NCC OMA including:

Safety and compliance Management System

PED and EFB NCC.GEN.130 according AMC20-25

PBN Performance Based Navigation SPA

Including Structure for the OM-B,C,D

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Color coding of the Text:

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# Administration and Control of Operation Manual

## Record of Revision and List of Effective Pages

### Record of Revision

### List of Effective Pages

## Introduction

### Competent Authority

### Operator Declaration

I, the undersigned, declare that:

* The Operations Manual Parts A, B, C, D, and associated documents have been established and will be maintained in full compliance with the Regulation (EU) 965/2012 (Part-NCC)
* The Operations Manual complies with the terms and conditions of the company’s Declaration;
* We are responsible for the content of the Operations Manual and confirm that besides Regulation (EU) 965/2012 (Part-NCC) (and Part-FCL, where applicable) all relevant national rules and regulations as well as ICAO standards and procedures are reflected in the different chapters;
* We know and understand the content and meaning of the Operations Manual and will perform our duties in full accordance with it;
* The detailed knowledge of the relevant content is mandatory to all concerned flying, ground and managing personnel who shall perform their duties accordingly. We undertake to ensure that they comply with the instructions given in the Operations Manual; and
* We are aware of the fact that the “competent authority” does not approve / accept the Operations Manual as such, but only specific parts thereof (SPA`s). The responsibility for the completeness and the correctness of the Operations Manual remains therefore solely with “The Operator”.

“The Operator” has declared the following capabilities, and has received approval for the following operations:

Here to be added a copy of the declaration and approvals (RNAV-10,5,2,1,0.3, NAT, MNPS etc)

SPA`s:

* LVTO
* CAT 2
* PBN

### Common Language NCC.GEN.115

The English language is used for all operator related company documents and manuals. For verbal communications, an alternative language or the operators native language may be used provided all parties agree.

Use of Language

• The Operations Manual applies to all crewmembers, operations personnel, passengers and other persons

#### Abbreviations

For the glossary see Annex 1.

#### Definitions

* “Shall, must, has to, is to“ and verbs used in the present indicative form such as „does, performs“ etc., are used in the imperative, compulsory sense;
* „May and might“ are used in a permissive sense to state the authority or permission to do the mentioned act;
* „Must not, may not, or no crewmember may“, mean that nobody is authorized or permitted to do the act; and
* „Includes“, means „includes but is not limited to“.

### Distribution and updating of the OM

#### Distribution List, Ways of distribution, Responsibility for the update process.

The nominated person for flight operations or delegated person provides the distribution of the Operations Manual as well as the amendments / revisions.

All applicable personnel and stations together with the relevant documentation is listed in the distribution list with the corresponding revision number and date. The Distribution List is Annex 2.

The Om`s are distributed digitally or in paper form. The recipient must confirm receiving the revision regardless if received digitally or in paper form to ensure receipt of the current revision.

### Structure of the Operations Manual

#### Operations Manual Part A, General / Basic (OM A)

The Operations Manual Part A comprises all general (non-airplane type related) operating philosophy and policies, information, requirements, instructions and procedures. It also describes the Management System which includes all planned and systematic actions necessary to ensure that all operations and maintenance are conducted in accordance with all applicable requirements, standards and operational procedures.

#### Operations Manual Part B, Airplane Operating Matters (OM B)

The OMB contains all type specific operating procedures, checklists, instructions and information.

The Aircraft Operating Manual, Operations Manual Part B context is based on manuals issued by the manufacturer upon airplane delivery. It may refer to, but not necessarily duplicate information contained in these manuals.

The MEL for each airplane type concerned is an annex to the Operations Manual Part B, Reference to the Annex will be made in the OMB Chapter “Minimum Equipment List” For a basic introduction and usage of the MEL, refer to the Operations Manual Part A, Chapter “MEL and CDL”.

#### Operations Manual Part C, Route and Aerodrome Instructions and Information (OM C)

The Operations Manual Part C provides all route and aerodrome related instructions and information, maps and charts, as well as, associated documents covering the area of operations. It refers to the commercially-produced Publications., Airway Manual Service or other documentation. It also includes special aerodrome procedures and contingency procedures.

#### Operations Manual Part D, Training (OM D)

Based on the training and checking concept ‘without own Type Rating Training Organization’ (TRTO), the Operations Manual Part D contains the training and checking program.

#### Safety and Compliance Management System (SCMS)

This Manual contains the scope and a description of the Safety and compliance Management System and its tools.

### Record keeping ORO.GEN.220 / ORO.MLR.115

Stored for 5 Years:

* A copy of the operator’s declaration
* Details of approvals held
* Operations Manual and all its Revisions

The following information used for the preparation and execution of a flight, and associated reports, shall be stored for three months:

1. the operational flight plan, if applicable;
2. route-specific notice(s) to airmen (NOTAM) and aeronautical information services (AIS) briefing documentation;
3. mass and balance documentation;
4. notification of special loads, including written information to the pilot-in-command about dangerous goods, if applicable;
5. the journey log, or equivalent; and
6. flight report(s) for recording details of any occurrence, or any event that the pilot-in-command deems necessary to report or record;

Personnel records shall be stored for the periods indicated below,

* even if “The Operator” ceases to be the operator of that aircraft or the employer of that crew member, provided this is within the timescales prescribed;
* If a crew member becomes a crew member for another operator, “The Operator” shall make the crew member’s records available to the new operator, provided this is within the timescales prescribed;

|  |  |
| --- | --- |
| Flight crew license and cabin crew attestation  | As long as the crew member is exercising the privileges of the license or attestation for the aircraft operator  |
| Crew member training, checking and qualifications  | 3 years  |
| Records on crew member recent experience  | 15 months  |
| Crew member route and aerodrome/task and area competence, as appropriate  | 3 years  |
| Dangerous goods training, as appropriate  | 3 years  |
| Training/qualification records of other personnel for whom a training program is required  | Last 2 Training records  |

Also to be documented and preserved:

For ORO.GEN.200 SCMS see the Chapter Record keeping in the SCMS chapter

# Organization and Responsibilities

## Organizational Structure

Pictogram of “The Operator”

## Responsibilities, Duties, Objective, Superiority, Subordination and contact details of Operations Management Personnel

### Accountable Manager (ACM)

Objective:

The Accountable Manager has the corporate authority to ensure that all operations and maintenance activities can be financed and carried out. The ACM guides and manages “The Operator” in all its activities.

The ACM is responsible for the general management of “The Operator”. They establish and maintain a safe and efficient organization by the allocation of human and financial resources. The ACM will define the Operating Philosophy and Policy, its Safety Policy and its Quality Policy, in accordance with Part-NCC and ORO, FCL and the National Aviation Law.

Authority

The Accountable Manager has control over company personnel.

Duties and responsibilities (The ACM may delegate his duties, but remains responsible)

* + determines and maintains the flight safety policy;
	+ ultimately ensures that the Safety and Compliance Management System is implemented and continuously maintained, including:
		- ensuring corrective actions are carried out
		- checking to ensure that each nominated person is fulfilling his duties and responsibilities with regard to flight safety;
	+ cooperates with the competent authority;
	+ promoting actively the safety and quality culture;
	+ supervises the Operations Manual System, the Declaration and any other required Certificates;
	+ observes any developments, changes, amendments or revisions in national and international air legislation to ensure that any official documentation for which he is responsible for can be updated accordingly;
	+ maintains document storage of strategic papers, contracts and important projects, according to the Operations Manual Part A,
	+ is responsible for the internal and external communication of relevant information;
	+ is responsible for the employment, dismissal and training of personnel, as well as general personnel management, together with the responsible human resources division and the nominated person Flight Operations;
	+ leads and coordinates important projects;
	+ supervises all tasks within the accounting domain;
	+ Encourages a corporate culture with high safety and care standards.

### Nominated Person Safety and Compliance

Objective

The goal of the Safety and Compliance System is to ensure compliance as well as competence with required maintenance actions. These goals also incorporate standards and operational procedures. The Safety Compliance Manager (SCM) monitors compliance with Part NCC, the Operations Manual, CAMO, and ensures safe, efficient operations as well as the airworthiness of the aircraft. In order to maintain the safety policy, as described in the Operations Manual Part A, the SCM communicates with the Accountable Manager and monitors as well as evaluates corrective actions. The SCM should suggest, propose, improve and initiate changes to the system as needed. The SCM reports directly to the Accountable Manager.

Authority

The SCM has unquestionable access to all operator personnel and all official operator documentation in order to monitor the effectiveness of the Compliance and Safety System.

Duties and responsibilities

* + designs, implements and maintains the Safety and Compliance System;
	+ is responsible for amendments and revisions of the Operations Manual Part A, Chapter 3.
	+ observes any developments, changes, amendments or revisions in national and international air legislation to ensure that any official documentation for which he is responsible for can be updated accordingly;
	+ develops and designs a feedback system, including closed loop principles and processes, to improve all individual quality functions on an operative level;
	+ ensures that all management staff are aware of their safety and compliance responsibilities within the “SQMS” and maintain them;
	+ is responsible for ensuring that all operator personnel and all other related organizations are trained in the Safety and Compliance System;
	+ ensure continual improvement of the Quality System;
	+ ensures that the auditor (whether internal or external) does not have any day to day involvement in the area of the operation and/or maintenance activities being audited;
	+ ensures that all audits are properly documented and that documentation is stored in accordance with the Operations Manual Part A, “Operational Control and Supervision” and Chapter SQMS;
	+ monitors all corrective actions taken and to be taken within the time limits imposed by the auditor; (AMC.1.ORO.GEN.200 A.6.)

### Nominated Person Flight Operations

Objective

The nominated person Flight Operations Officer (NPFO) ensures stable, safe and efficient flight and ground operations. The NPFO must ensure that all operations comply with the provisions of the company’s Operating Philosophy and Policy, its Safety Policy, Part NCC, Part-FCL and the National Aviation Law. The NPFO is responsible for the development and endorsement of Standard Operating Procedures (SOP) and checklists.

The NPFO supervises the crewmembers and ensures that they operate in accordance with all aircraft performance requirements, flight procedures as well as the flight safety standards listed in the Operations Manual.

The nominated person Flight Operations Officer reports directly to the Accountable Manager.

Authority

The nominated person Flight Operations Officer has authority over all crewmembers as well as appointed assisting personnel within Flight Operation. The NPFO give directives concerning daily flight operations, aircraft operations, flight crew requirements, crew scheduling and to all ground operations personnel (e.g. Dispatch or outsourced Flight planning companies).

Duties and Responsibilities

* + is responsible for the supervision and renewal of the Declaration, specifically amendments and revisions of the Operations Manual Part A, B, C, and MEL & CDL for all A/C Fleet);
	+ observes any developments, changes, amendments or revisions in national and international air legislation to ensure that any official documentation for which he is responsible for can be updated accordingly;
	+ is responsible for the operation of the airplane(s);
	+ coordinates flight crew scheduling, FTL and monitoring
	+ through resource planning, ensures the availability of an adequate number of crew according to operational requirements. Employment and dismissals are coordinated with the Accountable Manager;
	+ makes sure the proficiency, recent experience and skills of the crew composition is in accordance with the Operations Manual Part A, Chapter “Crew Composition“ and Chapter “Qualification Requirements”;
	+ supervises and ensures that all crewmembers carry out their duties according to the Operations Manual;
	+ administrates crew personal files and documents, establishes and revises checklists, publications regarding type of airplane (in liaison with the nominated person Crew Training) and defines operational rules for the whole airplane fleet;
	+ briefs, instructs and guides the crews on their responsibilities and duties in general, as well as, for special operations or advancement in their position. He decides the SOP’s and supervises his personnel in order to maintain a strict discipline. He has to inform and give directives to the crewmembers on all crew matters;
	+ together with the nominated person Crew Training, defines any measures, should personnel not achieve or maintain required standards, as described in the Operations Manual Part D, “Procedures to be applied if Personnel do not achieve or maintain the required Standards”;
	+ ensures that all allocated crews have the correct specific qualifications and relevant experience for particular routes and aerodromes concerned;
	+ categorizes the aerodrome used, evaluates the usability of the aerodrome and ensures that the airplane performance specifications for the route and aerodrome selected are adequate;
	+ ensures that all reports related to flight operations are submitted to the “competent authority” and any other required parties.
	+ monitors the flight safety standards, evaluates and analyses all company reports related to flight operations, and promulgates the results of the above reports accordingly, in order to avoid the development of undesirable trends;
	+ ensures that all flight operations related forms and documentation are stored in accordance with the Operations Manual Part A;
	+ Manages the flight planning and all to this connects duties like organizing slots, permissions etc.

### Nominated Person Crew Training

**Objective**

The primary aim of all training performed, is the successful implementation of the operating philosophy, policies and procedures. All operations personnel shall be trained to have exemplary subject knowledge. They must have the required skills to perform the standard operating procedures in accordance with their duties in order to carry out safe and efficient flight operations.

The nominated person Crew Training reports directly to the Accountable Manager.

**Authority**

The nominated person Crew Training has authority over all training subcontractor(s) and in house training / checking personnel.

**Duties and Responsibilities**

* + verifies qualification requirements and establishes the appropriate training and checking programs in accordance with Part-FCL, Part-NCC and SPA;
	+ establishes and designs training, checking syllabi and establishes procedures for all training and checking performed in-and out of house;
	+ is responsible for amendments and revisions of the Operations Manual Part D and Operations Manual Part A, Chapter “Qualification Requirements”;
	+ observes any developments, changes, amendments or revisions in national and international air legislation to ensure that any official documentation for which he is responsible for can be updated accordingly;
	+ after taking into consideration the crewmembers training which has been recorded in their training records, the NPCT will determine the amount of training required for each individual crewmember and will adapt and organize the correct training/checking to fulfill the qualification requirements as detailed in the OM Part A, Chapter Qualification Requirements.
	+ organizes, monitors and supervises training and checking in accordance with the Operations Manual Part D and coordinates funding with the ACM;
	+ verifies training records to ensure they are complete and correct and ensures that all forms and records related to training and checking are stored in accordance with the Operations Manual Part A, Chapter “Operational Control and Supervision”;
	+ coordinates with the ACM to maintaining and establish contracts with subcontracted training parties;
	+ must check that the sub-contracted certified ATOs hold and maintain the required syllabi and authorizations;
	+ is responsible for training, checking and supervision of personnel in close coordination with the NPFO.
	+ promoting actively the safety and compliance culture

## Authority, Duties and Responsibilities of the Pilot in Command (PIC) NCC.GEN.105/106/110

**General**

The PIC shall be responsible for the proper execution of his/her duties that are:

* + Related to the safety of the aircraft and its occupants; and specified in the instructions and procedures in the operations manual.
	+ comply with the relevant requirements of the operator’s occurrence reporting schemes and Reg (EU) N° 376/2014;
	+ comply with all flight and duty time limitations (FTL) and rest requirements applicable to their activities;

When undertaking duties for more than one operator:

* + Maintain his/her individual records regarding flight and duty times and rest periods as referred to in applicable FTL requirements; and provide each operator with the data needed to schedule activities in accordance with the applicable FTL requirements.

The crew member shall not perform duties on an aircraft:

1. for health, drug and alcohol limitations refer to chapter "Crew Health Precautions";
2. if the medical requirements required, to maintain the required medical certificate, are not met due to sickness or injury;
3. if he/she is in any doubt of being able to accomplish his/her assigned duties; or
4. if he/she knows or suspects that he/she is suffering from fatigue or feels otherwise unfit, to the extent that the flight may be endangered.

**Objective**

The PIC is the operators legal representative during an assigned duty.

One flight crewmember qualified as a pilot in command, will be designated for each flight or series of flights, as described in the Operations Manual Part A, “Designation as PIC”.

The PIC reports directly to the NPFO

**Authority**

The PIC is the company’s legal representative and has overall authority and responsibility over other crewmembers during the scheduled duty.

**Duties and Responsibilities**

1. maintain familiarity with agreed aviation practices and procedures;
2. maintain familiarity with such provisions of the Operations Manual as are necessary to fulfil his function; and
3. ensure that all crewmembers are aware of their duties and responsibilities for the duration of flight or series of flights.

**The PIC is responsible for /has the authority:**

1. the safe operation of the airplane and safety of its occupants and cargo during flight;
2. The PIC gives all the commands deemed necessary for the purpose of securing the safety of the airplane and of persons or property carried therein, and all persons carried in the airplane shall obey such commands;
3. to disembark any person, or any part of the cargo, which in his/her opinion, may represent a potential hazard to the safety of the airplane or its occupants;
4. to not allow a person to be carried in the airplane who appears to be under the influence of alcohol or drugs to the extent that the safety of the airplane or its occupants is likely to be endangered;
5. to refuse transportation of inadmissible passengers, deportees or persons in custody if their carriage poses any risk to the safety of the airplane or its occupants;
6. for ensuring that all passengers are briefed, in accordance with the Operations Manual Part A, “Passenger Briefing Procedures”, on the location of emergency exits and the location and use of relevant safety and emergency equipment, and on meteorological information during flight and at the destination;
7. for ensuring that all operational procedures and checklists are complied with, in accordance with the Operations Manual;

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

This information will enable the PIC

* to judge if the weather and the visibility/RVR at the aerodrome and the condition of the runway intended to be used will allow for a safe take-off and departure (with due regard to all relevant performance aspects of the OM Part B),
* to select destination alternate and take- off alternate aerodromes prior to flight, with due regard the prescribed planning minima,
* to calculate the operational flight plan, the planned amount of fuel and oil being based on the expected operating conditions and sufficient for a safe completion of flight (whenever the flight- is being calculated by third parties, it is the PICs responsibility to ensure that these requirements are met),

and

* if not already performed by ground personnel, to submit to the appropriate ATS unit a flight plan sufficient information for the initiation of SAR action should the flight becomes overdue.
* decide whether or not to accept an airplane with unserviceability, acceptable according to the CDL or MEL;
* take all reasonable steps to ensure that the airplane, and any required equipment, is serviceable and that relevant emergency equipment is serviceable, accessible and ready for use;
* ensure that airplane refueling is supervised with particular attention being paid to:
	+ - the correct grade and amount of fuel
		- fuel quality check
		- fire safety precautions
		- checking filler caps for security
* take all reasonable steps to ensure that the airplane mass and balance is within the calculated limits for the operating conditions and that its load is distributed in accordance with the Operations Manual Part A “Airplane Passengers, and Cargo Handling Procedures related to Safety on the Ramp”, Operations Manual Part B, “Mass and Balance” and “Loading of the Airplane Type Concerned”;
* confirm that the airplane’s performance will enable it to complete the proposed flight safely;
* not permit any crewmember to perform any additional activity during take-off, initial climb, final approach or landing, except those duties required for the safe operation of the airplane;
* take all reasonable steps to ensure that whenever the airplane is taxiing, taking off or landing, or whenever he considers it advisable, all passengers are properly secured in their seats, and all cabin baggage is stowed in the approved storages;
* ensure that current maps, charts and associated documents or equivalent data are available to cover the intended operation of the aircraft including any diversion which may reasonably be expected. This shall indicate any conversion tables necessary to support operations where metric heights, altitudes and flight levels are used;
* ensure that the areas of operations are reviewed for adequacy including as applicable:
	+ - * Navigation aids;
			* Runways, taxiways, ramp areas;
			* Curfews;
			* PPR (prior permission required);
			* Field conditions;
			* Lighting;
			* ARFF (airport rescue and firefighting);
			* Applicable operating minima.
	+ ensure that the documents and manuals listed in the Operations Manual Part A, “List of Documents, Forms and additional Information to be Carried” are carried and remain valid throughout the flight or series of flights, and be produced to a person authorized by the Authority when requested
	+ ensure that operations are conducted in accordance with any restriction on the routes or the areas of operation specified by the competent authority.
	+ ensure that the pre-flight inspection has been carried out;
	+ ensure that administrative duties are completed accurately and on time and where required reporting is carried out according to the Operations Manual Part A, “Handling, Notifying and Reporting Occurrences”;
	+ ensure that any feedback, concerning the flight progress, airplane status, routing, ground support, is reported as soon as practical to the NPFO, verbally in case of urgency or on the flight briefing form; and
	+ ensure that crew members and passengers observe the restrictions on smoking.
	+ The PIC shall, in an emergency situation that requires an immediate decision and action, take any action he considers necessary under the circumstances. In such cases he may deviate from rules, operational procedures and methods in the interest of safety, for reporting requirements after deviation or an occurrence refer to the chapter occurrence reporting;
	+ the PIC must ensure that abnormal or emergency situations, system malfunctions and IMC conditions are not simulated for any purpose in non-training flights;
	+ the PIC has the authority to apply greater safety margins, including aerodrome operating minima, if he deems it necessary;
	+ in the event of third party maintenance being required whilst away from home base, the PIC must ensure that the CAMO is consulted and in agreement before any work takes place, that work orders are given by the NP CAMO and that any entries made in the Technical Log System are made according to the Operations Manual Part A, “Operator’s Airplane Technical Log”; and
	+ the PIC must ensure that a continuous listening watch is maintained on the appropriate radio communication frequencies at all times whenever the flight crew is managing the airplane for the purpose of commencing and/or conducting a flight and when taxiing.

The PIC shall not permit:

* + a flight data recorder to be disabled, switched off or erased during flight nor permit recorded data to be erased after a flight in the event of an accident or an incident subject to mandatory reporting, unless he believes that the recorded data, which otherwise would be erased automatically, should be preserved for incident or accident investigation; or
	+ a cockpit voice recorder to be disabled or switched off during flight unless he believes that the recorded data, which otherwise would be erased automatically, should be preserved for incident or accident investigation, nor permit recorded data to be manually erased during or after flight in the event of an accident or incident subject to mandatory reporting.

## Duties and Responsibilities of Crewmembers other than the PIC NCC.GEN.105

### Copilot

**Definition**

The Copilot is a fully qualified and licensed crew member acting as required pilot for the airplane type concerned.

**Subordination**

The Copilot reports directly to the PIC and assists in providing safe, efficient flight operations.

