

(iii) for a training programme conducted outside Papua New Guinea, contract with an organisation that meets an equivalent standard specified by Part 141.

(c) The determination of equivalence process is carried out in accordance with the certification requirements of Civil Aviation Rule Part 141- Aviation Training Organisations – Certification and Operation. Flying Operations Inspectors shall use Advisory Circulars AC-141 and AC-61 for guidance in the certification process.

A PNG Aviation Training Organisation certificate is granted to the external organisation upon successful completion of CAR Part 141 determination of equivalence approving the external organisation to conduct training and checking for the PNG AOC holder.

(d) The organisation that is used for operators training shall comply with the training programs approved by the Director and comply with the operator's flight safety documents system.

(e) The external organisation that is used for operators training shall comply with the training programs and syllabuses approved by the Director and comply with the operator's flight safety documents system.

Appendix 1: Qualifications and Level of Experience Nominated Post Holders

1.1 Nomination of Post Holders – CAR Part 119.51

Nominated post holders must satisfy the fit and proper person test required under Sections 49 and 50 of the Civil Aviation Act 2000 (as amended) and possess the appropriate experience and licensing requirements in accordance with CAR Part 119, Appendix A- Qualifications and Experience of Senior Persons.

In particular cases (as an exception) the Civil Aviation Safety Authority, PNG, may accept a nomination which does not meet requirements in full. In such a circumstance the nominee should be able to demonstrate his experience/qualifications which the Authority will accept has been comparable. Such acceptance will depend upon the ability of nominee to perform effectively the functions associated with the post and the scale of operation.

The nominated post holders should have practical experience and expertise in the application of aviation safety standards and safe operating practices.

To enable the CASA to clearly identify the persons responsible for different aspects of the operation, the applicant must nominate and seek approval for those personnel selected for following positions. The nomination shall be accompanied by a complete and accurate resume of the person nominated and the CASA PNG Fit and Proper Person Questionnaire on Form CA FPP.

Any subsequent change in approved Nominated post holders should be effected only with the approval of CASAPNG.

1.1.1 Accountable Manager (General Manager / Chief Executive Officer)

Responsible for the overall functioning of the operation, who has corporate authority to ensure that all operations and maintenance activities can be financed and carried out to the standard required by the Civil Aviation Safety Authority, PNG.

1.1.2 Senior Person responsible for Flight Operations

Responsible for the conduct and standard of flight operations

1.1.3 Senior Person responsible for Aircraft Airworthiness and the control and scheduling of maintenance

Responsible for the conduct and standard of engineering and maintenance

1.1.4 Senior Person responsible for Crew Training and Competency assessment

Responsible for the conduct and standards for all training as required in Operations Manual Part D, for persons involved with aircraft operations

1.1.5 Senior Person responsible for operational ground activities which directly support air operations

Responsible for the conduct and standard of ground operations.

1.1.6 Senior Person responsible for air operator security programme is required by 119.69, air operator security.

Responsible for the standard of airline security

1.1.7 Head of in Flight Services (Cabin Safety)

Responsible for cabin crew (cabin safety functions). This post holder shall function under the authority of the Senior Person responsible for Flight Operations.

1.1.8 Senior Person responsible for Quality Management System Responsible for the airline quality management system

1.1.9 Senior Person responsible for the development and establishment of the Safety Management System (SMS) in accordance with CAR Part 100 requirements:

(a) Clearly define the post holder's functions,
(b) Clearly define the post holder's responsibilities, and
(c) Document the post holder's functions and responsibilities in the flight safety document system.

Responsible for the airline Safety Management system

1.1.10 Chief Pilots for Each Fleet

Responsible for the safe operation of an aircraft fleet

Some of the above positions may be combined, depending on the size and complexity of the Operation, if the management structure is acceptable to the Director.

It is not obligatory to use the titles above; however, the offices responsible for the duties listed in paragraph above must be clearly identified.

As the qualifications and level of experience of the nominated post holders will vary according to the scope and size of the proposed operation, Civil Aviation Safety Authority Inspectors shall use CAR Part 119, Appendix A – Qualifications and Experience of Senior Persons and judgment in deciding whether or not particular experience and qualifications are acceptable.