**Duties and Responsibilities**

* + maintain familiarity with national and international air legislation and agreed aviation practices and procedures;
	+ maintain familiarity with such provisions of the Operations Manual as are necessary to fulfil his function;
	+ assist the PIC as requested in relation to the flight;
	+ support the PIC in his duties and responsibilities; and

**It is the responsibility of the Copilot**

* + to carry out such duties concerning the flight, in accordance with the Operations Manual, including procedures, limitations and performance relating to the specific airplane type, as allocated to him by the PIC;
	+ to confirm the safe navigation of the aircraft, maintaining a continuous and independent check upon both the geographical position of the airplane and its safe terrain clearance;
	+ to volunteer such advice, information and assistance to the PIC, as may contribute favorably towards the safe and efficient conduct of the flight;
	+ to seek and receive such information and/or explanation from the PIC, as may be necessary to enable the Copilot to fulfil his function;

**Additionally on aircraft not requiring a cabin crew**

* + to ensure that the cabin, including the toilets, is in an acceptable, clean state to receive passengers;
	+ to ensure that catering and beverages are available before each flight or series of flights; and
	+ to ensure that the airplane is secured according to the Operations Manual Part A, “Airplane, Passengers and Cargo Procedures related to Safety”.

Note: Due to the nature of the airplane types flown, cabin attendant may not be required. On passenger request and for representative purposes only, freelance cabin attendant may be scheduled for these airplane types. The safety on board, including emergency procedures, remains the responsibility of the flight crew.

## Taxiing of airplanes NCC.GEN.119/120

**SKILLS AND KNOWLEDGE**

The following skills and knowledge shall be assessed while checking if a person can be authorized to taxi an airplane. Authorization is within the responsibility of the copilot or other person (mention here).

* + positioning of the airplane to ensure safety when starting engine;
	+ obtaining automatic terminal information service (ATIS) reports and taxi clearance, where applicable;
	+ interpretation of airfield markings/lights/signals/indicators;
	+ interpretation of marshalling signals, where applicable;
	+ identification of suitable parking area;
	+ maintaining lookout and right-of-way rules and complying with air traffic control (ATC) or marshalling instructions when applicable;
	+ avoidance of adverse effect of propeller slipstream or jet wash on other airplanes, aerodrome facilities and personnel;
	+ inspection of taxi path when surface conditions are obscured;
	+ communication with others when controlling an airplane on the ground;
	+ interpretation of operational instructions;
	+ reporting of any problem that may occur while taxiing an airplane; and adapting the taxi speed in accordance with prevailing aerodrome, traffic, surface and weather conditions.

# Operational Control, Supervision and Access ORO.GEN.200/140

## Supervision of the Operation by the Operator

### Access for the competent Authority

The Operator grants access to the competent authority.

### SPAs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Phase | Responsibility | Tool | Method / means/ Function | Reference |
| Control |  |  |  |  |
| Monitoring |  |  |  |  |

### Continuing Airworthiness Management Organization (CAMO)

The operator shall check that the CAMO certification is/remains valid and keeps a copy of the CAMO certificate on file.

### Control and Monitoring of Crew License and Qualification Validity

The privileges of licenses, ratings, authorizations and/or certificates cannot be exercised, unless they are valid. The following processes have been designed to monitor and ensure that all operations are carried out with fully licensed, rated, authorized and certified crewmembers:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Phase | Responsibility | Tool | Method / means/ Function | Reference |
| Control | NP CT | “Crew License Validity Table” | Transfers the specific expiry dates, from copies of the applicable license, license attachments, ratings, authorizations and/or certificates, into the table | Expiree list |
| Monitors to develop and establish training and checking schedule and at the beginning of each month to ensure validity, of applicable license, ratings, authorizations, certificates and qualifications, during the following month’s operations |
| Training and Checking Plan | Long term and short term planning of training and checking including scheduling of trainees, in accordance with the expiry dates | OMD Procedures |
| NP FO | “Crew License Validity Table” | Checks - in order to ensure that each flight crewmember’s licenses and qualifications are valid for the duty periods throughout which flight crew members are scheduled | Expiree list |
| Crew Scheduling | Updates and Maintains according to actual flight operations  |
| Crew Schedule |
| Document Storage for staff statistics, Human resources  | Pilots folder |
| Monitoring | NP FO | “Crew License Validity Table”  | Monitors Scheduling according to Crew allocation to ensure no license holder is scheduled without applicable licenses, ratings, authorizations, certificates and qualifications  | OMA“Qualification Requirements”OMA“Crew Composition” |
| Crew Scheduling  |
| NP CT | Individual Crew Personnel Files  | Establishes and maintains files containing a copy of: • Flight Crew License • Attachment to License • Medical Certificate • Passport / ID Card • Visa |
| NP FO |  | • Crew ID Card  |
| License Holder  | Ultimately responsible for monitoring his own personal applicable license, license attachment, rating, authorization and/or certificates  |

Overview of License and Qualification Validities

|  |  |
| --- | --- |
| Flight Crew License | Issued for lifetime, validity is determined by the validity contained therein and the medical certificate. At any time, the license can be re-issued by the “competent authority” for the following reasons:* + Initial issue or renewal of a rating
	+ No further spaces remain
	+ Any administrative reason
	+ At the discretion of the “Competent authority”
	+ When a rating is re-validated
 |
| Medical Certificate | Holder of Medical Certificate aged below 60 years | Holder of Medical Certificate aged 60 and over |
| 12 months | 6 months |
| Type Rating Instructor | 36 months |
| Type Rating Examiner Authorization | 36 months |
| Type Rating | 12 months |
| Instrument Rating | same as the endorsed Type Rating |
| License Proficiency Check (LPC) | 12 months |
| Operator Proficiency Check (OPC) | 12 months |
| Emergency and Safety Equipment Training and Checking | 12 months |
| Dangerous Goods | 24 months |
| Crew Resource Management |  |
| * Initial according AMC.ORO.FC.115
 | No limit |
| * Annual Recurrent according AMC.ORO.FC.115
 | 12 months |
| Pilot Qualification to operate in either pilots seat | 12 months |

### Supervision of Operations Personnel Competence

Operations personnel have to be capable of conducting safe, professional and economical flight operations.

Competency awareness of all operations personnel is crucial for achieving as well as maintaining company targets and goals. All management personnel must take responsibility for maintaining, monitoring and improving the competence of their direct subordinates. Managers must ensure that their direct subordinates are trained and encouraged to have up to date subject knowledge and proficient skills. Each individual shall be motivated to retain interest in their profession as well as the company’s welfare by successfully executing the operational philosophy and procedures as proficiently and thoroughly as possible.

By continually assessing the competence of operations personnel as described in the following sub-chapters, improvements and corrective actions can be implemented to ensure that company target and goals are reached and maintained in accordance with company philosophy, policy and procedures.

#### Responsibility and Assessment Areas for Operations Personnel

|  |
| --- |
| **Accountable Manager is assessing the following:** |
| **Nominated person NP** | **Assessment Areas for all NP** |
| Flight Operation  | * + Leadership and command abilities
	+ Motivation of direct reports
	+ Communication skills / language skills
	+ Maintenance of company philosophy and spirit maintained
	+ Judgment and decision making skills
	+ Subject knowledge in aviation and within their specific subject area
	+ Reliability in carrying out their specific duties and tasks
	+ Analysis and feedback during and from official meetings
	+ Performed audits and quality inspections as required by the SQMS system
	+ Checking and Assessment of Risk Analysis Reports
	+ Checks/ monitors standard and compliance of corrective actions resulting from the Safety Management System and/or Compliance System of adverse trends and deficiencies identified and the severities thereof
 |
| Crew Training  |
| Safety & Compliance  |

#### Nominated Person Flight Operations

|  |
| --- |
| **NP Flight Operations is assessing the following:** |
| **Operations Personnel**  | **Assessment Areas**  |
| General  | * + Motivation
	+ Attitude
	+ Team Co-operation and CRM skills
	+ Reliability in carrying out their specific duties and tasks
	+ Judgment
 |
| Flight Crew  | * + Proficiency checks (OPC / LPC)
	+ Simulator sessions with the associated comments from the instructor
	+ Results of written exams
	+ Assembly and assessment of Feedback and Report forms, including any specific occurrence report
	+ Control / assessing of records and flight documents
	+ Discussions during briefings or meetings
 |

#### Nominated Person Crew Training

|  |
| --- |
| **NP Crew Training is assessing the following:** |
| **Nominated Person** | **Assessment Areas**  |
| Training CaptainType Rating InstructorsGround Instructor | * + Teaching ability and methods
	+ Ability to deliver clear and concise information
	+ Briefing techniques
	+ Analysis of applicant’s errors, performance and results
	+ Communication / Language Skills
	+ Results of examinations and ability to remain objective
	+ Analysis and assessment of training feedback forms
 |

### Management of the collection process, Analysis and Storage of Records, Flight Documents, additional Information and Data

Records and flight documentation shall be assessed regularly as described in the OMA.

*If a feedback and reporting system is required, consult your competent authority for aid on producing a tailored system for your operation. The Swedish and German NAA have agreed that no reporting system will be required by them.*

#### Control of Flight Documents, additional Information and Data

The flight crew and ultimately the PIC, shall ensure that administrative duties are accurately and fully completed after each flight or series of flights and that the following documents are returned to the NP Flight Operations or delegated person:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Phase  | From  | Records, Flight Documents, additional Information and Data  | Tool  | To  |
| Flight Preparation | PIC | Operational Flight PlanMass and BalanceAIS information (eg. NOTAM, AIP supplements etc.)ATS Flight PlanNotification of Special LoadTechnical LogReport Forms |  | NP FO |

Control of Flight Documents

|  |  |  |
| --- | --- | --- |
| Task | Document / Form | Responsibility |
| * + Sort
	+ Check form for completeness
	+ Check form for accuracy
	+ Check legibility
	+ If there are any mistakes, if the form is illegible, or if more information is required return form to author
	+ Check if any further action must be taken or further reports need to be made and carry out if required
	+ Store in applicable file
 | Flight Briefing Form | NP FO |
| Operational Flight Plan | NP FO |
| Mass and Balance | NP FO |
| * Daily Journey Log
* Technical Flight Log
* Deferred / Defect List
 | NP FO |

Control of Report Forms

|  |  |  |
| --- | --- | --- |
| **Task**  | **Form / Report**  | **Responsibility**  |
| * + Sort
	+ Check form for completeness
	+ Check form for accuracy
	+ Check legibility
	+ If there are any mistakes, if the form is illegible, or more information is required return form to author
	+ Check form for any violations or infractions
	+ Check severity of report
	+ Define further action / initiate corrective actions
	+ Make copies if required
	+ If needed distribute to further parties
	+ Perform notifying and reporting
	+ Monitor corrective action
	+ Establish feedback to author
	+ Close form
	+ Store in applicable data file
 | Feedback and Report Form Refer to the OMA Non conformity Report  | NP FO |
| Air Traffic Incident Report Form Refer to the OMA “Specific Reports”  | NP FO |
| Bird Strike Report Form Refer to the OMA “Specific Reports”  | NP FO |
| Dangerous Goods Occurrence Report Form Refer to the OMA “Dangerous Goods Occurrence”  | NP FO |
| Flight Duty, Duty and Rest Period Record Refer to the OMA “Flight Time Limitations”  | NP FO |
| Duty Time violation Report Refer to the OMA “Flight Time Limitations”  | NP FO |

#### Analysis of Records, Flight Documents, additional Information and Data

All records, flight documents, additional information and data shall be analyzed in accordance with the Safety Management System and the Compliance Monitoring Program. This procedure is designed to gather and ensure continuous learning as well as improvements within the department.

#### Procedures for Document Storage

|  |  |  |
| --- | --- | --- |
| **Task** | **Frequency** | **Responsibility** |
| Establish File | On receipt | Allocated Nominated Person or delegated person |
| Maintain File | Continuously |
| Sort through files | Annually |
| Archive files | As listed below |
| Destroy files | After minimum Storage Time |

##### Storage of Information used for the Preparation and Execution of a Flight

|  |  |  |  |
| --- | --- | --- | --- |
| Document | **Place of Storage**  | **Minimum Storage Time**  | **Responsibility**  |
| Operational Flight Plan (OFP)  | “OPS return bag  | 3 months  | NP FO |
| ATS Flight Plan |
| NOTAM, AIS |
| * + Journey Log
 | JL of the airplane concerned  | 36 months after date of last entry  | NP FO |
| Mass and balance documentation  | OPS return bag | 3 months  | NP FO |
| Notification of special loads  |
| Notification of special category of passenger * + Security Personnel
	+ Handicapped Persons
	+ Inadmissible Passengers
	+ Deportees
	+ Persons in Custody
 |

##### Storage of Reports related to Incidents, Accidents and Occurrences

|  |  |  |  |
| --- | --- | --- | --- |
| Document  | Place of Storage  | Minimum Storage Time  | Responsibility  |
|  |  | 5 Years |  |

##### Storage of Flight Crew Records

|  |  |  |  |
| --- | --- | --- | --- |
| **Document**  | **Place of Storage**  | **Minimum Storage Time**  | **Responsibility**  |
| Flight Duty and Rest Period record  | Flight Duty and Rest Period Record  | X months  | NP FO  |
| License • Flight Crew License • Attachment to License • Medical Certificate  | To be defined by Operator | As long as the crew member is exercising the privileges of the license for the operator. | To be defined |
| Conversion training and checking  | 3 Years |
| Recurrent training and checking  | 3 Years |
| Differences and familiarization training and checking  | 3 Years |
| Training and Checking to operate in either pilot’s seat  | 3 Years |
| Recent experience  | 15 Months |
| Route and aerodrome competence  | 3 Years |
| Training and qualifications for the specific operations: * EUR RVSM
* NAT-MNPS
* LVTO
* STEEP APPR
* RNP AR APPR
* CAT2
 | 5 Years |
| Dangerous Goods No Carry | 3 Years (ICAO 9284) |
| Dangerous Goods Carry Training | 3 Years |

#### Preservation, Production and Use of Flight-Data and Cockpit-Voice Recordings NCC.GEN.145

Preservation, Production and Use of Flight-Data and Cockpit-Voice Recordings

Following an accident that involves an operator airplane, the operator must ensure to every possible extent that the original recorded data pertaining to that accident is preserved and retained by the recorder for a period of 60 days, unless otherwise directed by the investigating authority.

Following an incident that is subject to mandatory reporting, unless the investigating authority has granted prior permission, the operator must ensure to every possible extent that the original recorded data is preserved pertaining to that incident, as the recorder retained it for a period of 60 days.

Additionally, when the authority so directs, the operator must preserve the original recorded data for a period of 60 days, unless otherwise directed by the investigation authority.

The operator must save the recordings of the flight data recorder for at least the last 25 hours of its operations, except that, for the purpose of testing and maintaining flight data recorders, up to one hour of the oldest recorded material at the time of testing may be erased.

 (a) The operator should establish procedures to ensure that flight recorder recordings are preserved for the investigating authority.

(b) These procedures should include:

(1) instructions for flight crew members to deactivate the flight recorders immediately after completion of the flight and inform relevant personnel that the recording of the flight recorders should be preserved. These instructions should be readily available on board; and

(2) instructions to prevent inadvertent reactivation, test, repair or reinstallation of the flight recorders by operator personnel or during maintenance or ground handling activities performed by third parties.

**The requirements of the following extract have to be covered by the CAMO contract:**

NCC.GEN.145 Preservation, production and use of flight recorder recordings

(b) The operator shall conduct operational checks and evaluations of flight data recorder (FDR) recordings, cockpit voice recorder (CVR) recordings and data link recordings to ensure the continued serviceability of the recorders.

See: AMC1 NCC.GEN.145(b) Preservation, production and use of flight recorder recordings,

INSPECTIONS AND CHECKS OF RECORDINGS

GM1 NCC.GEN.145(b) Preservation, production and use of flight recorder recordings,

GM2 NCC.GEN.145(b) Preservation, production and use of flight recorder recordings

NCC.GEN.145 regulation:

(d) The operator shall keep and maintain up-to-date documentation that presents the necessary information to convert FDR raw data into parameters expressed in engineering units.

Here no AMC or GM Material available. This is not the responsibility oft he operator, but of the aircraft manufacturer.

Production of Flight-Data Recordings

The operator must, within a reasonable time after being requested to do so by the authority, produce any recording made by a flight recorder, which is available or has been preserved.

**Use of Flight-Data Recordings**

The flight data recorder recordings must not be used for purposes other than for the investigation of an accident or incident subject to mandatory reporting except when such records are:

* + Used for airworthiness or maintenance purposes only;
	+ De-Identified; or
	+ Crew has granted written permission and
	+ disclosed and secure procedures

**Use of Cockpit Voice Recordings**

The cockpit voice recorder recordings may not be used for purposes other than for the investigation of an accident or incident subject to mandatory reporting except with the consent of all crew member concerned.

#### Operational control of database and information relative to PRNAV operation NCC.IDE.A.260

The ARINC 28 days cycle NAV database update is checked by the crew (and the NP FO).

The upload is done by the crew.

The NP Flight Operation is responsible for tracking NAV Data Notices and Alerts which are being received by subscribed e-mail from the service provider. Whenever a particular alert may affect the operator’s operation, a message to the crew will be is issued by NP FO, depending on the nature and how it will affect flight operations.

NOTAMS affecting the serviceability of NAV Aids for intended flights are being distributed to the Flight Crew in every preflight briefing.

|  |  |  |
| --- | --- | --- |
| Task  | Method and Content  | Responsibility  |
| Check that NAV database is up to date  | FMS NAV database software number and validity date  | PIC |
| Check that NAV aids for intended navigation in PRNAV airspace are serviceable  | NOTAMs describing NAV aid status for PRNAV operation  |
| Monitors and distributes appropriate NavData Alerts  | E-mail warnings received by subscription from service provider  | NP FO or delegated to PIC |
| ARINC cycle database update Download  | Downloads new 28 days cycle database online from system provider  | NP FO or delegated to PIC |
| ARINC Database Upload  | Uploads new 28 days cycle database received from NP FO into aircraft FMS  | PIC  |

# SCMS Safety and Compliance Monitoring System

## Definitions

**Accident Precursor**

Occurrences which, without appropriate mitigation can result in incidents and accidents.

**Audit**

A systematic independent and documented process for obtaining evidence and evaluating it objectively to determine the extent to which requirements are complied with.

**Hazard**

Condition, object, activity or event with the potential of causing injuries or death to personnel, damage to equipment or structures, loss of material, or reduction of the ability to perform a prescribed function.

**Inspection**

An independent documented conformity evaluation by observation and judgment accompanied as appropriate by measurement, testing or gauging, in order to verify compliance with applicable requirements (incl. procedures, work instructions, standards, etc.).

**Likelihood or Probability**

Likelihood is used in this manual as a synonym of probability. It is a measure of how likely or probable something might happen. Likelihood or probability varies between 0 and 1 and can be assessed using terminology such as ‘very low, low, medium, high and very high’. Note: In the ICAO Doc 9859 AN/474 Safety Management Manual, Third Edition, safety risk probability is defined as the likelihood or frequency that a safety consequence or outcome might occur.

**Management of Change**

A documented process to identify external or internal changes that may have an adverse effect on safety. This process uses the existing hazard identification, risk assessment, description, evaluation and control process and form.

**Probability**

See likelihood.

**Risk**

The potential outcome from the hazard and is usually defined as the product of the likelihood and the severity of the harm.

**Risk Assessment, Description Evaluation and Control**

A risk management process composed of assessment and description (in terms of likelihood or probability and severity of occurrence), evaluation (in terms of tolerability) and control or mitigation of risks to an acceptable level.

**Risk Tolerability Matrix**

A matrix (or table) combining Risk Likelihood or Probability and Risk Severity.

**Safety**

The state in which risks associated with aviation activities are reduced and controlled to an acceptable level (ICAO Annex 19).

**Safety Assurance**

Safety assurance is the process of assuring safety, it includes processes of Safety Performance Monitoring and Measurement, Management of Change, and Continuous Improvement of the SMS. Note: The terms “Safety Assurance” are not used in Part ORO Subpart GEN Section II ‘Management System’ and the relevant AMCs and GM published in October 2012, but the various components of Safety Assurance are addressed separately.

**Safety Management System (SMS)**

A systematic approach to managing safety, including the necessary organizational structures, accountabilities, policies and procedures (ICAO Doc 9859 AN/474 Safety Management Manual, Third Edition).

**Safety Performance**

Safety achievement that can be reflected in the form of safety Performance Targets or Objectives (SPOs) and measured by Safety Performance Indicators (SPIs).

**Safety Performance Monitoring**

The process by which the Company’s safety performance is monitored and assessed in contrast to the Company’s safety policy and safety objectives.

**Safety Risk Value or Risk Index Value**

Values found within the Risk Matrix allowing differential comparison of the risk level for the purpose of risk assessment, description, evaluation and control.

## Acronyms

AMC Acceptable Means of Compliance

ASR Air Safety Report

CMM Compliance Monitoring Manager

EHEST European Helicopter Safety Team

ERP Emergency Response Planning or Plan

FDM Flight Data Monitoring[[1]](#footnote-1)

GM Guidance Material

ICAO International Civil Aviation Organization

IT Information Technology

MOC Management of Change

MS Management System

RADEC Risk Assessment, Description, Evaluation and Control

SM Safety Manager

SMM Safety Management Manual

SMS Safety Management System

SOP Standard Operating Procedure

SRM Safety Risk Management

## Scope of the Safety Management Manual

The SMM outlines all aspects of safety management which include the safety policy, objectives, procedures and individual safety responsibilities.

The contents of the SMM include all of the following:

* Scope of the SMS,
* Safety policy and objectives,
* Safety accountability of the accountable manager,
* Safety responsibilities of key safety personnel,
* Documentation control procedures,
* Hazard identification and risk management schemes,
* Safety performance monitoring,
* Incident investigation and reporting,
* Emergency response planning,
* Management of change (including organisational changes with regard to safety responsibilities),
* Safety promotion.
* Training and communication on safety

This SMM is distributed to the National Aviation Authority and may also be sent to customers or other parties in order to demonstrate the willingness to manage safety. The SMM is also to be made widely available inside the flight department to ensure that all employees are fully aware of the system thereby ensuring that:

* Safety is a central component in the company Management System (MS);
* Safety is accounted for in all decisions and actions taken by all in the department;
* The needs, requirements and expectations of end users or other parties are addressed.

## Safety Policy and Objectives

***Safety Policy***

Safety is one of our core business functions. We are committed to developing, implementing, maintaining as well as constantly improving strategies and procedures to ensure that all our aviation activities take place under an appropriate allocation of organizational resources. The policy is aimed at achieving the highest level of safety performance and meeting regulatory requirements while providing our services.

All levels of management and employees are accountable for delivering the highest level of safety. All flight department personnel are committed to:

• Safety management by use of all appropriate resources that will result in an organizational culture which fosters safe practices and will encourage effective safety reporting through all levels of communication.

• Ensure that safety management is a primary responsibility of all managers and employees;

• Clearly define to all personnel that they are accountable and responsible for the safety management of the organization and the enactment of our safety management system;

• Establish and operate hazard identification as well as risk management processes which including a hazard reporting system in order to eliminate or mitigate the safety risks and hazards resulting from our operations.

• Ensure that no action will be taken against any employee who discloses a safety concern through the hazard reporting system unless such disclosure indicates beyond any reasonable doubt that gross negligence or a deliberate and wilful disregard of regulations or procedures has occurred.

• Comply with and wherever possible exceed legislative regulatory requirements and standards.

• Ensure that sufficient trained human resources are available to implement safety strategies and processes.

• Ensure that all staff are provided with adequate and appropriate aviation safety information and training and are competent in safety matters. Department members should only be allocated tasks that commensurate with their skill level.

• Establish and measure our safety performance in perspective of realistic safety performance indicators as well as safety performance targets.

• Continually improve our safety performance through continuous monitoring and measurement. Perform regular reviews and adjust the safety objectives as needed.

 (Signed and dated)

 Accountable Manager

## Safety Accountability and Responsibilities

### Safety Accountability Manager

(NAME)……….. is Accountable Manager.

He/she is accountable for the company’s safety system, managing safety within the company and for establishing and maintaining an effective safety management system for the company.

### Safety Manager

(NAME),,,,,,,,,,,,,,,, is appointed as Safety Manager.

He/she is responsible for coordinating the SMS and supporting the accountable manager in the developing processes. He will manage procedures and instructions for the department staff and insure that they perform company activities in a safe manner.

### Manager

The managers are responsible for ensuring compliance with all applicable requirements, including those regarding the management of safety. Managers are an important driving force for effective safety management. They ensure all safety aspects are considered and properly handled within the activities they manage.

### Personnel

All personnel shall:

• Ensure the safety of department staff.

• Interrupt or discontinue their work if their safety or that of others is at risk.

• Perform their tasks in compliance with company procedures and regulations.

• Practice and promote the company safety policy.

• Notify known or prospective hazards or safety-related events and report any relevant information to the Safety Manager.

• Take note of the lessons learned from incidents and accidents. Be aware of the potential risks and take all appropriate measures to protect themselves as well as others from the dangers in their daily activity.

• Participate in safety briefings, meetings and events.

• Participate, if applicable in safety analyses.

• All personnel should know their role in the company Emergency Response Plan.

All personnel should receive appropriate training in the SMS and know their responsibilities. Refer to the section Training and Communication in this manual.

### Compliance Monitoring Manager

(NAME)…………….is appointed as Compliance Monitoring Manager (CMM).

The Compliance Monitoring Manager (CMM) ensures that:

* + The Company’s activities are monitored for compliance with the applicable regulatory requirements, including those regarding the SMS, and additional company requirements and procedures,
	+ These activities are being carried out properly under the supervision of the relevant managers,
	+ The compliance monitoring program is properly implemented, maintained and continually reviewed and improved.

## Compliance Monitoring Organization and Program

The implementation and use of a compliance monitoring function allows an operator to monitor compliance with all relevant requirements, including those of the SMS. In doing so, they should as a minimum, and where appropriate, monitor compliance with the company procedures that were designed to ensure safe operating activity.

The compliance monitoring program covers, as a minimum and where appropriate, the scope of approved operations; manuals, logs, and records, training standards, management system procedures and manuals.

The Compliance Monitoring Program may be described in a separate document or in another manual.

### Audits and Inspections

The CMM performs all audits and inspections or appoints one or more auditors by selecting personnel either from within or external to the organization. Compliance monitoring audits and inspections may be documented on a ‘Compliance Monitoring Checklist’, and any findings recorded in a ‘Non-Compliance Report’.

The independence of the audit function is ensured by the CMM.

### Compliance Monitoring Documentation

Record-Keeping

An effective system of record-keeping ensures that all records are accessible whenever needed and within a reasonable time. These records should be organized in such a way that ensures traceability and accessibility throughout the required retention period.

In order to ensure easy and fast access to information, including access by national authorities, the company records should:

• be adequately referenced (author, title, issue date, revision number and date, list of effective pages),

• archived/kept as records for a determined period of time,

• be disposed of in a controlled manner after this defined period of retention.

Records are to be kept in paper format, in electronic format or a combination of both. Regardless of which format is used records must remain legible throughout the required retention period. The (Name Company) will use the paper/electronic format.

Paper systems should be on a robust material which can withstand normal handling and filing. Computer based systems should have at least one backup system which should be updated within 24 hours of any new entry. Computer based systems must include appropriate safeguards against the possibility of access by unauthorised personnel to prevent tampering with the data.

All computer hardware used for data backup must be located in a different location from that containing the original working data, and in an environment that ensures they remain in good condition. When hardware or software-changes take place, special care is to be taken to ensure that all necessary data continues to be accessible throughout at least the full period specified in the relevant implementing rule(s). In the absence of such indication, all records should be kept for a minimum period of 5 years.

### Compliance Monitoring Training

The Company shall ensure that all personnel engaged in managing the compliance monitoring function understand the objectives as laid down in the company management system documentation. The company shall ensure that those personnel responsible for managing the compliance monitoring function, i.e. the Compliance Monitoring Manager and his/her team, receive appropriate training for this task. This training shall cover the requirements of compliance monitoring, manuals and procedures related to the task, audit techniques, reporting and recording.

Individual training may be conducted through self-study and will be signed by the department members.

## Documentation Control Procedure

### General

The documentation control procedure is described below:

The relevant manager in charge ensures that:

* + Revisions are communicated to all staff concerned and modifications are identified;
	+ Related internal documents and procedures are updated accordingly;
	+ Obsolete or invalidated versions are clearly marked accordingly;
	+ Modified versions are clearly marked, changes are identified and a current version number is incorporated;
	+ Document changes are recorded and kept for traceability purposes;
	+ Obsolete or invalidated versions, which could create safety risks, cease to be used;
	+ Proposed amendments are risk assessed, and the likely effect on safety established, prior to a revision being introduced.

Revision and configuration management are part of the change management process. Refer to the Section ‘The Management of Change’ of this manual.

### Control and Revision of the Safety Management Manual

The revision of the Safety Management Manual will go through the following steps:

Step Consists of Person(s) in charge

Submitting a request for a change - Identify need to change the SMM

- Submit a change request to the Safety Manager All staff

Assess, validate or reject the request for change - Check relevance

- Evaluate related risks

- Verify the requested change against:

1. Applicable regulations, standards and norms

2. Other Company documents

- Validate or reject the change Safety Manager

Amend the SMM - Make the relevant changes in the SMM

- Trace the modifications

- Update the version number, date of issue and list of effective pages Safety Manager

Record and distribute the revision - Record/backup the new version

- Distribute and publicise the new version, and

- Recall the former version Safety Manager

### Record-Keeping

Records are to be kept in a paper format or in electronic format or in a combination of both and are retained for a minimum period, as specified below:

|  |  |  |  |
| --- | --- | --- | --- |
| **Records** | **Person(s) in Charge** | **Recording/ Archiving means** | **Record Keeping period** |
| Minutes of Safety Reviews  | Safety Manager | *Company IT System (must include backup)* | 5 years |
| Event Reports | Safety Manager | *Paper and/or IT* | Permanent |
| Hazard Register | Safety Manager | *IT* | Permanent |
| Risk Assessment, Description, Evaluation and Control (RADEC) Register | Safety Manager | *Paper and/or IT* | Permanent |
| Audit Reports including the follow-up of corrective actions | Safety Manager | *Paper and/or IT* | 5 years |
| Safety Training Register | Safety Manager or Training manager | *IT* | Permanent? |
| *Other* | *To be specified* | *To be specified* | *To be specified* |

## Safety Risk Management

Safety Risk Management combines the following processes and components:

* + Hazard identification, risk assessment and mitigation processes
	+ Internal safety investigation
	+ Safety performance monitoring and measurement
	+ The management of change
	+ Continuous improvement
	+ The Emergency Response Plan

### Scope of Safety Risk Management

The safety risk management process described in this SMM addresses aviation safety risks.

The risk management process takes into consideration technical, human, organisational, and environmental aspects. It will also respect financial, legal, or economic aspects as well as all other major influences that may have a negative impact aviation safety risks.

Safety risks that are identified will address the following aspects:

* + Third parties;
	+ Passengers and operational personnel;
	+ Crew members;
	+ The natural environment; and
	+ The company assets.

Risk management can also be expanded other types of risks, such as Health and Safety risks.

### Safety Risk Management Concepts

Safety objectives are established on the basis of the company’s safety policy. Objectives identified earlier as well as current objectives will be reviewed on an annual basis in a safety review.

### Hazard Identification

Hazards are identified from different internal and external sources by asking the following question: What elements, in isolation or in combination, may have contributed or could contribute to an incident or accident?

For the identification of hazards, a mix of reactive, proactive and predictive approaches should be used.

### Hazard Consequences

Hazard identification provides a systematic overview of all possible consequences of a hazard. For each hazard, the following question should be asked: What were or could have been the possible consequences of this hazard?

Information on hazard consequences already identified from previous analyses including incident and accident analyses are reused when available.

Hazards and hazard consequences can also be identified using a mix of:

* + Brainstorming,
	+ Workplace walkthrough,
	+ Safety meetings and internal reviews,
* 8.2.3 Risks Controls
* Risk controls include:
	+ Technical means (EGPWS, autopilot, radios, etc.),
	+ Training (in-flight training, simulators, Crew Resource Management training, self-study, etc.).
	+ Rules and regulations (EU 965/2012, Part M, Part 145, etc.),
	+ Procedures (Standard Operating Procedures, Operation Manual, Maintenance Manual, etc.),

### Safety Risk Management Steps

#### Initial Safety Risk Level Evaluation

The initial step consists of answering the two following questions:

* + - What is the severity of the consequences of the hazards we are dealing with?
		- How likely or probable are these hazard consequences?

A single Risk Assessment, Description, Evaluation and Control (RADEC) form is used for any application requiring the assessment and management of risks.

The RADEC form also supports the analysis of safety reports.

Once completed, the RADEC forms and associated documentation are kept as records.

Below is an example of a RADEC form and how it could be used:

|  |
| --- |
| **RISK ASSESSMENT, DESCRIPTION, EVALUATION AND CONTROL (RADEC) FORM** |
| **RA No.: 001** | **Definition: Short Runway landing** |
| **Ref.: AFM** |
| **Operation Description:** Landing on short runways using no factored landing distance |
| **Hazards** - What were or could be the sources of potential damage, harm or adverse health effects in the studied environment? 1. Trees and vegetation
2. Wires, power lines
3. Meteorological conditions
4. Wind, turbulence, downdrafts
 |
| **Possible Hazard Consequences -** What were or could be the hazard consequences?1. Longer than anticipated touchdown
2. Airspeed too high/Approach angle too shallow or steep
3. In flight contact with wires, power lines
 |
| **Controls in place -** What risk controls are already in place to address these?1. Minimum landing distance as stated for conditions in the performance manual
2. Pilot experience
3. Airfield must be approved for by the Flight Department Manager
4. High and low recognition before the first landing
5. Wire, power lines area known
 |
| **INITIAL Safety Risk - Refer to the Safety Risk Matrix (if you use one)** |
| **ACCEPTABLE** | **TOLERABLE** | **UNACCEPTABLE** |

#####  Analysis of Likelihood or Probability

The likelihood or probability values which identify the probability that various hazards or consequences are anticipated, are based on expert judgment or on the basis of observed reoccurrences under normal operations.

##### Analysis of Severity

Severity values (how severe are the various hazard consequences) are evaluated by expert judgment or on the basis of severities observed within the operation.

##### Risk Description and Evaluation

Risk description consists of combining risk likelihood or probability in contrast with the severity and potential results. Risk evaluation will consists of determining risk acceptability.

The following procedure is used to determine which actions should be taken and the level of responsibilities required depending on risk level:

Unacceptable Risk Level (the red zone of the RADEC form described in Appendix 3): risk is too high to continue operating.

Action required: Prohibit/suspend the operation. Operation may be resumed only when risk level is returned to tolerable or acceptable.

Tolerable Risk Level (the yellow zone of the RADEC form described in table in Appendix 3): the risk level can be tolerated for the operation, providing that appropriate mitigation measures are in place.

Action required: Introduce appropriate mitigation measures.

* + For the risk evaluation validation: The assumptions made for the determination of the risk level and its tolerability are to be validated by the Safety Manager.
	+ For the authorization of operations: Management who have the authority to authorize operations at this level of risk: the Accountable Manager.

Acceptable Risk Level (the green zone of the RADEC form described in Appendix 3): risk is tolerable and can be accepted for the operation.

Action required: Monitor. Risk is considered sufficiently controlled and no additional risk mitigation measures are require. Actions however may still be taken to further reduce the risk level if feasible and reasonable. Additionally, any assumptions used to make an assessment must be monitored to ensure they remain valid.

#### Identification of Additional Controls

Risk evaluation forms the basis for determining the levels of risk control. They are also the measures used for justification and for assessing the effectiveness of the risk controls already in place.

(Additional) risk control measures are selected based on the following priorities:

* 1. Eliminate the consequences of the hazard;
	2. Reduce the likelihood of occurrence;
	3. Reduce the severity.

Risk controls can address technical, human, organizational or environmental factors.

Within the flight department all personnel can contribute to the definition of risk control measures anywhere they observe potential dangers or with their use of equipment.

#### Final Safety Risk Level Evaluation

Existing risk controls should be improved or new risk controls should be deliberated until the evaluated risk is determined to be acceptable.

The effects of new controls for risk justification are judged on the basis of:

• Functionality: Does the measure influence the ability to perform the activity?

• Strength: Will the measure be effective in different conditions and over time?

• Possible side effects, such as the introduction of new hazards or of new hazard consequences or the transfer of risks (‘substitution risks’).

#### Implementation of Risk Controls

Implementation of the risk control measures may, depending on the nature of these measures, give rise to an implementation plan which will identify: who is in charge, the resources needed, the deadline, and the stages of implementation. The implementation plan is periodically reviewed until completion or revision. Risk controls are managed through use of the RADEC.

#### Evaluation of Risk Control Efficacy

The final steps consists of checking the efficacy of the safety risk control measures implemented. This aspect is addressed in the section Safety Performance Monitoring and Measurement.

### Occurrence Reporting and Internal Safety Investigations

The company reports to the LBA all occurrences defined in AMC 20-8

The Company also reports volcanic ash clouds encountered during flight.

#### Occurrence Reporting Scheme

The objectives of the occurrence reporting scheme are to:

* + Enable an assessment of the safety implications for each incident or accident, including previous occurrences of a similar nature so that any necessary action can be initiated; and
	+ Ensure that knowledge of relevant incidents and accidents are effectively distributed, so that others may learn from these.

### Emergency Response Planning

The Safety Manager coordinates and maintains an Emergency Response Plan which ensures orderly and efficient transition from normal to emergency operations as well as the subsequent return to normal operations.

### The Management of Change

The flight department manages safety risks related to a change. The management of change is a documentation process which identifies external or internal changes that may have an adverse effect on safety. It makes use of existing hazard identification, risk assessment, description, evaluation and control processes, using the RADEC form.

Changes include organizational changes with regard to safety responsibilities.

The following is an example of possible changes that should be considered:

* + New regulations,
	+ Managerial reorganization,
	+ Relocation,
	+ Outsourcing,
	+ Mergers,
	+ Change of market structure, development of new markets, etc.,
	+ Change in economic and financial pressure,
	+ New operations and/or missions,
	+ New aircraft type or variant,
	+ New maintenance procedures, equipment or tools,
	+ Hiring new personnel,
	+ New training provider or other type of contractor,
	+ Proactive evaluation of individual performance to verify the fulfilment of their safety responsibilities; and
	+ Reactive evaluations in order to verify the effectiveness of the system for control and mitigation of risk.

## Safety Promotion

Safety Promotion is a process aimed at promoting a culture of safety. All personnel are made aware of the safety risks, and know that they are key safety participants and that they all contribute to an effective SMS.

Managers are important players in the company SMS. In all the activities they manage and demonstrate commitment to safety as well as monitor safety aspects. They lead by example and have an essential role to play in safety promotion.

## Training and Communication on Safety

Flight training is an integral part of the flight departments training program. Training will be performed at Flight Safety International and all records will be kept in their facility.

(USE YOUR OWN STATEMENT)

### Training

All personnel receive safety training as appropriate for their safety responsibilities and records of all training provided are documented.

All personnel receive training to maintain their competencies. This includes notification of any changes to applicable regulations and rules, company procedures, and matters (technical, operational, organizational, business-related etc.) that may affect safety.

The safety training program may consist of self-instruction via the media (newsletters, flight safety magazines), classroom training, e-learning or similar training provided by training service providers.

### Communication

The flight department has an effective communication system regarding safety matters that:

* + Ensures that all personnel are aware of the safety management activities as appropriate for their safety responsibilities;
	+ Conveys safety critical information, especially relating to analyzed hazards and assessed risks, internally and (when relevant) other organizations to permit timely safety action;
	+ Explains why particular actions are taken; and
	+ Explains why safety procedures are introduced or changed.

Regular meetings with personnel to discuss safety information, actions and procedures may be used to communicate safety matters.

Communication also reinforces the commitment of everyone to report hazards and occurrences and provides feedback to the reporters.

Communication is kept simple and appropriate to maximize effect, involve all personnel, and reinforce personal and team commitment to safety.

Communication is open and encourages discussion, develops the company safety culture and makes the most of the lessons learned from running the SMS.

Different communication means are used, such as:

* + Safety meetings,
	+ Safety briefings,
	+ E-mail, postal mail, suggestion boxes,
	+ Safety information from the OEMs, the authorities and from national and international Safety Initiatives,
	+ Safety campaigns, safety posters,
	+ Newsletters, Company Journal,
	+ Flight safety abstracts, digest of accidents and incidents, from within and outside the company,
	+ Abstracts from safety studies, audit reports, survey reports, and safety reviews,
	+ Company forum(s) or professional networks (e.g. LinkedIn, Facebook, Twitter, etc.),
	+ Subscription to publications and journals.

Communication is a two way process. Meetings, e-mails and other interactive methods allow for the provision of feedback from the personnel, which can stimulate discussion.

## Appendix 1 – Flight Occurrence Report

**FLIGHT OCCURRENCE REPORT No.**

|  |  |  |
| --- | --- | --- |
| **CLASSIFICATION** | **□ Technical** | **□ Operational** |
| **IDENTIFICATION OF THE AIRCRAFT** |
| Type of  | Version | S/N | Flight hours | Customer | Country |
|  |  |  |  |  |  |
| **CIRCUMSTANCES** |
| DATE: | Place: | Remarks: |
| **SELECT THE CATEGORIES CONCERNED** |
| **Flight phase:**□ Towing □ Manoeuvre□ Pre-flight inspection □ Refuelling□ Start-up □ Descent□ Translation/Taxiing □ Final Approach□ Take-off □ Landing□ Climb < 500ft □ Engine shutdown□ Climb > 500ft □ Post-flight insp.□ Cruise | **Flight Conditions:**□ VFR□ IFR □ VMC□ IMC□ Mountain□ Over water□ Day□ Night□ Icing cond.□ Storm | ***Missions:***□ Training□ Ferrying□ Transport of passengers or cargo□ Night flight□ Emergency proc. training□ Auto-rotation training |
| **DOCUMENTS USED** |
| Reference flight manual: | Revision: | Language: |
| **FLIGHT CONDITIONS** |
| Meteorological Conditions: |

|  |
| --- |
| **DESCRIPTION OF THE OCCURRENCE** |
| Explain how the event occurred, why it occurred and why it did not result in an accident: |
| Actions of the pilot or the crew to manage the event |  |
| Proposals to prevent the event from reoccurring or from avoiding that such event result in an accident |  |
| **FEEDBACK TO THE REPORTER** |
|  |
| **SIGNATURES** |
| Reporter(s) | Safety Manager | Line Manager *(if agreed at Company level)* |

## Appendix 2 – Maintenance Occurrence Report

**MAINTENANCE OCCURRENCE REPORT No.**

|  |
| --- |
| **IDENTIFICATION OF THE AIRCRAFT** |
| Type of Aircraft | Version | S/N | Flight hours | Customer | Country |
|  |  |  |  |  |  |
| **CIRCUMSTANCES** |
| DATE: | Place: | Maintenance Phases: |
| **SELECT THE CATEGORIES CONCERNED** |
| **Maintenance phase:**□ Scheduled maintenance □ Towing□ Unscheduled maintenance □ Refuelling□ Repair □ Pre-flight inspection□ Training/maintenance □ Post-flight inspection |
| **MAINTENANCE CONDITIONS** |
| **Select the relevant area (ATA Chapter 53) Check you’re a/c** |
| □ 21 Air-conditioning system□ 22 Automatic pilot□ 23 Communication systems□ 24 Electrical system□ 25 Equipment, furnishings□ 26 Fire protection system□ 28 Fuel system□ 29 Hydraulic system□ 30 Protection against rain and ice□ 31 Recording/information system□ 32 Landing gear□ 33 Lights/lamps□ 34 Navigation system/flight data□ 36 Pneumatic system□ 39 Electrical/electronic equip. and panel□ 45 Maintenance centralization system□ 46 Display integration system□ 49 External power generation system | □ 52 Doors and protection covers□ 53 Fuselage□ 55 Stabiliser□ 56 Windshield □ 67 Flight controls□ 71/72 Electrical installation□ 73 power supply system□ 74 Lighting system□ 76 Engine control□ 77 Engine indicators□ 79 Oil cooling system□ 80 Engine start-up system□ 85 Optional equipment  |

|  |  |  |  |
| --- | --- | --- | --- |
| Relevant assembly(assemblies)or component(s) | DescriptionP/N: | Type of operation | Documentation of maintenance used |
|  |  | Type/Ref: | Rev. Nr: | Version: |
| **DESCRIPTION OF THE OCCURRENCE** |
| Explain how the event occurred, why it occurred and why it did not result in an accident: |
| Actions taken by the maintenance staff (or another party) to manage the event |  |
| Proposals to prevent the event from reoccurring or from avoiding that such event result in an accident |  |
| **FEEDBACK TO THE REPORTER** |
|  |
| **SIGNATURES** |
| Reporter(s) | Safety Manager | Line Manager *(if agreed at Company level)* |

## Appendix 3 – Risk Assessment, Description, Evaluation And Control (RADEC) Form

|  |
| --- |
| **RISK ASSESSMENT, DESCRIPTION, EVALUATION AND CONTROL (RADEC)** |
| **RA No.:** | **Definition:** |
| **Ref.:** |
| **Operation Description:** |
| **Hazards** (What are the working elements and environment, which in isolation or in combination, may have contributed or could contribute to an incident or accident?)**:*****any source of potential damage, harm or adverse health effects on something or someone under certain conditions at work***Condition, object, activity or event with the potential of causing injuries to personnel, damage to equipment or structures, loss of material, or reduction of the ability to perform a prescribed function. |
| **Possible Hazard Consequences** (What were or could have been the possible hazard consequences?)**:**  |
| **Controls in place** (What are the controls and the mitigating elements already in place?)**:** |
| **INITIAL Safety Risk (see Safety Risk Matrix)** |
| **ACCEPTABLE** | **TOLERABLE** | **UNACCEPTABLE** |
| **Additional Controls** (What can be done to further reduce the initial safety risks?)**:** | **Implemented?** |
| **FINAL Safety Risk (see Safety Risk Matrix)** |
| **ACCEPTABLE** | **TOLERABLE** | **UNACCEPTABLE** |
| **Is the residual risk acceptable:**  YES NO (if NO go back to previous section)**RISK ASSESSMENT CLOSED**  |

## Emergency Response Plan

### Introduction

This Emergency Response Plan was developed on the basis of ORO.GEN.200 and AMC1 ORO.GEN,200(a)(1);(2);(3)(5) point (f) (cf. Section 8.6 of the Safety Management Manual) and is designed to help the organization respond to events such as accidents, serious incidents or any other abnormal event triggering a crisis.