1.2 Desirable Qualifications of Nominated Post Holders

The following shall be used to complement the qualification and experience requirements under CAR Part 119, Appendix A.

1.2.1 Accountable Manager (General Manager / Chief Executive Officer)

To be agreed with CASAPNG.

1.2.2 Senior Person Flight Operations

The nominee shall have at least the following or comparable qualifications.

(a) 2000 hours' flight time in operations identical or substantially similar to those proposed
(b) 1000 hours in command of aircraft of the same type or a type substantially similar to the major type of aircraft proposed to be operated
(c) Papua New Guinea Licence, rating(s) appropriate to the proposed category of operation
(d) Before the commencement of revenue services, hold a P 1 endorsement on the major type of aircraft proposed to be operated. Should the fleet change in the future, the head of line operations must maintain a first class endorsement on at least one major type in current operation. Note: it is not necessary that the head of line operations actually operates the company's aircraft in revenue service, although the person appointed may choose to do. The requirement is that the head of line operations be personally experienced in the manner in which the company requires its major type of aircraft to be operated.
(e) The candidate's performance within the past 5 years, should be such that there is no doubt as to his character, integrity or judgment in relation to flight operations. He should also have a history of maintenance of and compliance with regulatory requirements.

1.2.3 Senior Person Engineering and Maintenance

(a) The Head of Maintenance / Engineering or Director Maintenance (as applicable), is responsible to the CASAPNG for ensuring that the terms and conditions stipulated in the MCM approved by the CASAPNG are complied with. This will guarantee that responsibility for taking corrective action for any deficiencies that will be identified by the CASAPNG is vested at the highest level in the organisation management structure, thus ensuring that the executive authority is in place for safe practices.

(b) The holder of this position should be approved by the Director and it must be filled with an officer who satisfies the following requirements:

(i) Has a minimum of 10 years' experience in the aviation field acceptable to the Director of which five years should be at a supervisory level.

(ii) Pass the Air Legislation examination for AMEs and has proven knowledge in airworthiness regulatory systems in force and knowledge to apply those requirements in managing civil aviation activities.

1.2.4 Senior Person responsible for Crew Training and Competency assessment

(a) 1000 hours' flight time in operations identical or substantially similar to those proposed

(b) 1000 hours in command of aircraft of the same type or substantially similar to those proposed to be operated.

(c) 500 hours as an unrestricted check pilot on the same type of aircraft or an aircraft substantially

(d) Hold a license and rating(s) appropriate to the proposed operations

(e) Prior to the commencement of revenue services, hold unrestricted approval as a check pilot on the major type of aircraft to be operated. Should the fleet change in the future, maintain an unrestricted approval as a check pilot on a at least one major type in current operations, and

(f) The candidate's performance within the past 5 years should be such that there is no doubt as to his character, integrity or judgment in relation to flight operations and maintenance of regulatory requirements.

1.2.5 Senior Person responsible for operational ground activities which directly support air operations

To be agreed with CASAPNG.

1.2.6 Senior Person responsible for Air Operator Security Programme

Director – Aviation Security Unit (Av Sec) shall have one of the following qualifications;

(a) Be an ex- military officer in the rank of Captain in the Papua New Guinea Defence Force or equivalent rank in the Papua New Guinea Navy: or

(b) In the rank of assistant Superintendent in the Papua New Guinea Police with a minimum of five (5) years' experience in an international aviation security environment in a senior executive capacity; or

(c) A minimum of three (3) years' experience in Av Sec matters in the National Civil Aviation regularity body in the capacity of a senior executive.

1.2.7 Head of in Flight Services (Cabin Safety)

(a) Two years' experience in a reputed airline as a manager in In-flight services section; or

(b) Five years' experience as an instructor handling cabin crew in an airline; or

(c) Person acceptable to the Authority with knowledge in related regulations pertaining to

aviation.

1.2.8 Senior Person responsible for Safety Management (SMS) and/or Quality Management System

To be agreed with CASAPNG.

1.2.9 Chief Pilots for Each Fleet

To be agreed with CASAPNG.