The number of phases that need to be implemented must be established in order to prevent potential confusion that could result when an emergency situation arises. Senior management must identify the responsibilities within their organization and respond to family member needs of the crew or passengers and provide assistance to the emergency services as well as the authority in charge of any investigation.

#### Aim of the Manual

The aim of this Emergency Response Planning (ERP) manual is to:

• highlight the policies and procedures to be implemented in case of a crisis,

• offer advice to the members of the crisis management team in carrying out their responsibilities,

• Communicate relevant information to employees of the organization and members of the public.

As opposed to other manuals of the company, the ERP manual is designed to cover crisis situations which cannot specifically or precisely be defined. An organizational framework of the actions and policies required to be implemented is presented. However, it is unlikely that an actual emergency situation will adapt to a precise framework. Adaptability and flexibility should therefore be demonstrated in the handling of such events.

#### Amendments

This manual will be subject to change. Whenever a change is implemented, the technical manager of the document shall inform all members of the Crisis Management Team and any person(s) who may be called on to play a role in case of an emergency of the change.

### Events which may activate the Emergency Response Plan

The following events may result in a crisis situation and activate the Emergency Response Plan:

* + 1. Aviation accident/Serious incident
		2. Disaster in the premises: fire, explosion, pollution, flood
		3. Loss of the working resource: workshop, offices, hangar, aircraft
		4. Impacts of a disaster within the vicinity of the establishment
		5. Climatic event: snow, storm, flood, lightning
		6. Natural disaster: earthquake, volcanic eruption
		7. Food poisoning, epidemic
		8. Death, suicide at the workplace
		9. Multiple victims connected to a disaster, illness or contagion
		10. Accident to the public transportation of the personnel
		11. Social movements: strike, blocking of the accesses
		12. Internal or external threat: attack, bomb alert, sabotage, terrorism,
		13. Loss of energy: electricity, gas
		14. Loss of communication means: internet, landlines or mobile telephones
		15. Major media event
		16. Accident during missions: business trip, abroad.

### Definitions

The definitions below are defined in ICAO Appendix 13, Chapter 1.

Accident: An occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, in which:

* + a person is fatally or seriously injured as a result of:
	+ being in the aircraft, or
	+ direct contact with any part of the aircraft, including parts which have become detached from the aircraft, or
	+ except when injuries are from natural causes, self-inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew; or
	+ the aircraft sustains damage or structural failure:
	+ which adversely affects the structural strength, performance of flight characteristics of the aircraft and
	+ would normally require major repair or replacement of the affected component, except for engine failure or damage, when the damage is limited to the engine, its cowlings or accessories; or for damage limited to propellers, wing tips, antennas, tires, brakes, fairings, small dents or puncture holes in the aircraft skin; or
	+ the aircraft is missing or is completely inaccessible.
	+ Incident: An occurrence, other than an accident, associated with the operation of an aircraft which affects or could affect the safety of operation.

Serious incident: An incident involving circumstances indicating that an accident nearly occurred.

Fatal injury: An injury resulting in death within 30 days of the date of the accident.

* + Serious injury: any injury which is sustained by a person in an accident and which:
	+ requires hospitalization for more than 48 hours, commencing within seven days from the date the injury was received; or
	+ results in a fracture of any bone (except simple fractures of fingers, toes or nose); or
	+ involves lacerations which cause severe hemorrhage, nerve, muscle or tendon damage; or
	+ involves injury to any internal organ, or
	+ involves second- or third-degree burns or any burns affecting more than 5% of the body surface; or
	+ Involves verified exposure to infectious substances or injurious radiation.

### Organization

It is vitally important that an organization is thoroughly prepared in how to react effectively in the case of an emergency. The progress of events will depend on how the organization initiates an alert (or relays an alert message).

It is especially important to define a single point of contact (e.g. the operations department) that any member of staff may alert in the case of an emergency. This should include a procedure for out of normal working hours.

This single point of contact will be responsible for disseminating the alert to the company managers and the relevant official authorities.

In order to prevent unnecessary delay, the nominated contact must have immediate access to the following:

* + Emergency checklists to cover the nature of the event.
	+ An up to date list of managers to be contacted and their deputies in the case of absence. (a schedule of 'on-call' executives to be contacted should be created)
	+ A list of emergency services and official organizations to be contacted in the event of an emergency.

All employees should know their role should a serious event occur including how to raise the alert, immediate first aid drills and what immediate actions to take to try and resolve the crisis or to prevent the situation deteriorating.

It is recommended that organization carries out regular emergency training exercises to practice and refine their procedures and to train personnel.

Wherever possible the normal activity of the organization must be maintained. To this end, employees whose activity is not affected by the situation should continue to carry out their normal duties. Personnel should, however, contact their family and friends to reassure them in an attempt to prevent an influx of external communications.

If the presence of an employee is not required at the accident/incident site, or at the location of the Crisis Management Team, they should be discouraged from going to these locations so as not to hinder the emergency services and/or any investigation team(s).

It is important that personnel not involved in the management of the situation do not contact the Crisis Management Team or speak to the media.

### MANAGING THE CRISIS

#### Purpose of Crisis Management

The purpose of crisis management is to ensure that the company’s response to an accident or incident is wholly appropriate to the circumstances, taking account of the best interests of customers, and staff, and the need to protect the reputation and business of the company. The responsibilities of the Remaining Member(s) of the Management Team (RM) team fall into three main groups:

1. Communications with the airport authorities, the police, the media, the injured and uninjured survivors, their friends and relatives and company staff.
2. Operational issues to overcome the impact of the event, and to return to normal operations as soon as possible.
3. Investigations Involvement in outside investigations or the initiation of internal enquiries into the event and the introduction of any immediate measures to prevent a recurrence.

#### INTERNATIONAL ACTIONS

##### International Accident Notification Phases

The following action phases will be followed by most international Search & Rescue organizations.

##### Uncertainty Phase (INCERFA)

When:

With the exception of an arrival report, no communication has been received from an aircraft within 30 min after the time a communication should have been received, or from the time an unsuccessful attempt to establish communication with such aircraft was first made, whichever is the earlier.

##### Alert Phase (ALERFA)

When:

1. Following the uncertainty phase, subsequent attempts to establish communication with the aircraft or enquiries to other relevant sources have failed to reveal any news of the aircraft, or
2. An aircraft has been cleared to make an approach or to land and fails to land within five minutes of the estimated time of landing and communications have not been re-established with the aircraft, or
3. Information has been received that indicates that the operating efficiency of the aircraft has been impaired, but not to the extent that a forced landing is likely.
4. An aircraft is known or believed to be the subject of unlawful interference.

##### Distress Phase (DETRESFA)

This phase begins when:

1. The fuel on board is considered to be exhausted or to be insufficient to enable the aircraft to land safely;
2. Information is received that indicates that the operating efficiency of the aircraft has been impaired to the extent that a forced landing is likely; or
3. Information is received that the aircraft is about to make, or has made, a forced landing.

NOTE: It is accepted that serious emergencies will not necessarily sequentially follow these phases. Some incidents will only be notified in the Distress Phase.

##### Emergency Locator Transmitter (ELT)

Individual ELT units are registered with a regional agency, who in the event of activation, contact a person nominated by (enter your representative). It is obvious that this person should not be someone who regularly flies on the company's aircraft. .

Note that ELTs must be coded with the required 15-bit hexadecimal code that identifies aircraft to which the ELT is fitted and that it includes the MID of XXX to identify the Rescue Coordination center. Aircraft identification may be achieved by using the aircraft serial number or the serial number of the ELT itself. The Mode S address of the airplane must be used as a means of aircraft identification.

##### DEALING WITH THE MEDIA

(Note: If you have the pleasure of working in a large corporation, I suggest contacting your press department and work out a plan, they’re pros at it)

This aspect can prove to be the most difficult of all. The media representatives are always looking for a headline-grabbing story and are not reticent in making the most of any details they are able to glean/manufacture from what they hear from one of the operator’s staff or representatives. For this reason, the following rules should be observed at all times:

* + - 1. Answer ANY query from the media with “an official report is being prepared and a statement will be made in due course”.
1. The CEO of the company as well as his deputy should have received training on presentation as well as dealing with the media. An official statement from the operator should be prepared and ONLY this statement should be read out at the media briefing. The CEO/deputy should NOT be drawn into having a discussion with the media.
2. Be careful of hoax phone calls from the media purporting to be the representative of an official body. Obtain the telephone number of the organization that they say they represent rather than use the number they give you.
3. Ensure that any Company Website is blocked, showing only a brief statement approved by the CEO/deputy.

### Reaction to an Emergency Call

Whenever the company is made aware of an accident or incident, the person or department that receives the alert must attempt to establish the following information:

* + Date and time of the call.
	+ Name and contact details of the informant.
	+ Establish the authenticity of the call (where possible).
	+ In the event that the call is made anonymously, try and obtain information concerning the other party and their position. (Where possible, try to record the conversation and listen to background noise).
	+ If the call is being made from overseas, check the location of the call with the embassy of the country in question.
	+ Initiate the alert process both in-house and externally.

The single point of contact defined in chapter four should cross check the information with air traffic control as well as the airfield before declaring an official state of emergency.

### Emergency Numbers

The direct contact details for the members of the Crisis Management Team and the Emergency Services must be readily accessible and up to date. It is located in the annex to the ER manual.

An example of the departments/persons to be contacted on a priority basis in case of event of an emergency is given below.

* + IN-HOUSE
		- Accountable Manager (CEO) (or deputy)
		- Operations Manager
		- Safety Manager
		- Maintenance Manager
		- Communication Manager
		- Legal Manager
		- Human Resources Manager
	+ EXTERNALLY
		- The Search and Rescue Co-ordination Centre (RCC) (in the event of an aircraft accident or aircraft overdue).
		- The Air Traffic Control Centre
		- The Maritime or Coast Guard Service (in the case where the aircraft has been engaged in over water operations).
		- Emergency Medical Services.
		- Fire and Rescue Service.
		- Police.

### PROCEDURES

The response to an accident or incident will vary according to the severity and other circumstances but activity will be in four distinct phases. The transition from one phase to the next will be prompted by the availability of information on the condition of those involved. Phases are:

Phase 1 - Immediate Response and Notification

Notification has been received of an accident or major incident but no reliable information is available on the event or the condition of people involved. First media approaches for information and reports on radio or TV may occur in this phase.

Phase 2 - Crisis Management

Passenger and crew lists are available but no reliable information will be available on survivors, injuries or fatalities. Media will be speculating and rumors will be rife. The contact person defined by the company will take charge of the initial process of organizing a special assistance team which will offer assistance to passengers, crew, or family representatives.

An example of how to 'man up' the Crisis Management Centre is shown in the figure below.

Please adapt as necessary.

Phase 3 - Communication from Accident Site Available

Information on the circumstances of the incident begins to emerge and some information on survivors, injuries and fatalities is filtering through.

Phase 4 - Corroborated Information Available

Reliable information is available on identities of survivors, the injured and deceased. Further information to hand on the circumstances surrounding the incident.

CONTROL OF INFORMATION.

In the immediate aftermath of a major event everyone requires information. The emergency services and police need information to assist rescue operations. The RM needs reliable information on which to formulate releases to the media and on which to base vital operational and business decisions. The press want information they can transmit or publish and, above all, relatives and friends of those involved are desperate for news.

However, the nature of major accidents and incidents is such that reliable, factual information takes some time to establish. In this context, it is vital that the identities of casualties are protected and only released through the proper authorities when accuracy has been established beyond doubt. It is also of great importance to ensure there is no unauthorized access to the documentation that will be central to the investigation into the accident.

To ensure information is controlled as closely as possible, staff must refer all outside requests for information to the Chief Executive Officer/Deputy for the Press. Within the company, information should only be given to those with a need to know. Staff must avoid the temptation to speculate on any aspect of the incident.

### Relations with the Media

The media can be very helpful in the aftermath of a serious incident/accident. However, it is essential that they are treated with respect. It should be a requirement that those tasked with dealing with the media receive specialist training in this regard.

### INVESTIGATIONS

In the countries to which the company operates, the state authorities will assume initial responsibility for investigating any accident or incident in which major damage, injury or death occurs. The Company would be required to assist the investigation by providing relevant documentation and would probably also be asked to provide an accredited representative to aid the investigation. Any in-house investigation into aspects of an incident subject to official investigation must take second place to and not impede those inquiries in any way.

Accidents and reportable incidents not subject to official inquiry will be investigated by a company team under the direction of the CEO. The composition of the team will be decided according to the nature of the incident.

### Collecting evidence

*In the event of an accident, several organizations will be trying to wriggle out of their responsibilities, amongst these the aircraft manufacturer, the insurance company, etc. Evidence will be presented by these organizations which will highlight, for example, possible pilot error and directs the spotlight away from possible equipment failure (for example).*

If the RM is able to attend the scene of the accident, he should take with him a camera. He should use this to take photographs which could, in his opinion, indicate the cause of the accident and preserve them. The representatives of the aircraft manufacturer, insurance company and others will be doing the same and it is essential that all aspects of the accident are presented to establish the probable cause.

### OTHER REPORTABLE INCIDENTS

Other incidents which must be reported to the Authorities include:

1. High jacking
2. Bomb Threats

### Annex

#### ITEMS TO BE DEALT WITH BY THE CRISIS MANAGER CHECKLIST 1 (After Receiving the Emergency Call)

Notify the following and perform these tasks:



Phase 3 - Communication from Accident Site Available

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##### OTHER REPORTABLE INCIDENTS

Other incidents which must be reported to the Authorities include:

1. High jacking
2. Bomb Threat

#### ITEMS TO BE DEALT WITH BY THE CRISIS MANAGER CHECKLIST 1 (After Receiving the Emergency Call)

Notify the following and perform these tasks:

 **DONE TIME**

|  |  |  |
| --- | --- | --- |
| ITEMS TO BE DEALT WITH BY THE REMAINING MANAGER | ITEMS TO BE DEALT WITH BY THE REMAINING MANAGER | ITEMS TO BE DEALT WITH BY THE REMAINING MANAGER |
|  |  |  |
| CHECKLIST 1 (Recipient of Emergency Call) |  CHECKLIST 1 (Recipient of Emergency Call) |  CHECKLIST 1 (Recipient of Emergency Call) |
| Notify the following and perform these tasks: | Notify the following and perform these tasks: | Notify the following and perform these tasks: |
| ITEMS TO BE DEALT WITH BY THE REMAINING MANAGER | ITEMS TO BE DEALT WITH BY THE REMAINING MANAGER | ITEMS TO BE DEALT WITH BY THE REMAINING MANAGER |
|  |  |  |
| CHECKLIST 1 (Recipient of Emergency Call) | CHECKLIST 1 (Recipient of Emergency Call) |  CHECKLIST 1 (Recipient of Emergency Call) |
| Notify the following and perform these tasks: | Notify the following and perform these tasks: | Notify the following and perform these tasks: |
| ITEMS TO BE DEALT WITH BY THE REMAINING MANAGER | ITEMS TO BE DEALT WITH BY THE REMAINING MANAGER | ITEMS TO BE DEALT WITH BY THE REMAINING MANAGER |
|  |  |  |

**Message to be given when contacting above persons:**

There has been an accident involving ..........(TAIL NUMBER), a.... .....(AIRCRAFT TYPE) operated by ......(Company name) . The aircraft was travelling from .(DEPARTURE

POINT) ………. to .... .....(DESTINATION

Give any confirmed details (very brief) regarding the fate of the aircraft, including

location.

The aircraft was carrying .............passengers. It was under the command of

Captain.........................and…….. (number of)………crew members.

The CMT was activated at ..........................(UTC).

#### Aircraft Accident Notification Message

 Record all times in GMT

|  |  |
| --- | --- |
| **To:****Fax:** |  |
| **Copy to:****Fax:** | *Transport Authority – State of occurrence.* |
| **From:** | (your company)  |
| **Tel:** |  |
| **Fax:** |  |
| **SITA:** |  |

|  |  |
| --- | --- |
| **Flight No:** |  |
| **Nationality & Registration:** |  |
| **Destination Station:** |  |
| **Departure Station:** |  |
| **Location of Accident:** |  |
| **Time of Accident:** |  |
| **Reference Position of Aircraft:** |  |
| **Number of Crew and Passengers on****Board:** |  |
| **Number killed or seriously injured:** |  |
| **Number of others killed or seriously injured:** |  |
| **Nature of Accident and Extent of****Damage:** |  |
| **Brief Description of Circumstances:** |  |

**Checklist 2 DONE TIME**

|  |  |  |
| --- | --- | --- |
| Liaise with Police and Airport regarding media statements |  |  |
| Prepare to travel to scene of accident (if appropriate) |  |  |
| Notify all Crew Members’ families. |  |  |
| Notify Insurance Company |  |  |
| Secure all training records |  |  |
| Communicate with Company staff, keeping them advised |  |  |
| Get details of where victims have been taken (hospital, morgue, etc) |  |  |
| Arrange for company representative to visit hospitalizedPassengers. |  |  |
| Contact the Technical Coordinator, who must notify the Engineeringcontractor to gather all aircraft documentation and have themdelivered to (your company). Secure these on receipt. |  |  |

####  Accident Log

**ACCIDENT LOG**

 **SHEET #..........**

|  |  |  |  |
| --- | --- | --- | --- |
| **Log****Nos** | **Time****(UCT)** | **Information received/Action taken** | **Initials** |
|  |  |  |  |
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**CONTACT DETAILS**

**POST NAME NUMBER**

|  |  |  |
| --- | --- | --- |
| **Single Point of Contact who will coordinate initial actions** |  |  |
| **CEO** |  |  |
| **Chief Pilot** |  |  |
| **Technical****Coordinator** |  |  |
| **Safety Manager** |  |  |
| **Maintenance Org** |  |  |
| **Local Police** |  |  |
| **Airport** |  |  |
| **Airport Mgmt** |  |  |
| **NAA/LBA** |  |  |
| **ATC** |  |  |
| **Owner** |  |  |

# Crew Composition ORO.FC.100

## Flight Crew Composition

### Minimum Flight Crew

The minimum flight crew for the aircraft type xyz is x.

### Augmented Flight Crew

During a series of flights, a flight crewmember may delegate his duties in-flight to-, or alternate route sectors with-, the additional qualified pilot.

Before commencing the operation, the Commander shall delegate any duty sharing for the duration of the flight or series of flights during the briefing.

### Recent Experience

A pilot of „The Operator” shall not operate an airplane as part of the minimum certificated crew, either as pilot flying or pilot non-flying, unless he/she has carried out three take-offs and three landings in the previous 90 days as pilot flying in an airplane, or in a flight simulator, of the same class/type.

Each flight crewmember shall complete annual recurrent flight and ground training relevant to the type or variant of aircraft on which he/she operates, including training on the location and use of all emergency and safety equipment carried.

### Additional Crew Members assigned to Specialist Duties

Crew members, other than cabin crew, who carry out their duties in the passenger compartment, e.g.:

* Child escorts
* Navigator
* Interpreters
* Medical Personnel
* Personal Assistant
* Security Staff

## Designation of PIC ORO.FC.105

One flight crewmember from amongst the crew composition that is qualified as Pilot-in-Command (PIC), must be designated as the only PIC for each flight or series of flights. The PIC is the flight crewmember with overall responsibility and authority.

If two flight crewmembers are scheduled to fly together, and both are qualified as PIC on the airplane type in question, one flight crewmember must be designated as PIC and the other as co-pilot.

The designation as PIC is decided according to:

* + practical route and aerodrome experience;
	+ experience accumulated on the airplane type concerned;
	+ And or Company procedures (i.e. changing Leg by Leg)

The rule of designation is applicable for both normal and augmented crew compositions.

When dispatching the actual flight or series of flights, the Nominated Person Flight Operation or in his absence his delegate, shall note the designation on the Operational Flight plan or ATC plan.

## Crew Member Incapacitation

This subchapter describes the instructions on the succession of command in the event of flight crew incapacitation.

Normal Crew composition

If the PIC becomes incapacitated during the course of a flight, the second pilot assumes command.

Augmented Crew Composition

If the PIC of an augmented crew composition becomes incapacitated during the course of a flight, the responsibility for assuming command normally passes to the next qualified flight crew in order of superiority.

Incapacitation of a crew member is defined as any condition which affects the health of a crew member during the performance of duties, associated with the duty / position assigned to him, which renders him incapable of performing the assigned duties.

Incapacitation can be gradual or sudden, subtle or overt, partial or complete and may not be preceded by any warning.

**Partial or Gradual Incapacitation**

The following procedures are to be used if a flight crewmember suffers any medical symptoms in flight which might impair his ability to handle the airplane such that in a multi pilot crew, he/she would hand over controls. These symptoms include severe pain (especially sudden severe headache or chest pain), dizziness, blurring or partial loss of vision, disorientation, vomiting or diarrhea. The procedures must be followed even if the pilot has apparently recovered, as temporary symptoms are often a warning of more severe illness to follow, and self-diagnosis is notoriously unreliable.

If the affected flight crewmember is handling the airplane, he/she is immediately to inform the other pilot and hand over control to him. The destination, base or appropriate agency is to be informed of the problem and a diversion made to the nearest suitable landing place, bearing in mind the nature and severity of the symptoms and the availability of medical facilities.

The affected flight crewmember is not to take control again for the remainder of the flight and is to lock the shoulder harness to prevent falling on to the controls if the illness becomes more severe. The affected flight crewmember is not to fly again as a crewmember until they’ve been medically examined or, in the case of diarrhea or vomiting, has had no symptoms for 24 hours.

**Sudden or Complete Incapacitation**

Complete incapacitation may be subtle or overt, and may not be preceded by any warning. While incapacitation may occur at any stage of flight, fatal collapse among flight crew has most commonly occurred in the critical stages of approach and landing when ground proximity presents a direct hazard. Where the Pilot Flying (PF) handling the airplane is incapacitated, an accident is inevitable, unless the other flight crewmember detects the collapse and is able to assume control in sufficient time.

Detection of the incapacitation in the subtle case may be indirect, i.e. only as a result of the flight crewmember not taking some expected action. If, for example, the pilot conducting the approach to land collapses without any overt sign and the body position is maintained, the other flight crewmember will not be aware of his colleague’s collapse until the expected order of events becomes interrupted.

In the context of flight crew incapacitation, it is essential that crew members closely monitor the airplane’s flight path in the critical stages of take-off, initial climb, final approach and landing, and immediately question any deviation from the norm.

Operating procedures require that during all stages of the flight, flight crewmembers call the Pilot Flying (PF) attention to any deviation from the normal flight path or ATC clearance. Adherence to this procedure should assist early detection of the incapacitation of the pilot flying.

Where the pilot flying the airplane has collapsed, the other flight crewmember will assume control. Taking control presupposes that the collapsed pilot’s body does not interfere with the essential primary flying controls and for this reason the requirement to wear full harness whilst occupying a pilot seat is a safeguard.

Once incapacitation has been detected, the first requirement is to ensure that the affected flight crewmember does not interfere with any controls. It is therefore essential that his harness should be locked and, if possible, the seat slid back. Consideration should be given, if practical, to the briefing and use passengers for this task, but caution must be observed due to the risk of the seat moving forward when it becomes unlocked. The next priority is to re-plan the flight, including consideration of diverting to the nearest suitable destination.

Medical advice indicates that immediate first aid is not essential or necessary in cases of sudden incapacitation. Therefore, any attempts at first aid should be delayed until after the immediate operational problems have been dealt with.

Summary

The following actions should be taken when incapacitation is recognized:

* + Non-affected flight crew member assumes immediate control and returns the airplane to a safe flight path;
	+ fasten and lock the seatbelt of the incapacitated flight crewmember to prevent obstruction of flight controls, switches, levers, etc. The help of the cabin crew or passengers might be required;
	+ declare urgency (PAN PAN) or distress (emergency, MAYDAY) according to the circumstance;
	+ in the event of incapacitation, the PIC shall ensure assistance for the incapacitated cabin crew member or passenger and security of the cabin;
	+ re-plan the flight, including consideration of diverting to the nearest suitable aerodrome;
	+ use the autopilot;
	+ prepare landing on time, take time to complete all checklists required; and
	+ order medical assistance to be available after landing.

## Operation on more than one Type or Variant ORO.FC.140

In a non-complex environment, the operator does not operate more than 2 Types or Variants.

Before flight crew members exercising the privileges of two license endorsements, the following requirements must be fulfilled:

* + A flight crew member does not operate more than two airplane types or variants for which a separate license endorsement is required.
	+ Only airplanes within one license endorsement are flown in any one flight duty period (depending of the risk assessment)

## OPERATIONAL MULTI-PILOT LIMITATION (OML)

The operator should ensure that pilots with an OML on their medical certificate only operate aircraft in multi-pilot operations when the other pilot is fully qualified on the relevant type of aircraft, is not subject to an OML and has not attained the age of 60 years.

# Flight Crew Training and Qualification Requirements ORO.FC.115-145

## Operator Conversion Training

The flight crew member shall complete the operator conversion training course before commencing unsupervised line flying:

1. when changing to an aircraft for which a new type or class rating is required;
2. when joining an operator.

The operator conversion training course shall include training on the equipment installed on the aircraft as relevant to flight crew members’ roles and an introduction to the company procedures.

For the Syllabus of the Operator Conversion Training refer to OMD.

## Flight Crew

Flight crewmembers must hold applicable and valid licenses, ratings, authorizations or certificates issued or validated by the competent authority and must be suitably qualified and competent to conduct the duties assigned to them.

Furthermore:

* + all training and checking must be performed in accordance with Part-FCL;
	+ every trainee is trained and examined according the information stated in the syllabi provided and maintained by the subcontracted and approved training facilities such as Flight Training Organizations (ATO) and the operators own syllabi where applicable;
	+ flight crew members must successfully pass the required training and checking as defined in the training and checking programs listed in the Operations Manual Part D;
	+ the holder of a license, rating, or authorization shall not exercise privileges other than those granted by that license, rating, or authorization;
	+ each license entitles its holder to exercise his authority and execute his responsibilities based upon such license, only as long as it remains valid; and
	+ final responsibility for retaining applicable license, certificate, rating, or authorization and their specific validity, rests with its holder.

### Pilot in Command

Minimum requirements to qualify a flight crew member to act as Pilot in Command (PIC) on operators airplanes with the ability to be delegated as commander or for those joining as PIC are:

* + a valid Medical Certificate Class 1; and
	+ Airline Transport Pilot License (ATPL); and
	+ valid Type Rating(s) (TR) with the qualification as PIC including Instrument Rating (IR) CAT I with Multi Pilot (MP) operations on a Multi-Engine (ME) airplane type; and
	+ total accumulated experience of at least 2000 hours on airplanes, which is an airplane-fleet insurance minimum.
	+ competent in the English language

### Command course or PIC course

### Co-Pilot

Minimum requirements to qualify a flight crew member for employment as co-pilot on company airplanes are:

* + a valid Medical Certificate Class 1; and
	+ Commercial Pilot License (CPL) and
	+ completed Multi Crew Cooperation (MCC) training.

Note: An applicant for the first type rating for a Multi- Pilot Airplane (MPA) type shall have at least 100 hours as Pilot in Command (PIC) on airplanes and have a valid multi-engine instrument rating.

### Operation on more than one Type or Variant

Before flight crew members exercising the privileges of two license endorsements, the following requirements must be fulfilled:

• The recent experience requirements for all flown types must be fulfilled.

### Recent Experience

A pilot of the operator shall not operate an airplane as part of the minimum certificated crew, either as pilot flying or pilot non-flying, unless he has carried out three take-offs and three landings in the previous 90 days as pilot flying in an airplane, or in a flight simulator, of the same class/type.

Each flight crew member shall complete annual recurrent flight and ground training relevant to the type or variant of aircraft on which he/she operates, including training on the location and use of all emergency and safety equipment carried.

### Security and Emergency

ORO.SEC.100 Flight crew compartment security — airplanes

### Qualification to Operate in either Pilot’s Seat

PIC´s who are required to fly on left and right hand seats of CS25 aircraft, are required to do a RHS check every 3 Years. The check consists of 1 engine failure during take off, 1 engine inoperative approach and go around ending in a 1 engine inoperative landing from the right hand seat.

### Difference and Familiarization Training

The operator ensures that a flight crew member completes:

**Differences training**

which requires additional knowledge and training on an appropriate training device or the airplane:

when operating another variant of an airplane of the same type or another type of the same class

currently operated; or

when changing equipment and/or procedures on types or variants currently operated;

**Familiarization training**

which requires the acquisition of additional knowledge when operating another airplane of the same type, or when changing equipment and/or procedures on types or variants currently operated.

For the Syllabi please refer to the OMD.

## Additional Training

Here each operator can decide if he wants to add additional training.

## Training and Checking Personnel

ORO.FC.145 Provision of training

All the training shall be conducted:

1. in accordance with the training programs and syllabi established by the operator in the operations manual;
2. by appropriately qualified personnel. In the case of flight and flight simulation training and checking, the personnel providing the training and conducting the checks shall be qualified in accordance with Annex I (Part-FCL) to Regulation (EU) No 1178/2011.

As the operator does not have his own ATO, the training requiring an approved syllabus is outsourced to an ATO. The ATO itself is required to hold an approval, and therefore to comply with the regulations. The operator will monitor the ATOs approval for changes in order to maintain his compliant training.

All non approval courses like the operator conversion or the differences and familiarization courses are conducted by qualified personal as below:

**Ground Instructor (GI)**

The minimum requirements for the nomination as Ground Instructor are:

* + - some training in the area of "teaching and learning", including practical demonstrations including Operator’s specific elements
		- competence in the subject(s) to be instructed
		- in case of airplane type specific subjects to be instructed, the Ground Instructor shall have the required type rating.
		- supervision by the nominated person Crew Training or his deputy, when conducting the first course

# Crew Health Precautions

Crewmembers must commence every flight duty in a good physical and mental condition so that fatigue, which will accumulate during the assigned flight duty, does not affect safety.

Crewmembers must not perform duties on board an aircraft when the capacity for work is reduced because of illness or a person’s general physical condition. Decrease in fitness includes the effect of disease, injury, alcohol, drugs, fatigue, etc. and decrease in fitness under the influence of mental stress.

## Decrease in Medical Fitness

A flight crewmember in possession of a medical certificate shall also seek the advice of the AME, without undue delay if:

* + subject to hospital or clinic admission for more than 12 hours;
	+ subject to surgical operation or invasive procedure;
	+ prescribed regular use of medication; or
	+ prescribed regular use of correcting lenses.

The competent authority must be informed if a flight crewmember in possession of a medical certificate is aware of / experiencing any of the following:

* + any significant personal injury involving incapacity to function as a flight crewmember; or
	+ any illness leading to the incapacity to function as a flight crewmember for a period of 21 days or more; or
	+ being pregnant.

In the event of any of the above, crewmembers must contact their AME as soon as is reasonably possible, the AME will then ensure that all communications with and formalities concerning the competent authority are complied with.

## Alcohol

Crewmembers shall not:

* + consume alcohol of any nature in excess, i.e. drink to such an extent that their physical condition is obviously impaired;
	+ consume alcohol for a minimum period of 8 hours before reserve or reporting for duty;
	+ consume alcohol while on reserve or during the duty period; or
	+ commence a flight duty period with a level of alcohol in the blood in excess of 0.2. mg per ml (milligrams per milliliter), which is considered a natural level caused by digestion of regular food.

All operations personnel are required to assist each other in complying with these directives at all times.

## Pharmaceutical Preparations (Narcotics, Sleeping Tablets and/or Drugs)

Holders of medical certificates shall not take any prescription or non-prescription medication or drug, or undergo any other treatment, unless they are completely sure that the medication, drug or treatment will not have any adverse effect on their ability to perform their duties safely. If there is any doubt, advice shall be sought from an Aeronautical Medical Examiner (AME) or medical practitioner.

NB. General painkillers, such as Paracetamol, Alka Selzer, Aspirin, Treupel with no significant proven side effects, may be taken whilst on duty provided the dosages taken are kept within the specified limits, described on the package-inlay.

On occasions when sleeping tablets are considered necessary, only over-the-counter or homeopathic remedies may be used, provided the dosages taken are kept within the specified limits, described on the package-inlay and have been authorized by the AME. No sleeping tablets shall be taken within 9 hours of starting a flight duty.

## Immunization (Vaccinations)

Different countries require vaccinations for crewmembers and passengers against specific diseases, often specifying that such immunization is only required upon entering the country “after leaving or transiting infected areas”.

Each crewmember scheduled to flight duty abroad must satisfy any requirement(s) for vaccination(s) and have himself vaccinated in time. Medical advice is to be sought concerning the period to be observed before returning to flying duties following immunization.

Crewmembers scheduled for flight duty in malaria infected countries shall consult their medical examiner, and if advised, take / apply the appropriate medication as prescribed.

Crewmembers shall be aware of the fact that there are many extremely dangerous diseases against which vaccination is not possible. Only general rules are given here for health-conscious behavior in foreign countries:

• Observe strict hygiene in eating / drinking (amoebic dysentery, brucellosis);

• Do not bath in stagnant water; and

• In infested (e.g. bush / jungle) areas, wear long-sleeved shirts and long trousers to prevent or minimize bites by disease-carrying insects (filariasis, malaria, encephalitis, sleeping sickness) or by outright poisonous insects or animals (spiders, scorpions, snakes); use insect-repellent.

## Deep Diving

Scuba divers have to respect the specific decompression calculations according to the number of performed transitions and depth. Crewmembers, whose sporting activities include deep sea diving to a depth up to 10 meters with no decompression, shall not fly within 48 hours of completing such diving activity.

## Blood Donation

Any crewmembers donating blood, must wait for a period of 48 hours before beginning a flight duty.

## Sleep and Rest

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

No crewmember shall perform duties on an airplane if he knows or suspects that he is suffering from fatigue, or feels unfit to the extent that the flight may be put at risk.

## Surgical Operations

Following any surgical procedure, aeronautical medical advice has to be sought before returning to flying duties.

## Pregnancy

Any pregnant crewmember in possession of a valid medical certificate shall inform their Authorized Medical Examiner (AME) of her pregnancy, who will then inform the competent authority. The medical certificate should deem suspended upon confirmation of the pregnancy.

The AME may raise the suspension of the medical certificate subject to specific conditions, as he thinks fit. The medical examiner may re-approve certification of a pregnant crewmember during the first 26 weeks of gestation.

## Eye and Ear Protection

When flying above clouds, particularly in bright sunshine, sunglasses can drastically reduce bright vision. Flight crewmembers should protect their eyes by wearing non-polarized sunglasses.

The lighting on the flight deck should normally be dimmed during darkness, especially on take-off, approach and landing (eye-adaptation to darkness). For take-off and landing cabin must be dimmed to the minimum.

Where use of corrective eyeglasses is stipulated on the license medical certificate, flight crewmembers must wear their prescription glasses while on flight duty and carry a spare set of these glasses at all times.

It is recommended that operations personnel use suitable ear protection in noisy environments especially on the apron.

## Radiation Exposure

Not applicable due to low amount of flight hours.

# Flight and Duty Time Limitations and Rest Requirements (2.DVLuftBO for Germany) Reference to the applicable regulation. Add the PIC Decision with a corresponding form

## Freelance Pilot

The Pilot has to provide his duty record for the preceding 36h before the planned schedule. Hereby the Operator will be able to schedule him according to the applicable FTL limitation.

# Standard Operating Procedures (NCC.OP)

## Flight preparation (NCC.OP.145 / NCC.OP.195 and 225 = T/O and landing performance last point)

Flights have to be operated within the designated area of operation in compliance with the operators’ declaration, airplane type specifications, its certificate of airworthiness and within the approved limitations contained in its Airplane Flight Manual (AFM).

The PIC must not commence a flight or series of flights unless he has conscientiously ensured that:

1. the flight planning considers all respects such as minimum flight altitudes, aerodrome suitability including flight crew competence requirements, routing, , including fuel calculations and the expected mass and center of gravity;
2. if required, the over flight- and landing permissions are received and available on board;
3. ground facilities and services are available for the anticipated aerodromes, including the firefighting and rescue service category;
4. the ATS flight plan is transmitted in accordance with the anticipated time of departure;
5. customs- and immigration requirements are verified and fulfilled;
6. the meteorological and NOTAM/AIS briefings are collected and analyzed;
7. the airplane is airworthy;
8. the emergency, medical, survival and safety equipment is complete, in operational condition, prepared for use and is easily accessible;
9. all airplane documents, additional information and forms (Binder “Cockpit Operation”) to be available and on Board;
10. the route and aerodrome information and instructions such as text papers, charts and maps contained in the Operations Manual Part C, Jeppesen Airway Manual, covering the flight or series of flights including any diversion which may be reasonable to be expected are recent and effortless accessible on hand;
11. The airplane has been re-fueled, having furthermore regard to fuel additive instructions, and the required quantity of fuel, oil and oxygen is available;
12. the mass and the balance of the airplane, at the commencement of the take-off roll, will be such that the flight can be conducted in compliance with the performance requirements and limitations for the airplane and configuration during all flight phases;
13. **the evaluation of possible performance limitations and the calculations of take-off and landing speeds are correct (NCC.OP.195 and 225);**

### Minimum Obstacle clearance altitudes - IFR Flights (NCC.OP.125 according AMC1 NCC.OP.125)

The PIC may not fly below the published Obstacle clearance altitudes in any route segment except when necessary for take-off or landing. The altitudes can be found on any APPR, SID, ENROUTE chart commercially available.

### Aerodromes (NCC.OP.100)

All aerodromes which are selected as destinations or alternates must be adequate and suitable in all respects for the types of airplane which are intended to use them.

On aerodromes, where departure and approach procedures are published they must be followed unless deviation is specifically authorized or given by ATC. When deviating from a published route or procedure full account must be taken of operating conditions and minimum flight altitudes must be observed.

For operations under Instrument Flight Rules (IFR), an approved approach procedure must be available for each destination and alternate aerodrome, with current approach plates available to each flight crew member.

Publications which may be used for this preflight planning phase (GM1 NCC.OP.100):

1. civil as well as military aeronautical information publication;
2. visual flight rules (VFR) guides;
3. commercially available aeronautical publications; and
4. non-commercially available publications.

### Aerodrome Categorization

For the purpose of the aerodrome approval and the aerodrome familiarization, there are three different categories.

For the list of categorization refer to the OM part C.

**• Category A: An aerodrome which satisfies all of the following requirements:**

* an approved instrument approach procedure;
* at least one runway with no performance limited procedure for take-off

and/or landing;

* published circling minima not higher than 1’000 ft above aerodrome

level; and

* night operations capability.

**• Category B: An aerodrome which does not satisfy the category A**

requirements or which requires extra considerations such as:

* non-standard approach aids and/or approach patterns; or
* unusual local weather conditions; or
* unusual characteristics or performance limitations; or
* any other relevant considerations including obstructions, physical layout, lighting etc.

Prior to operating to a category B aerodrome, the CMD should be briefed or self-briefed by means of officialy or commercially available publication from the aerodrome, service provider or AIS.

B aerodrome(s) concerned. By signing the OFP, he confirms that he has carried out these instructions.

**• Category C: An aerodrome which requires additional considerations to a category B aerodrome.**

Prior to operating to a category C aerodrome, the CMD should be briefed and

visit the aerodrome as an observer and/or undertake instruction in a flight simulator approved by the competent authority for that purpose. This instruction should be approved by the competent authority if required.

#### Isolated Aerodrome (NCC.OP.105)

For the selection of alternate aerodromes and the fuel policy, the operator shall consider an aerodrome as an isolated aerodrome if the flying time to the nearest adequate destination alternate aerodrome is more than:

1. for airplanes with reciprocating engines, 60 minutes; or
2. for airplanes with turbine engines, 90 minutes.

### Aerodrome Operating Minima - GENERAL (NCC.OP.110)

Publications which may be used for this preflight planning phase (AMC1 NCC.OP.110):

1. civil as well as military aeronautical information publication;
2. commercially available aeronautical publications;

The aerodrome operating minima should not be lower than the lowest minima stated in (AMC2 NCC.OP.110 (a)):

1. The publications above
2. The following chapters for
	1. Departure;
	2. NPA, APV and CAT1 operations;
	3. CAT2 operations;
	4. Circling operations,

Whenever practical approaches should be flown as stabilized approaches (SAps). Different procedures may be used for a particular approach to a particular runway. (AMC2 NCC.OP.110 (b))

Whenever the situation permits, Non Precision Approaches should be flown with the CDFA Continuous Descend Final Approach technique (AMC2 NCC.OP.110 (c)).

In case an NPA is not flown with the CDFA technique, the applicable minimum RVR should be increased by 200m for CAT A and B aircraft and 400m for CAT C and D aircraft. The increased RVR is only applicable if it does not exceed RVR/CMV of 5000m, above 5000m no penalty (AMC2 NCC.OP.110 (d)).

#### Conversion of reported Meteorological Visibility to RVR/CMV (AMC8 NCC.OP.110)

1. A conversion from meteorological visibility to RVR/CMV should not be used:
	1. when reported RVR is available;
	2. for calculating take-off minima; and
	3. for other RVR minima less than 800 m.
2. If the RVR is reported as being above the maximum value assessed by the aerodrome operator, e.g. ‘RVR more than 1 500 m’, it should not be considered as a reported value for (1)(a).
3. When converting meteorological visibility to RVR in circumstances other than those in (1), the conversion factors specified in Table below shall be used.

**Conversion of reported meteorological visibility to RVR/CMV**

|  |  |
| --- | --- |
| **Light elements in operation** | **RVR/CMV = reported meteorological visibility x** |
| **Day** | **Night** |
| HI approach and runway lights | 1.5 | 2.0 |
| Any type of light installation other than above | 1.0 | 1.5 |
| No lights | 1.0 | not applicable |

#### Categorization of Aircraft

The aircraft categories listed in the table below are based upon the speed overhead the threshold.

|  |  |
| --- | --- |
| **Aircraft category**  | **VAT**  |
| A  | Less than 91 kt  |
| B  | from 91 to 120 kt  |
| C  | from 121 to 140 kt  |
| D  | from 141 to 165 kt  |
| E  | from 166 to 210 kt  |

#### Departure

The Take OFF minima must ensure visual guidance to the Pilots to control the aircraft in the event of a rejected T/O or a continued T/O after an engine failure.

Unless a departure alternate has been selected, T/O below the minimum for re-landing at the departure airport is not allowed.

**If,**

* the reported visibility is below the minima for T/O and RVR is not reported, or
* neither reported Vis or RVR is available

a T/O may only be commenced if the PIC can determine that the RVR/Visibility along the t/O RWY is equal or better than the required minimum. This may be accomplished by taxiing down the runway and counting the lights he can see (night) or markings on the asphalt, or by having an observer dedicated by the authority (i.e. Met office, second traffic controller), visiting the relevant reporting points and assess the RVR/VIS.

#### Departure procedure (NCC.OP.115)

* 1. The PIC shall use the departure procedures established by the State of the aerodrome, if such procedures have been published for the runway to be used.
	2. Notwithstanding (a), the PIC shall only accept an ATC clearance to deviate from a published procedure:
		+ 1. provided that obstacle clearance criteria are observed and full account is taken of the operating conditions; or
			2. when being radar-vectored by an ATC unit.

##### Take OFF alternate (NCC.OP.150)

The selected take-off alternate must assure the following conditions:

1. Max distance from DEP AD for 2 ENG aircraft, 1h flight time at One Engine Inoperative cruise speed in still Air at ISA.
2. Max distance form DEP AD for 3 or more ENG aircraft, 1h flight time at OEI cruise speed in still air at ISA. (Falcon 900)
3. meteorological reports and/or forecasts or any combination therefore, must indicate, that the weather at the take-off alternate aerodrome will be at or above the applicable landing minima at the Expected Time of Arrival (ETA); and
4. the ceiling must be taken into account when the only approaches available are non-precision and/or circling approaches; and
5. any limitation related to one engine inoperative operation must be taken into account (e.g. Auto flight limitations one engine inoperative).

##### Noise abatement procedure (NCC.OP.120)

NOISE ABATEMENT PROCEDURE

Noise abatement procedures minimize the overall exposure to noise on the ground and at the same time maintain the required levels of flight safety. There are several methods, including preferential runways and routes, as well as noise abatement procedures for takeoff, approach and landing. The appropriateness of any of the procedures depends on the physical layout of the airport and its surroundings, but in all cases it must be given all priority to safety considerations.

Pilots are required to adhere to the noise abatement procedures published specifically for each airport. The procedures presented below are just a guide to help pilots to perform a takeoff with noise reduction.

If an engine failure occurs, the noise abatement procedure should be terminated. In this case an engine failure procedure and profile should be performed.

###### NOISE ABATEMENT PROCEDURE ICAO PROC A/NADP 1:

This is a procedure to protect areas located close to the airport.

From runway to 1500 ft AGL (ICAO PROC A) or 800 ft AGL (NADP 1):

• Takeoff thrust;

• Climb at V2 + 10 KIAS (or as limited by body angle);

• Takeoff flaps.

At 1500 ft AGL (ICAO PROC A) or 800 ft AGL (NADP 1):

• Reduce to climb thrust;

• Climb at V2 + 10 KIAS (or as limited by body angle).

At 3000 ft AGL:

• Airspeed VFS (minimum);

• Retract flaps on schedule;

• Accelerate smoothly to en-route climb speed.



###### NOISE ABATEMENT PROCEDURE ICAO PROC B/NADP 2:

This is a procedure to protect areas located distant from the airport, along the departure flight path.

From runway to 1000 ft AGL (ICAO PROC B) or 800 ft AGL (NADP 2):

• Takeoff thrust;

• Climb at V2 + 10 KIAS (or as limited by body angle);

• Takeoff flaps.

At 1000 ft AGL (ICAO PROC B) or 800 ft AGL (NADP 2):

• Accelerate to VFS;

• Retract flaps on schedule.

When flaps are up:

• Maintain VFS + 10 KIAS;

• Reduce to climb thrust.

At 3000 ft AGL:

• Accelerate smoothly to en-route climb speed.



##### Minima for Take-off — airplanes (without low visibility take-off (LVTO) approval) RVR/VIS

|  |  |
| --- | --- |
| **Facilities**  | **RVR/VIS (m)\***  |
| Day only: Nil\*\*  | 500  |
| Day: at least runway edge lights or runway centerline markings Night: at least runway edge lights or runway centerline lights and runway end lights  | 400  |

\*: The reported RVR/VIS value representative of the initial part of the take-off run can be replaced by pilot assessment.

\*\*: The pilot is able to continuously identify the take-off surface and maintain directional control.

##### Minima for Take-off — airplanes (with low visibility take-off (LVTO) approval) RVR/VIS

|  |  |
| --- | --- |
| **Facilities**  | **RVR (m) \*, \*\***  |
| Day: runway edge lights and runway center line markings Night: runway edge lights and runway end lights or runway center line lights and runway end lights  | 300  |
| Runway edge lights and runway center line lights  | 200  |
| Runway edge lights and runway center line lights  | TDZ, MID, rollout 150\*\*\*  |
| High intensity runway center line lights spaced 15 m or less and high intensity edge lights spaced 60 m or less are in operation  | TDZ, MID, rollout 125\*\*\*  |

\*: The reported RVR value representative of the initial part of the take-off run can be replaced by pilot assessment.

\*\*: Multi-engine airplanes that in the event of an engine failure at any point during take-off can either stop or continue the take-off to a height of 1500 ft above the aerodrome while clearing obstacles by the required margins.

\*\*\*: The required RVR value must be achieved for all relevant RVRs

TDZ: touchdown zone, equivalent to the initial part of the take-off run

MID: midpoint

#### Approach General (AMC4 NCC.OP.110)

Under normal circumstances the applicable minima are published on the approach chart and have to be followed unless there is an equipment failure. Equipment failure is described in more detail below. The following information below is the basis on how these minima are derived. Care must be taken if a NPA is flown without CDFA or a level flight segment at or above MDA/H, penalties are applied here, se below.

##### Criteria for establishing RVR/CMV for the approach. (AMC4 NCC.OP.110)

1. In order to qualify for the lowest allowable values of RVR/CMV specified in the below table, the approach procedure shall at least present the following facilities and associated conditions:
	1. Vertical glide slope/glide path up to and incl. 4.5° for CAT A+B airplanes, or 3.77° for CAT C+D airplanes.
		1. ILS/MLS/GBAS/PAR or;
		2. APV; and
		3. Maximum offset of final approach track of 15° CAT A+B and 5° CAT C+D.
	2. Vertical descend angle (CDFA) up to and incl. 4.5° for CAT A+B airplanes, or 3.77° for CAT C+D airplanes. The facilities are NDB, NDB/DME, VOR, VOR/DME, LOC, LOC/DME, VDF, SRA or GNSS/LNAV with a final approach segment of at least 3 NM, which also fulfill the following criteria:
		1. the final approach track is offset by not more than 15° for Category A and B airplanes or by not more than 5° for Category C and D airplanes;
		2. the final approach fix (FAF) or another appropriate fix where descent is initiated is available, or distance to threshold (THR) is available by flight management system (FMS)/area navigation (NDB/DME) or DME; and
		3. the missed approach point (MAPt) is determined by timing, the distance from FAF to THR is ≤ 8 NM.
	3. Approaches where the facilities are NDB, NDB/DME, VOR, VOR/DME, LOC, LOC/DME, VDF, SRA or GNSS/LNAV, not fulfilling (1)(b), but with a MDH of higher or equal to 1200ft.
2. The missed approach operation, after an approach which has been flown using the CDFA technique, should be executed when reaching the decision height/altitude (DH/A) or the MAPt, whichever occurs **first**. The lateral part of the missed approach procedure should be flown via the MAPt unless otherwise stated on the approach chart.

##### Determination of RVR/CMV/VIS Minima for NPA, APV, CAT1. (AMC5 NCC.OP.110)

1. The minimum RVR/CMV is the highest of the values specified in table 2 but not greater than the maximum specified in table 3, where applicable.
2. If the approach is flown with a level flight segment at or above MDA/H, 200 m should be added for Category A and B airplanes and 400 m for Category C and D airplanes to the minimum RVR/CMV value resulting from the application of Table 2 and Table 3.
3. An RVR of less than 750 m as indicated in Table 2 may be used:
	* 1. for CAT I operations to runways with full approach lighting system (FALS), runway touchdown zone lights (RTZL) and runway centerline lights (RCLL);
		2. for CAT I operations to runways without RTZL and RCLL when using an approved head-up guidance landing system (HUDLS), or equivalent approved system, or when conducting a coupled approach or flight-director-flown approach to a DH. The ILS should not be published as a restricted facility; and
		3. for APV operations to runways with FALS, RTZL and RCLL when using an approved head-up display (HUD).
4. Lower values than those specified in Table 2 may be used for HUDLS and auto-land operations if approved in accordance with Annex V (Part SPA), Subpart E.
5. The visual aids should comprise standard runway day markings and approach and runway lights as specified in Table 1. The competent authority may approve that RVR values relevant to a basic approach lighting system (BALS) are used on runways where the approach lights are restricted in length below 210 m due to terrain or water, but where at least one cross-bar is available.
6. For night operations or for any operation where credit for runway and approach lights is required, the lights should be on and serviceable, except as provided for in Table 4 failed or downgraded equipment.
7. For single-pilot operations, the minimum RVR/VIS should be calculated in accordance with the following additional criteria:
	* + 1. an RVR of less than 800 m as indicated in Table 2 may be used for CAT I approaches provided any of the following is used at least down to the applicable DH:

a suitable autopilot, coupled to an ILS, MLS or GLS that is not published as restricted; or

an approved HUDLS, including, where appropriate, enhanced vision system (EVS), or equivalent approved system;

* + - 1. where RTZL and/or RCLL are not available, the minimum RVR/CMV should not be less than 600 m; and
			2. an RVR of less than 800 m as indicated in Table 2 may be used for APV operations to runways with FALS, RTZL and RCLL when using an approved HUDLS, or equivalent approved system, or when conducting a coupled approach to a DH equal to or greater than 250 ft.

##### Table 1. The different Approach light systems:

|  |  |
| --- | --- |
| **Class of lighting facility**  | **Length, configuration and intensity of approach lights**  |
| FALS  | CAT I lighting system (HIALS ≥ 720 m) distance coded centerline, Barrette centerline  |
| IALS  | Simple approach lighting system (HIALS 420 – 719 m) single source, Barrette  |
| BALS  | Any other approach lighting system (HIALS, MIALS or ALS 210 – 419 m)  |
| NALS  | Any other approach lighting system (HIALS, MIALS or ALS < 210 m) or no approach lights  |

Note: HIALS: high intensity approach lighting system;

 MIALS: medium intensity approach lighting system;

 ALS: approach lighting system.

##### Table 2. RVR/CMV vs. DH/MDH

|  |  |
| --- | --- |
| **DH or MDH**  | **Class of lighting facility**  |
|  | **FALS** | **IALS** | **BALS** | **NALS** |
|  | See (d), (e), (h) above for RVR < 750/800 m |
| **ft**  | **RVR/CMV (m)**  |
| 200  | -  | 210  | 550  | 750  | 1 000  | 1 200  |
| 211  | -  | 220  | 550  | 800  | 1 000  | 1 200  |
| 221  | -  | 230  | 550  | 800  | 1 000  | 1 200  |
| 231  | -  | 240  | 550  | 800  | 1 000  | 1 200  |
| 241  | -  | 250  | 550  | 800  | 1 000  | 1 300  |
| 251  | -  | 260  | 600  | 800  | 1 100  | 1 300  |
| 261  | -  | 280  | 600  | 900  | 1 100  | 1 300  |
| 281  | -  | 300  | 650  | 900  | 1 200  | 1 400  |
| 301  | -  | 320  | 700  | 1 000  | 1 200  | 1 400  |
| 321  | -  | 340  | 800  | 1 100  | 1 300  | 1 500  |
| 341  | -  | 360  | 900  | 1 200  | 1 400  | 1 600  |
| 361  | -  | 380  | 1 000  | 1 300  | 1 500  | 1 700  |
| 381  | -  | 400  | 1 100  | 1 400  | 1 600  | 1 800  |
| 401  | -  | 420  | 1 200  | 1 500  | 1 700  | 1 900  |
| 421  | -  | 440  | 1 300  | 1 600  | 1 800  | 2 000  |
| 441  | -  | 460  | 1 400  | 1 700  | 1 900  | 2 100  |
| 461  | -  | 480  | 1 500  | 1 800  | 2 000  | 2 200  |
| 481  | - | 500  | 1 500  | 1 800  | 2 100  | 2 300  |
| 501  | -  | 520  | 1 600  | 1 900  | 2 100  | 2 400  |
| 521  | -  | 540  | 1 700  | 2 000  | 2 200  | 2 400  |
| 541  | -  | 560  | 1 800  | 2 100  | 2 300  | 2 500  |
| 561  | -  | 580  | 1 900  | 2 200  | 2 400  | 2 600  |
| 581  | -  | 600  | 2 000  | 2 300  | 2 500  | 2 700  |
| 601  | -  | 620  | 2 100  | 2 400  | 2 600  | 2 800  |
| 621  | -  | 640  | 2 200  | 2 500  | 2 700  | 2 900  |
| 641  | -  | 660  | 2 300  | 2 600  | 2 800  | 3 000  |
| 661  | -  | 680  | 2 400  | 2 700  | 2 900  | 3 100  |
| 681  | -  | 700  | 2 500  | 2 800  | 3 000  | 3 200  |
| 701  | -  | 720  | 2 600  | 2 900  | 3 100  | 3 300  |
| 721  | -  | 740  | 2 700  | 3 000  | 3 200  | 3 400  |
| 741  | -  | 760  | 2 700  | 3 000  | 3 300  | 3 500  |
| 761  | -  | 800  | 2 900  | 3 200  | 3 400  | 3 600  |
| 801  | -  | 850  | 3 100  | 3 400  | 3 600  | 3 800  |
| 851  | -  | 900  | 3 300  | 3 600  | 3 800  | 4 000  |
| 901  | -  | 950  | 3 600  | 3 900  | 4 100  | 4 300  |
| 951  | -  | 1 000  | 3 800  | 4 100  | 4 300  | 4 500  |
| 1 001  | -  | 1 100  | 4 100  | 4 400  | 4 600  | 4 900  |
| 1 101  | -  | 1 200  | 4 600  | 4 900  | 5 000  | 5 000  |
| 1 201 and above  | 5 000  | 5 000  | 5 000  | 5 000  |

##### Table 3. CAT1, APV, NPA Min and Max applicable RVR/CMV

|  |  |  |
| --- | --- | --- |
| **Facility/conditions** | **RVR/CMV (m)** | **Airplane category** |
| **A** | **B** | **C** | **D** |
| ILS, MLS, GLS, PAR, GNSS/SBAS, GNSS/VNAV | Min | According to Table 2 |
| Max | 1 500 | 1 500 | 2 400 | 2 400 |
| NDB, NDB/DME, VOR, VOR/DME, LOC, LOC/DME, VDF, SRA, GNSS/LNAV with a procedure that fulfils the criteria in point (1)(b) above (AMC4 NCC.OP.110). | Min | 750 | 750 | 750 | 750 |
| Max | 1 500 | 1 500 | 2 400 | 2 400 |
| For NDB, NDB/DME, VOR, VOR/DME, LOC, LOC/DME, VDF, SRA, GNSS/LNAV:* not fulfilling the criteria in point (1)(b) above (AMC4 NCC.OP.110), or
* with a DH or MDH ≥ 1 200 ft
 | Min | 1 000 | 1 000 | 1 200 | 1 200 |
| Max | According to Table 2 if flown using the CDFA technique, otherwise an add-on of 200/400 m applies to the values in Table 1 but not to result in a value exceeding 5 000 m. |

##### Table 4. Failed or downgraded equipment (effect on landing minima)

The Table below represents the penalties resulting from downgraded facilities. They are for preflight as well as in flight use. Failures being announced before 1000ft AGL have to be taken into account. If in doubt, make a go around. Failures announced after passing 1000ft AGL can be omitted and the approach can be continued at the discretion of the PIC.

Conditions which are applicable to the Table 4 below:

1. multiple failures of facilities other than indicated in the table below are not acceptable.
2. failures of facilities are treated separately; and
3. failures other that ILS, MLS affect RVR only, and not the DH.

|  |  |
| --- | --- |
| **Failed or downgraded equipment**  | **Effect on landing minima**  |
|  | **CAT I** | **APV, NPA**  |
| ILS/MLS standby transmitter  | No effect  |
| Outer marker  | No effect if replaced by height check at 1 000 ft  | APV — not applicable  |
| NPA with FAF: no effect unless used as FAF |
| If the FAF cannot be identified (e.g. no method available for timing of descent), non-precision operations cannot be conducted |
| Middle marker  | No effect  | No effect unless used as MAPt  |
| RVR Assessment Systems  | No effect  |
| Approach lights  | Minima as for NALS  |
| Approach lights except the last 210 m  | Minima as for BALS  |
| Approach lights except the last 420 m  | Minima as for IALS  |
| Standby power for approach lights  | No effect  |
| Edge lights, threshold lights and runway end lights  | Day — no effect Night — not allowed  |
| Centerline lights  | No effect if flight director (F/D), HUDLS or auto-land; otherwise RVR 750 m  | No effect  |
| Centerline lights spacing increased to 30 m  | No effect  |
| Touchdown zone lights  | No effect if F/D, HUDLS or auto-land; otherwise RVR 750 m  | No effect  |
| Taxiway lighting system  | No effect  |

Continuous Descent Final Approach

The Continuous Descent Final Approach technique has been promoted in order to mitigate the risks inherent in the standard step-down approach. This procedure may be further simplified in use by the vertical navigation (VNAV) feature of FMS. Continuous Descent Final Approach (CDFA)

For the reason of safety (CFIT), economy (power setting changes) and noise reduction the CDFA technique shall be used for all Non-Precision Approaches.

This specific technique is used to fly the final-approach segment of a non-precision instrument approach procedure as a continuous descent, without level-off, from an altitude/height at or above the Final Approach Fix altitude/height to a point approximately 15 m (50 feet) above the landing runway threshold or the point where the flare maneuver is initiated if higher.

Flight techniques:

The flight techniques associated with CDFA employ the use of a predetermined approach slope.

The approach, in addition, is flown in a stabilized manner, in terms of configuration, energy and control of the flight path. The approach should be flown to a DA(H) at which the decision to land or go-around is made immediately.

The ALT preselect must be set to the DA(H) (or MDA(H) as applicable) to protect from an undershoot.

For approaches flown coupled to a designated descent path using computed electronic glide slope guidance (normally a 3° path), the descent path should be appropriately coded in the flight management system data base and the specified navigational accuracy (RNP) should be determined and maintained throughout the operation of the approach.

With an actual or estimated ground speed, a nominal vertical profile and required descent rate the approach should be flown by crossing the FAF configured and on-speed. The tabulated or required descent rate is established and flown to not less than the DA(H), observing any step-down crossing altitudes if applicable.

To assure the appropriate descent path is flown, the pilot not-flying should announce crossing altitudes as published fixes and other designated points are crossed, giving the appropriate altitude or height for the appropriate range as depicted on the chart. The pilot flying should promptly adjust the rate of descent as appropriate.

With the visual reference requirements established, the airplane should be in position to continue descent through the DA(H) or MDA(H) with little or no adjustment to attitude or thrust/power.

An appropriate callout (automatic or oral) is made when the airplane is approaching DA(H). If the required visual references are not established at DA(H), the missed-approach procedure is to be executed promptly. Visual contact with the ground alone is not sufficient for continuation of the approach. With certain combinations of DA(H), RVR and approach slope, the required visual references may not be achieved at the DA(H) in spite of the RVR being at or above the minimum required for the conduct of the approach. The safety benefits of CDFA are negated if prompt go-around action is not initiated.

#### CAT1

* 1. The decision height (DH) to be used for category I (CAT I) operation shall not be lower than the highest of:
		+ 1. the minimum height to which the approach aid can be used without the required visual reference;
			2. the obstacle clearance height (OCH) for the category of aircraft;
			3. the published approach procedure DH where applicable;
			4. the system minimum of 200ft; or
			5. the minimum DH specified in the AFM or equivalent document, if stated.

#### CAT2

TBD as SPA

#### APV (Approach procedure with vertical guidance)

* 1. The decision height (DH) to be used for a non-precision approach (NPA) flown with the continuous descent final approach (CDFA) technique, approach procedure with vertical guidance (APV) shall not be lower than the highest of:
		+ 1. the minimum height to which the approach aid can be used without the required visual reference;
			2. the obstacle clearance height (OCH) for the category of aircraft;
			3. the published approach procedure DH where applicable;
			4. the system minimum specified in the table below; or
			5. the minimum DH specified in the AFM or equivalent document, if stated.

|  |  |
| --- | --- |
| Facility  | Lowest DH/MDH (ft)  |
| Global navigation satellite system (GNSS)/Satellite-based augmentation system (SBAS) (Lateral precision with vertical guidance approach (LPV))  | 200  |
| GNSS/Baro-vertical navigation (VNAV) (LNAV/VNAV)  | 250  |

#### NPA (Non Precision Approach (NDB,VOR, etc.)

* 1. The minimum descent height (MDH) for an NPA operation flown without the CDFA technique shall not be lower than the highest of:
		+ 1. the OCH for the category of aircraft;
			2. the system minimum specified in the table below; or
			3. the minimum MDH specified in the AFM, if stated.

|  |  |
| --- | --- |
| Facility  | Lowest DH/MDH (ft)  |
| GNSS (Lateral Navigation (LNAV))  | 250  |
| Localizer (LOC) with or without distance measuring equipment (DME)  | 250  |
| Surveillance radar approach (SRA) (terminating at . NM)  | 250  |
| SRA (terminating at 1 NM)  | 300  |
| SRA (terminating at 2 NM or more)  | 350  |
| VHF omnidirectional radio range (VOR)  | 300  |
| VOR/DME  | 250  |
| Non-directional beacon (NDB)  | 350  |
| NDB/DME  | 300  |
| VHF direction finder (VDF)  | 350  |

#### Circling (GM1 NCC.OP.112)

NCC.OP.112 Aerodrome operating minima — circling operations with airplanes

* 1. The MDH for a circling operation with airplanes shall not be lower than the highest of:
		+ 1. the published circling OCH for the airplane category;
			2. the minimum circling height derived from the table below; or
			3. the DH/MDH of the preceding instrument approach procedure.
	2. The minimum visibility for a circling operation with airplanes shall be the highest of:
		+ 1. the circling visibility for the airplane category, if published;
			2. the minimum visibility derived from the table below; or
			3. the runway visual range/converted meteorological visibility (RVR/CMV) of the preceding instrument approach procedure.

**MDH and minimum visibility for circling vs. airplane category**

|  |  |
| --- | --- |
|  | Airplane category |
|  | A | B  | C  | D  |
| MDH (ft)  | 400  | 500  | 600  | 700  |
| Minimum meteorological visibility (m)  | 1500  | 1600  | 2400  | 3600  |

##### Instrument Approach followed by Circling without prescribed Tracks

1. Before visual references is established, but not below MDA/H, the flight should follow the corresponding instrument approach procedure;
2. At the beginning of the level flight phase at or above the MDA/H, from the beginning of the level flight phase, the instrument approach track determined by radio navigation aids should be maintained until:
	* 1. the PIC estimates that, in all probability, visual contact with the runway or runway environment will be maintained during the entire procedure;
		2. the PIC estimates that the airplane is within the circling area before commencing circling; and
		3. the PIC is able to determine the airplane position in relation to the runway with the aid o the external references.
3. If the conditions above are not met at the Missed Approach Point (MAP), a missed approach must be carried out in accordance with the instrument approach procedure.
4. After the airplane has left the track of the corresponding instrument approach procedure, the flight phase outbound from the runway should be limited to the distance which is required to align the airplane for the final approach. Flight maneuvers must be conducted within the circling area and in such way that visual contact with the runway or runway environment is maintained at all times;
5. Flight maneuvers should be carried out at an altitude/height which is not less than the minimum descent/altitude height (MDA/H;
6. Descent below MDA/H should not be initiated until the threshold of the runway to be used has been identified and the airplane is in a position to continue with a normal rate of descent and land within the touchdown zone.

##### Instrument Approach followed by Circling with prescribed Tracks

1. Before visual reference is established, but not below MDA/H, the flight should follow the corresponding instrument approach procedure;
2. The airplane should be established in level flight at or above the MDA/H and the instrument approach track determined by the radio navigation aids maintained until visual contact can be achieved and maintained. At the divergence point, the airplane should leave the instrument approach track and the published routing and heights followed;
3. If the divergence point is reached before the necessary visual reference is acquired, a miss approach procedure should be instated not later than the MAP and carried out un accordance with the instrument approach procedure;
4. The instrument approach track determined by radio navigation aids should only be left at the prescribed divergence point when only the published routing and heights should be followed;
5. Unless otherwise specified in the procedure, final descent should not be initiated until the threshold of the runway to be used has been identified and the airplane is in a position to continue with a normal rate of descent and land within the touchdown zone.

##### Missed Approach

If the decision to carry out a missed approach is taken, when the airplane is positioned on the approach track defined by radio navigation aids, the published missed approach procedure must be followed.

If the visual references are lost while circling to land from an instrument approach, the missed approach specified for that particular instrument approach must be followed. It is expected that the PIC will make an initial climbing turn toward the landing runway and overhead the aerodrome where he will establish the airplane in a climb on the missed approach track. In as much as the circling maneuver may be accomplished in more than one direction, different patterns will be required to establish the airplane on the prescribed missed approach course depending on its position at the time visual references is lost unless otherwise prescribed.

### Meteorological conditions (NCC.OP.180)

1. **VFR**

VFR flights or VFR portions of an IFR flight may only be commenced if the following minima are fulfilled.

The following specifies the requirements for en-route weather minima for VFR-flights and/or VFR portions of an IFR-flight.

For national particularities refer to the Aeronautical Information Publication (AIP) of the state concerned and/or Jeppesen/Bottlang Airfield Manual.

Airplanes in performance category A, may be operated under VFR in visibilities of less than 5 km, in Class G airspace provided that the IAS is 140 knots or less.

|  |
| --- |
| **Airspace Class** |
| **A** | **B** | **C D E** | **F** | **G** |
| Class A airspace is reserved for IFR-Traffic only  |  |  | Above 3’000 ft AMSL or above 1’000 ft above terrain, whichever is the higher | At and below 3’000 ft AMSL or 1’000 ft above terrain, whichever is the higher  |
| **Distance from Cloud**  | Clear of cloud  | 1’500 m horizontally 1000 ft vertically  | Clear of cloud and in sight of the surface  |
| **Flight Visibility**  | 8 km at and above 10’000 ft AMSL (Note 1) 5 km below 10’000 ft AMSL  | 5 km (Note 2)  |

Note: When the height of the transition altitude is lower than 10’000 ft AMSL, FL 100 should be used in lieu of 10’000 ft.

Note: Performance Category A airplanes may be operated in flight visibilities down to 3’000 m provided the appropriate Air Traffic Service (ATS) authority permits use of a flight visibility less than 5 km, and the circumstances are such that the probability of encounters with other traffic is low, and the IAS is 140 kt or less.

1. **IFR**

The pilot-in-command shall only commence or continue an IFR flight towards the planned destination aerodrome if the latest available meteorological information indicates that, at the estimated time of arrival, the weather conditions at the destination or at least one destination alternate aerodrome are at or above the applicable aerodrome operating minima.

**VFR/IFR flights**

If a flight contains VFR and IFR segments, the meteorological information referred to in (a) and (b) shall be applicable as far as relevant.

### Destination Alternate

One destination alternate must be selected for each IFR flight unless:

the available current meteorological information indicates that, for the period from 1 hour before until 1 hour after the estimated time of arrival, or from the actual time of departure to 1 hour after the estimated time of arrival, whichever is the shorter period, the approach and landing may be made under visual meteorological conditions (VMC) or:

Both below need to be complied with:

* two separate runways are available and useable at the destination and the appropriate weather reports or forecasts for the destination aerodrome, or any combination thereof, indicate that for the period from 1 hour before until 1 hour after the expected time of arrival at destination, the ceiling will be at least 2000 ft or circling height plus 500 ft whichever is greater, and the visibility will be at least 5 km; or

- The destination is isolated and no adequate destination alternate exists.

Note: Runways on the same aerodrome are considered to be separate runways when:

1. they are separate landing surfaces which may overlay or cross such that if one of the runways is blocked, it will not prevent the planned type of operations on the other runway; and
2. each of the landing surfaces has a separate approach procedure based on a separate aid.

Two destination alternates must be selected when the appropriate weather reports or forecasts or any combination of these for the destination indicate that:

- from 1 hour before to 1 hour after the airplane’s ETA the weather conditions will be below the applicable planning minima; or

- when no meteorological information is available.

Note: Selected destination alternate(s) must be noted in the operational flight plan.

### Approach and Landing conditions (NCC.OP.225/AMC1 NCC.OP.225)

Before commencing an approach to land, the pilot-in-command shall be satisfied that, according to the information available, the weather at the aerodrome or the operating site and the condition of the runway intended to be used would not prevent a safe approach, landing or missed approach. The in-flight determined landing distances and speeds shall be based on the current meteorological and contamination conditions.

### Commencement and continuation of approach NCC.OP.230

An instrument approach may be commenced regardless of the reported Runway Visual Range (RVR) and visibility.

If the reported RVR/VIS is less than the applicable minimum the approach shall not be continued:

* below 1 000 ft above the aerodrome; or
* into the final approach segment in the case where the decision altitude/height (DA/H) or minimum descent altitude/height (MDA/H) is more than 1 000 ft above the aerodrome.

Where the RVR is not available, RVR values may be derived by converting the reported visibility.

If, after passing 1 000 ft above the aerodrome, the reported RVR/VIS falls below the applicable minimum, the approach may be continued to DA/H or MDA/H.

The touchdown zone RVR shall always be controlling.

The approach may be continued below DA/H or MDA/H and the landing may be completed provided that the visual reference adequate for the type of approach operation and for the intended runway is established at the DA/H or MDA/H and is maintained.

Visual references for Instrument Approaches:

1. NPA, APV and CAT I operations

At DH or MDH, at least one of the visual references specified below should be distinctly visible and identifiable to the pilot:

* 1. elements of the approach lighting system;
	2. the threshold;
	3. the threshold markings;
	4. the threshold lights;
	5. the threshold identification lights;
	6. the visual glide slope indicator;
	7. the touchdown zone or touchdown zone markings;
	8. the touchdown zone lights;
	9. FATO/runway edge lights; or
	10. other visual references specified in the operations manual.

LTS Cat 1 and Cat 2 reserved

## Flight Procedures

### Ground Proximity detection (NCC.OP.215)

When undue proximity to the ground is detected by a flight crew member or by a ground proximity warning system, the pilot flying shall take corrective action immediately in order to establish safe flight conditions.

### Airborne collision avoidance system ACAS and ACAS2 (NCC.OP.220)

Reference to the ACAS Guide dated December 2015 from Eurocontrol.

## Anti/De-Icing (NCC.OP.185 and 190)

Please refer to the current AEA Training and de-icing/Anti-icing procedures in Annex 3

## Fuel and Oil supply (NCC.OP.130)

**General**

The Pic is responsible for making sure that:

1. He carries enough fuel for VFR flights at:
	1. day, to fly to the destination and thereafter to continue fly for another 30min at 1500ft AGL of destination at holding speed.
	2. night, to fly to the destination and thereafter to continue fly for another 45min at 1500ft AGL of destination at holding speed.
2. He carries enough fuel for IFR flights:
	1. when no destination alternate is required, to fly to the aerodrome of intended landing, and thereafter to fly for at least 45 minutes at normal cruising altitude; or
	2. when a destination alternate is required, to fly to the aerodrome of intended landing, to an alternate aerodrome and thereafter to fly for at least 45 minutes at 1500ft AGL at holding speed.

When computing the required fuel, the following have to be taken into account regarding contingencies:

1. forecast meteorological conditions;
2. anticipated ATC routings and traffic delays (consider approach to London area, low altitude 100NM prior to London CTR);
3. procedures for loss of pressurization or failure of one engine while en-route, where applicable; and
4. any other condition that may delay the landing of the airplane or increase fuel and/or oil consumption.

### Refueling with passengers embarking, on board or disembarking (NCC.OP.155)

In exceptional cases with the commander’s authority, passengers may embark, disembark or remain on board during refueling/defueling provided that the following precautions are observed:

* + a two-way communication must be established and maintained between a flight crewmember and the responsible refueling staff;
	+ a member of the flight crew must remain on the flight deck;
	+ the Passengers must be briefed on:
		- the Exits;
		- that refueling is taking place right now;
		- to keep the seatbelts open;
		- to not block the emergency exits while getting seated;
	+ the ground area outside an around the aircraft where the exits would be, has to be kept clear in case of an evacuation.

### In-Flight fuel management (NCC.OP.205)

In-Flight Fuel Check

The commander must ensure that fuel checks are carried out at regular intervals throughout the flight. On flights of less than one hour, at least one intermediate check is to be made, or on flights of more than one hour duration, checks must be carried out at hourly intervals, at a convenient point during cruise and at the predetermined waypoints.

The Operational Flight Plan (OFP) provides the following figures corresponding to each waypoint:

* + Estimated fuel remaining (EFR);
	+ Estimated fuel used (EFU).

At each check, the remaining fuel must be evaluated so as to:

1. compare actual consumption with the expected consumption;
2. check that the fuel remaining will be sufficient to complete the flight; and
3. determine the expected fuel remaining on arrival at the destination.

The Actual Fuel Remaining (AFR) shall be noted on the Operational Flight Plan (OFP) in the allocated fields.

If, as a result of an in-flight fuel check, the expected fuel remaining on arrival at the destination is less than the required alternate fuel plus final reserve fuel, the commander must take into account the traffic and the operational conditions prevailing at the destination aerodrome, along the diversion route to an alternate aerodrome and at the destination alternate aerodrome, when deciding whether to proceed to the destination aerodrome or to divert, so as to land with not less than final reserve fuel.

## Passengers and Cargo (NCC.OP.165,

### Carriage of passengers, passenger seat allocation (NCC.OP.135, 140, 165, 170)

**Seat allocation (AMC1 NCC.OP.165)**

Regard must be paid to seat allocation which may influence a potential emergency evacuation of the airplane. Only those persons who appear reasonably fit and strong should be seated adjacent to an emergency exit or main door.

Passengers who should be seated where they will NOT obstruct emergency equipment or exits, or otherwise impede the crew in carrying out their duties include:

* + passengers who are physically or mentally handicapped to the extent that they would have difficulty in moving quickly if asked to do so (e.g. Passenger with Reduced Mobility);
	+ passengers whose sight or hearing is impaired to the extent that they might not be immediately aware of instructions given to begin evacuating the airplane;
	+ children and infants, whether accompanied by an adult or not;
	+ passengers whose physical size would prevent them from being able to move quickly.

**Multiple Occupancy of Airplane Seats**

Passengers over the age of 2 years shall be allocated a separate seat.

Multiple occupancy of an adult and an infant, up to but not including 24 months old, is permitted, providing the infant is properly secured by loop belt supplementary to the adults’ safety belt harness.

**Prior ground movement or a critical phase of flight**

Prior ground movement or a critical phase of flight like taxi, take off and approach or during turbulence in flight, the passengers have to remain seated with seatbelts fastened. They are briefed by a flight crew member and checked by a flight crew member. They are recommended to keep their belts on during the whole time while they are seated.

### Passenger briefing (NCC.OP.140)

The PIC has to ensure that the passengers are briefed on the following subjects:

1. Prior Take OFF
	1. use of the seat belts (to keep them on during the whole time which they are seated);
	2. emergency exits;
	3. emergency briefing card;

and if applicable:

* 1. life jackets
	2. oxygen masks
	3. life raft
	4. other emergency equipment carried for passenger use,

and:

1. to follow the flight crews’ orders in case of an emergency and NOT to act themselves without order.

For regular passengers (AMC1 NCC.OP.140):

If a training program covering all the above has been established and the passengers have flown on the concerned aircraft type within the last 90 days, the trained passengers may fly without emergency briefing. Stowage of baggage and cargo (NCC.OP135)

The loading and securing will be done by the pilots, or be delegated to properly trained handling staff.

Only baggage that can be adequately and securely stowed, to prevent movement may be taken and accepted into the cabin.

Before take-off, in-flight, before landing, and once the fasten seatbelt light is illuminated, indicating the forthcoming descent, the cabin shall be checked to ensure that all baggage and cargo on board, which might cause injury or damage, or obstruct aisles and exits if displaced, is (re-)placed in stowage designed to prevent movement.

* + Each item carried in the cabin must be stowed only in a location that is capable of restraining it;
	+ Mass limitation placarded on or adjacent to stowage must not be exceeded;
	+ Under seat stowage must not be used unless the seat is equipped with a restraint bar and the baggage is of such a size that it may be adequately restrained by this equipment;
	+ Items must not be stowed in toilets or against bulkheads that are incapable of restraining articles against movements forwards, sideways or upwards and unless the bulkheads carry a placard specifying the greatest mass that may be placed there;
	+ Baggage and cargo placed in lockers must not be of such a size that they prevent latched doors from being closed securely;
	+ Baggage and cargo must not be placed where it can impede access to emergency equipment;
	+ Checks must be made before take-off, before landing, and whenever the fasten seatbelt signs are illuminated or it is otherwise so ordered to ensure that baggage is stowed where it cannot impede evacuation from the aircraft or cause injury by falling (or other movement) as may be appropriate for the phase of flight.

If there are unused seats, bulkier items of hand-baggage may be placed and stowed on the seat, provided it is secured to prevent movement.

### Securing of passenger compartment and galley(s) (NCC.OP.170)

Before taxi, take off and landing, the PIC will make sure by a visual check that all exits and escape paths are unobstructed. As well he will make sure that prior take off and landing or whenever deemed necessary in the interest of safety, all equipment and baggage are properly secured.

## Use of headsets (NCC.OP.160)

1. Each flight crew member required to be on duty in the flight crew compartment shall wear a headset with boom microphone or equivalent. The headset shall be used as the primary device for voice communications with ATS:
	1. when on the ground:
		1. when receiving the ATC departure clearance via voice communication; and
		2. when engines are running;
	2. when in flight:
		1. below transition altitude; or
		2. 10 000 ft, whichever is higher;

and

* 1. whenever deemed necessary by the pilot in command.
1. In the conditions of (a), the boom microphone or equivalent shall be in a position that permits its use for two-way radio communications.

## Smoking on board (NCC.OP.175)

Smoking on board is not permitted:

1. whenever considered necessary in the interest of safety;
2. during refueling of the aircraft;
3. while the aircraft is on the surface;
4. away from the passengers seat; (outside designated smoking areas, in the aisle(s) and lavatory(ies);)
5. in cargo compartments and/or other areas where cargo is carried that is not stored in flame-resistant containers or covered by flame-resistant canvas; and
6. in those areas of the passenger compartments where oxygen is being supplied.

## Simulated situations in flight (NCC.OP.200)

The pilot-in-command shall, when carrying passengers or cargo, not simulate:

* 1. situations that require the application of abnormal or emergency procedures; or
	2. flight in instrument meteorological conditions (IMC).

Notwithstanding (a), when training flights are conducted by an approved training organization, such situations may be simulated with student pilots on-board.

Check flights without passengers do not need to be covered here.

## Use of supplemental Oxygen (NCC.OP.210)

The PIC is responsible for ensuring that all crew members use supplemental oxygen in case of the cabin altitude being above 10000ft for more than 30min.

If the cabin altitude should exceed 13000ft, the oxygen is always mandatory for all crew members.

# Dangerous Goods NCC.GEN.150 ORO.GEN.110 No Carry Operation (J or K)

## Dangerous Goods

### General

#### Policy

"The operator" is not allowed to transport declared Dangerous Goods.

To assist flight crews to deal with possible DG (Hidden DG, etc.) this chapter is nevertheless part of the OM A.

#### Responsibility (not applicable)

#### Terminology

##### Dangerous goods

Dangerous goods are articles or substances which are capable of posing a significant risk to health, safety, property or environment when transported by air and which are classified according to the table 3.1 of the ICAO Technical Instructions or Table 4.2 of the IATA Dangerous Goods Regulations.

##### DG accident

A dangerous goods accident is an occurrence associated with and related to the transport of it which results in fatal or serious injury to a person or major property damage.

##### DG incident

A dangerous goods incident is an occurrence, other than a dangerous goods accident, associated with and related to the transport of dangerous goods by air, not necessarily occurring on board an airplane, which results in injury to a person, property damage, fire, breakage, spillage, leakage of fluid or radiation or other evidence that the integrity of the packaging has not been maintained. Any occurrence relating to the transport of dangerous goods which seriously jeopardizes the airplane or its occupants in also deemed to constitute a dangerous goods incident.

##### DG classes

9 Classes of DG that reflect the type of risk.

DG classes are subdivided into divisions, designated with 2-number codes according their effect.

Cargo impact codes (Cargo IMP Code) are designated with 3-letter codes.

##### DG limitations

Some dangerous goods are too dangerous to be carried by an aircraft, others can be carried on cargo aircraft only and some are acceptable on both cargo and passenger aircraft. A number of limitations are placed on dangerous goods which are permitted to be transported by air. The limitations are established in the IATA Dangerous Goods Regulations book which is published once a year. In additional both states and operators may impose further restrictions called variations.

##### DG forbidden in aircraft under any circumstances

This means any substance, presented for transport, which is liable to explode, dangerously react, produce a flame or dangerous evolution of heat or dangerous emission of toxic, corrosive or flammable gasses or vapors under conditions normally encountered in transport, must not be carried on aircraft under any circumstance.

##### Hidden DG

Dangerous goods offered for carriage as cargo or passenger baggage which are not declared as DG.

Cargo declared under general description may contain hazardous substances that may also be found in baggage: Breathing apparatus, camping equipment, chemicals, dental apparatus, diving equipment, electronic equipment, household goods, film crew or media equipment, electronic powered apparatus, instruments, personal effects, diagnostic specimens etc.

##### Mis-declared DG

Dangerous goods offered for carriage containing DG otherwise than declared.

##### DG carried by passengers or crew

Dangerous goods must not be carried by passengers or crew

* + As or in checked baggage;
	+ As or in carry-on baggage; or
	+ On their person

See IATA Dangerous Goods Regulations table for provisions and further information.

##### DG in operator’s property

Some dangerous goods are part of property or equipment of the operator during flight operations.

This includes:

Aircraft equipment - which may be otherwise classified as dangerous goods, but are required to be on board the flight fulfilling airworthiness and operating regulations, or ones that are authorized by the state of the operator to meet special requirements.

Consumer goods - aerosols, alcoholic beverages, perfumes, colognes, safety matches and liquefied gas lighters carried aboard an aircraft by the operator for use in-flight service.

##### DG permitted as air cargo

DG which are acceptable for transport by air provided all the provisions of the IATA DGR and the ICAO TI are complied with. Generally, however, they are not permitted in or as passengers or crew carry-on baggage.

##### DG in excepted quantities

Small quantities of dangerous goods according to provisions are not subject to

IATA regulations except for:

* + Training requirements
	+ Dangerous goods other limitations
	+ Classification and packing group criteria
	+ Loading restrictions
	+ Reporting of dangerous goods incidents
	+ In case of radioactive material, the requirements for radioactive material in excepted packages
	+ Definitions

##### DG in limited quantities

This type of dangerous goods is not allowed.

##### State and operator variations

States and operators may submit variations to the IATA regulations.

#### Classes of DG

Dangerous goods are divided into nine classes:



### Requirements (not applicable) N/A.

### Emergency situations involving dangerous goods

#### General considerations

In the event of an incident or accident involving dangerous goods, the following general considerations may be taken into account (if time and situation permits): Fire or smoke removal emergency procedures to be carried out: Using the appropriate smoke removal emergency procedures may reduce the concentration of any contamination and help to avoid recirculation of contaminated air. Reducing altitude will reduce the rate of vaporization of liquid and may reduce the rate of leakage (but it may increase the rate of burning). Rate of ventilation: Survival chances are greatly enhanced by ensuring maximum cabin ventilation. No smoking on: A smoking ban must be introduced when fumes or vapors are present.

#### Checklist for dangerous goods incidents

As a result of the general considerations the following checklists are regarded as suitable for help in case of incidents/accidents involving dangerous goods:

##### **Flight Crew**

**Doors closed/during flight**

* -Follow the appropriate airplane emergency procedures for fire or smoke removal-
* -No smoking on-
* -Consider landing as soon as possible−
* -Consider turning off non-essential electrical power-
* -Determine source of smoke/fumes/fire-
* -Determine emergency drill response code-
* -If time available, notify ATC of at least the UN numbers of any dangerous goods being carried-

**After landing**

* **-**Disembark passengers and crew before opening any cargo compartment doors. The compartment doors should only be opened with the emergency service in attendance-
* -Inform ground personnel/emergency services of nature of item and where stowed-
* -Make appropriate entry in the airplane technical log-
* -Make sure that any leakage or spillage of dangerous goods has not dam-aged or contaminated the airplane structure or systems
* -Remove any contamination which occurred-

## Weapons and ammunition

### General

IATA Resolution 745a governs the acceptance of firearms, ammunition and other weapons, whereas the ICAO deals with the DG ammunition in the TI and in Annex 17 with the weapons.

Weapons and ammunition must be transported as checked baggage and/or stowed in the airplane in a place that is inaccessible to passengers during flight.

### Notification to the commander

The CMD must be informed before the flight of the details of weapons or ammunition intended to be carried on board, including its location.

### Sporting weapons

#### Policy

Sporting rifles/shotguns, hunting rifles, sporting pistols/revolvers may only be transported in the checked baggage, provided that firearms are unloaded and suitably packed.

#### Packing

Hunting or sporting rifles must be suitably packed in containers made of wood, metal, fiber, styropor etc.

With the approval of the operator it is allowed to transport, as checked baggage only, securely packaged cartridges (UN 0012 or UN 0014 only), in Division 1.4S, in quantities not exceeding 5 kg gross weight per person for that person's own use, excluding ammunition with explosive or incendiary projectiles. The cartridges must be packed (as laid down in the ICAO TI) in a strong outer container and inside be protected against shock and secured against movement, that it cannot function accidentally.

#### Crew Regulation

Flight personnel is not allowed to carry private weapons while on duty.

### War material

While most war material does not fall under the category “Dangerous Goods”, ammunition, cartridges must be classified as “Explosive” and consequently meet all regulations stipulated in the IATA DGR and ICAO TI.

## Medical shipments

Blood or blood components that have been collected for the purposes of transfusion or for the preparation of blood products and any tissues or organs intended for use in transplantation and Medications (subject or not subject to IATA Dangerous goods regulations) are normally transported as manifested cargo.

Exceptionally and in top urgent cases, such blood or blood components, human tissues and organs as well as Medications which are not subject to IATA Dangerous Goods regulations may be accepted un-manifested and handed over to the crew for transportation without responsibility on the part of company for loss or damage.

# Security (Not Applicable)

# Occurrence reporting (376/2014 if NAA sees you as a non complex operator in the light of the 376/2014)

Änderung der Luftverkehrs-Ordnung (Extract from the German Reporting on incidents Law)

Der § 7 der Luftverkehrs-Ordnung (LuftVO) vom 06. November 2015 wird wie folgt neu gefaßt:

§ 7 Meldung von Unfällen und Störungen

(1) Der verantwortliche Luftfahrzeugführer hat Unfälle ziviler Luftfahrzeuge im Sinne von Artikel 2 Nummer 1 der Verordnung (EU) Nr. 996/2010 des Europäischen Parlaments und des Rates vom 20. Oktober 2010 über die Untersuchung und Verhütung von Unfällen und Störungen in der Zivilluftfahrt und zur Aufhebung der Richtlinie 94/56/EG (ABl. L 295 vom 12.11.2010, S. 35) in der jeweils geltenden Fassung, die sich im Hoheitsgebiet der Bundesrepublik Deutschland ereignet haben, unverzüglich der Bundesstelle für Flugunfalluntersuchung zu melden. Falls der Luftfahrzeugführer nicht in der Lage ist, muss ein anderes Besatzungsmitglied die Meldung nach Satz 1 machen oder, sofern keines der anderen Besatzungsmitglieder dazu in der Lage ist, der Halter des Luftfahrzeugs. Die Meldepflicht nach Satz 1 gilt auch für Unfälle deutscher Luftfahrzeuge außerhalb der Bundesrepublik Deutschland und für Unfälle ausländischer Luftfahrzeuge, die zur Zeit des Ereignisses von deutschen Luftfahrtunternehmen betrieben werden. Die Meldepflicht gilt nicht für Luftsportgeräte.

(2) Der verantwortliche Luftfahrzeugführer hat schwere Störungen im Sinne von Artikel 2 Nummer 16 der Verordnung (EU) Nr. 996/2010, die sich bei dem Betrieb ziviler Flugzeuge, Drehflügler, von Ballonen und Luftschiffen im Hoheitsgebiet der Bundesrepublik Deutschland ereignet haben, unverzüglich der Bundesstelle für Flugunfalluntersuchung zu melden. Die Meldepflicht nach Satz 1 gilt auch für schwere Störungen außerhalb der Bundesrepublik Deutschland beim Betrieb deutscher Luftfahrzeuge und ausländischer Luftfahrzeuge, die zur Zeit des Ereignisses von deutschen Luftfahrtunternehmen betrieben werden.

(3) Erhalten die Luftaufsichtsstellen, die Flugleitungen auf Flugplätzen, die Flugsicherungsdienststellen oder beteiligte Personen nach Artikel 2 Nummer 11 der Verordnung (EU) Nr. 996/2010 Kenntnis von einem Unfall oder einer schweren Störung, so sind sie ungeachtet der Absätze 1 und 2 verpflichtet, den Unfall oder die schwere Störung unverzüglich der Bundesstelle für Flugunfalluntersuchung zu melden.

(4) Meldungen nach den Absätzen 1 bis 3 sollen enthalten:

den Namen und den derzeitigen Aufenthalt des Meldenden,

den Ort und die Zeit des Unfalls oder der schweren Störung,

die Art, das Muster sowie das Kenn- und das Rufzeichen des Luftfahrzeugs,

den Namen des Halters des Luftfahrzeugs,

den Zweck des Flugs, den Start- und den Zielflugplatz,

den Namen des verantwortlichen Luftfahrzeugführers,

die Anzahl der Besatzungsmitglieder und Fluggäste,

den Umfang des Personen- und Sachschadens,

Angaben über beförderte gefährliche Güter,

eine Darstellung des Ablaufs des Unfalls oder der schweren Störung.

Der Halter des Luftfahrzeugs ist verpflichtet, auf Verlangen der Bundesstelle für Flugunfalluntersuchung zur Vervollständigung der Meldung innerhalb von 14 Tagen einen ausführlichen Bericht auf zugesandtem Formblatt vorzulegen.

(5) Die Bundesstelle für Flugunfalluntersuchung ist befugt, die Daten nach Absatz 4 zu erheben, zu speichern und zu nutzen, soweit dies für ihre Aufgabenerfüllung im Zusammenhang mit der Untersuchung und Verhütung von Unfällen und Störungen in der Zivilluftfahrt im Einzelfall erforderlich ist. Sie hat die Daten nach Absatz 4 unverzüglich zu löschen, wenn sie zur Erfüllung der Aufgaben nach Satz 1 nicht mehr erforderlich sind.

(6) Pflichten zur Abgabe von Meldungen an das Luftfahrt-Bundesamt und an andere Luftfahrtbehörden auf Grund anderer Vorschriften oder Auflagen bleiben unberührt.

(7) Unfälle und Störungen bei dem Betrieb von Luftsportgeräten hat der Luftsportgeräteführer unverzüglich dem nach § 31c des Luftverkehrsgesetzes Beauftragten schriftlich oder elektronisch zu melden. Absatz 1 Satz 2 und die Absätze 4 und 5 gelten entsprechend.

# Rules of the Air (Not Applicable)

# Leasing/Code-Share (Not Applicable)

# Performance

## NCC.POL.100 and 105 Mass and balance, loading and limitations.

The aircraft has to be at all times operates within its limitations specified in the current version of the AFM or in the OM in case that is more restrictive.

The weighing is carried out by any Approved Maintenance Organization. They weighing report is official and remains on board the aircraft. Any modification to the aircraft resulting in a weight change will produce a re-weighing of the aircraft.

The dry operating mass consists of:

1. Crew std weights:
	* 85 kg, including hand baggage, for flight crew/technical crew members; and
	* 75 kg for cabin crew members.
2. catering and removable passenger service equipment; and
3. tank water and lavatory chemicals.

The PIC has the authority to decide whether to use the std weights or to do actual weighing of each crew member and his belongings. The same applies to the passenger weights. He also has the possibility to ask the passengers for their weight and add a std mass of 4 kg for clothing and 6 kg for hand baggage on top.

If weighing of the crewmembers/passenger is chosen, it has to be done with the personal belongings and hand luggage together prior boarding.

The position of the luggage in the luggage compartments does not have a big effect on the CG position. But of high importance is the seating of the passengers. The PIC is responsible to seat the passengers according the pre-calculated seating positions. If the passengers will not seat on the given positions, a new W&B has to be produced according the AFM.

Passenger and Baggage weights.

On any flight identified as carrying a significant number of passengers whose masses, including hand baggage, are expected to significantly deviate from the standard passenger mass, the PIC shall determine the actual mass of such passengers by weighing or by adding an adequate mass increment. The increment is up to the judgment of the PIC

**Standard masses for passengers — aircraft with a total number of passenger seats of 19 or less**

|  |  |  |  |
| --- | --- | --- | --- |
| Passenger seats | 1 – 5 | 6 – 9 | 10 – 19 |
| Male | 104 kg | 96 kg | 92 kg |
| Female | 86 kg | 78 kg | 74 kg |
| Children | 35 kg | 35 kg | 35 kg |

For aircraft with 19 passenger seats or less, the actual mass of checked baggage shall be determined:

1. by weighing; or
2. by calculation on the basis of a statement by, or on behalf of, each passenger. Where this is impractical, a minimum standard mass of 13 kg shall be used.

## NCC.POL.110 Mass and balance data and documentation

Prior to each flight a W&B calculation either computerized or by hand has to be done, specifying the load and its distribution in such a way that the mass and balance limits of the aircraft are not exceeded. The mass and balance documentation shall contain the following information:

1. aircraft registration and type;
2. flight identification, number and date, as applicable;
3. name of the pilot-in-command;
4. name of the person who prepared the document;
5. dry operating mass and the corresponding CG of the aircraft;
6. mass of the fuel at take-off and the mass of trip fuel;
7. mass of consumables other than fuel, if applicable;
8. load components including passengers, baggage, freight and ballast;
9. take-off mass, landing mass and zero fuel mass;
10. applicable aircraft CG positions; and
11. the limiting mass and CG values.

In case a computerized system is used, the SCMS does a compliance check of the integrity of the outputted data every 6 Months. (AMC2 NCC.POL.110 (b))

When the loading of the aircraft is not supervised by the pilot-in-command, the person supervising the loading of the aircraft shall confirm by hand signature or equivalent that the load and its distribution are in accordance with the mass and balance documentation established by the pilot-in-command. The pilot-in-command shall indicate his/her acceptance by hand signature or equivalent.

### Last minute change of the load.

In case a last minute change is required, the limits of deviation from initial calculation before a completely new W&B calculation has to be done are:

1. Max.... Fuel difference
2. Max number of Passenger difference
3. Max Baggage difference

The table to complete the LMC is at the end of the W&B form in the OFP.

## NCC.POL.111 Mass and balance data and documentation — alleviations

Notwithstanding the above, the CG position may not need to be on the mass and balance documentation, if the load distribution is in accordance with a pre-calculated balance table or if it can be shown that for the planned operations a correct balance can be ensured, whatever the real load is.

## NCC.POL.115 Performance – General

The pilot-in-command shall only operate the aircraft if the performance is adequate to comply with the applicable rules of the air and any other restrictions applicable to the flight, the airspace or the aerodromes or operating sites used, taking into account the charting accuracy of any charts and maps used.

## NCC.POL.120 Take-off mass limitations

The PIC is responsible for making sure that the aircraft never exceeds the mass limitations according AFM for T/O, reland after T/O and landing at destination. He also is responsible for making sure that he complies with the maximum weights for the OEI en-route requirements in regards to his route.

## NCC.POL.125 Take-off

When determining the maximum take-off mass, the pilot-in-command shall take the following 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 runway surface;
4. the runway slope in the direction of take-off;
5. not more than 50 % of the reported head-wind component or not less than 150 % of the reported tailwind component; and
6. the loss, if any, of runway length due to alignment of the airplane prior to take-off.
7. the calculated take-off distance shall not exceed the take-off distance available with a clearway distance not exceeding half of the take-off run available;
8. the calculated take-off run shall not exceed the take-off run available;
9. a single value of V1 shall be used for the rejected and continued take-off, where a V1 is specified in the AFM; and
10. on a wet or contaminated runway, the take-off mass shall not exceed that permitted for a take-off on a dry runway under the same conditions.

Wet and contaminated runway performance data, if made available by the manufacturer, should be taken into account. If such data is not made available, the operator should account for wet and contaminated runway conditions by using the factors:

Excluding airplane equipped with turboprop engines and a maximum take-off mass at or below 5 700 kg, in the event of an engine failure during take-off, the pilot-in-command shall ensure that the airplane is able:

1. to discontinue the take-off and stop within the accelerate-stop distance available or the runway available; or
2. to continue the take-off and clear all obstacles along the flight path by an adequate margin until the airplane is in a position to comply with NCC.POL.130.

The Obstacle clearance and a contingency procedure for departure requirements can be retrieved from commercial productions (APG), or produced by the Operator.

## NCC.POL.130 En-route — one engine inoperative

The pilot-in-command shall ensure that in the event of an engine becoming inoperative at any point along the route, a multi-engine airplane shall be able to continue the flight to an adequate aerodrome or operating site without flying below the minimum obstacle clearance altitude at any point.

This can be done by checking the lowest OEI cruising altitude if it is above the MSA, or by having drift down procedures applicable to the aircrafts performance and the planned route.

## NCC.POL.135 Landing

The pilot-in-command shall ensure that at any aerodrome, after clearing all obstacles in the approach path by a safe margin, the airplane shall be able to land and stop within the landing distance available. Allowance for expected variations in the approach and landing techniques, if such allowance has not been made in the scheduling of performance data by the manufacturer, the PIC is recommended to apply factors only to the contaminated runways.

The following should be considered when calculating the performance to land within LDA:

1. the pressure altitude and temperature at the aerodrome;
2. the runway surface condition and the type of runway surface;
3. the runway slope in the direction of landing;
4. not more than 50 % of the reported head-wind component or not less than 150 % of the reported tailwind component if not already accounted for by the manufacturers performance data; and
5. use of the most favorable runway, in still air;
6. use of the runway most likely to be assigned considering the probable wind speed and direction and the ground handling characteristics of the airplane, and considering other conditions such as landing aids and terrain.

NCC.IDE.100 – 130,150,155,170,175,185,190,205,206,A.210,A.215,A.220,A.245,A.250.A.255 are covered through the Type of OPS und MEL´s.

# MEL & CDL (NCC.IDE.A.105 and all other MEL relevant parts. NCC.IDE should be covered by the MEL.)

**Use of Minimum Equipment List(s)**

The Minimum Equipment List (MEL) lists all the equipment, systems and components that must be serviceable before flight. Items that may be unserviceable which will not jeopardize the continuation of the flight, together with any additional limitations that may apply to flights with such inoperative items, are indicated in the MEL. The MEL is intended to permit operation with inoperative equipment or components for a specified time until maintenance can rectify the unserviceable items.

The MEL provides the PIC with the authority to operate the airplane with specified unserviceable equipment or components, but it must be emphasized that irrespective of the provisions of the MEL, the PIC is not obligated to operate with a particular defect or defects if in his/her opinion these defects could adversely affect the safety of the flight.

The MEL forms part of the Operations Manual Part B, Chapter “Minimum Equipment List” for each airplane type concerned, but is published as a separate document to make it easier to use.

Each MEL is based on a Master Minimum Equipment List (MMEL), developed by the Type Certificate Holder and approved by the Certification Authority. The corresponding MMEL, on which the MEL is based, must be acceptable to- and each separate MEL must be approved by- the competent authority prior to use and will not deviate from the Aircraft Flight Manual (AFM) limitations or emergency procedures or from any applicable airworthiness directive and will be no less restrictive than the MMEL.

The provisions of the MEL are applicable up until the airplane first moves under its own power, after which it is up to the PIC’s judgment whether a flight should continue when the defect becomes apparent after a flight has commenced.

All items not listed on the MEL that are related to the airworthiness of the airplane must be operational before departure.

 Equipment not required for the safe operation of the airplane such as galley equipment or passenger convenience items are not listed on the MEL and are not required to be functional.

Updates of the MEL. The Manufacturer keeps the Master Minimum Equipment list up to date. The operator monitors the updates of the MMEL and if required amends his MEL with the relevant updated parts of the MMEL. After that a copy of the MEL is resend to the Competent authority.

# PBN Performance Based Navigation SPA.

## General Limitations

* + GPS based IFR enroute, oceanic, and terminal navigation is prohibited unless the pilot verifies the currency of the database or verifies each selected waypoint for accuracy by reference to current approved data.
	+ Receiver Autonomous Integrity Monitoring (RAIM) must be available when conducting instrument approaches utilizing the GPS receiver.
	+ Use of GPS to accomplish ILS, LOC, LOC-BC, LDA, SDF, MLS or any other type of approach not approved for is not authorized. GPS overlay information is only for situational awareness.
	+ GPS Operation in airspace referenced to a datum other than WGS-84 or NAD-83 is prohibited.
	+ For flight planning purposes, if an alternate airport is required, it must have an approved instrument approach procedure, other than GPS or RNAV, which is anticipated to be operational and available at the estimated time of arrival. All equipment required for this procedure must be installed and operational.
	+ If Conventional Navaids are not available, the crew has to make sure that they are able to fly a missed approach with safe terrain clearance or are able to be within radar vectoring altitude within safe terrain clearance.
		- Examples would be:
			* Fly RWY heading and climb at best climb angle to at least MSA or MEVA or a level which provides a suitable obstacle clearance.
			* Or to maintain VMC.

## Aircraft Limitations and Equipment Minima

Refer to the current version of the AFM and the MEL.

## Operating Procedures

### Planning / Preflight Flow

1. Navigation Database Validity
2. Check NOTAMS and NANUs/Weather Reports/NAV DATA Alerts.
3. RAIM check for ETA +-15min. Not earlier than 24h before EOBT. This may be done by the receiver own RAIM Test.
4. Either Destination or Alternate has to be conventional Navigation Approaches.
5. CDI Scaling is set to auto.

### Departure

1. Check Correct Departure is Loaded (RNAV or Conventional Overlay!)
2. Compare the Departure Waypoints from the FMC to the Departure chart. Check Waypoints for sequence, distance and altitude constrains.
3. Make sure CDI Scaling is in Auto and has set itself on DEP Mode at an accuracy of 0.3.
4. Confirm the Positive RAIM check.
5. Position Check on Take Off Position on the Runway.

### Arrival/Descend

1. Reconfirm RAIM.
2. Load the correct Approach Procedure and compare to the Approach chart for:
3. Reasonableness of Tracks and distances of Appr Legs
4. Accuracy of the Inbound Course
5. Mileage of the Final Appr Segment
6. Check for Fly by and Fly over waypoints and compare to the map display to confirm they are the same.

### Descend approaching Terminal Area (Within 30NM to destination)

At approximately 30 NM from the destination, the system should transition from enroute to an intermediate or 'terminal' mode, and the HSI/CDI scaling should change gradually from the en-route setting (full scale deflection at 5 NM cross track error) to the terminal setting (full scale deflection at 1nm cross track error). By this point, the pilot's HSI/CDI should be confirmed as selected to GPS information display (as opposed to VOR/LOC) and aligned correctly to display the track of the current or next leg.

### Approach

1. Setup and Identification of Missed Approach Navaids.
2. Once cleared by ATC, activate the Approach or Activate Vectors to final if Vectored by ATC.

*Note: Activating an Approach will lead to the FMC going to the IAF. Activating VTF will activate an extended centerline which has to be intercepted by heading and the AP in APPR MODE.*

### Activating, Arming or Enabling the Approach

Before reaching the IAF the pilot should activate or enable the selected approach and pilots must be familiar with how to do this in their receiver. Failure to activate the approach correctly, or in time, may result in inaccurate or misleading information being displayed to the pilot

### Radar Vectors and ATC Procedures

Route modifications may take the form of radar headings or clearances to route 'direct to' any waypoint and pilots should be capable of reacting in a timely fashion. Pilots must be familiar with the procedures to activate any particular leg and how to use any 'direct to' routing function for any waypoint in the flight plan, route or approach procedure. Pilots should also be capable of re-activating a previous leg or waypoint in the event of returning to a previous waypoint. Some receivers allow selection of the approach by way of vectors to the Final Approach Track and pilots should be familiar with the selection and activation of the approach using vectors to the final track by ATC. Vectors to a waypoint not included in the approach profile contained in the GPS database may lead to incorrect approach mode activation and waypoint sequencing. When faced with such a clearance, pilots are advised to request vectors to a procedure waypoint instead. Some receivers will allow re-selection and activation of a different approach at this point, and pilots must be capable of changing the selected approach (e.g. from a procedural to the vectored approach on the same runway), should ATC insist on changing a procedural clearance to radar vectors or vice versa. Some receivers will not transition easily between the full procedure and the vectored approach. Unless the pilot is fully conversant with the technique to switch procedure quickly, or transition directly to a successive waypoint in the procedure, it is recommended that pilots self-positioning for the procedural approach through an IAF, should not then accept vectors to any point other than the Initial Approach Fix (IAF) instead electing to hold at the IAF, or outside the approach area completely, until a further clearance for the approach is given.

### Spatial Orientation and Situation Awareness

During RNAV operations, the presentation of distance to the next waypoint or cross-track error are displayed as a distance instead of an angle and the absence of some errors such as slant-range and scalloping, all contribute to a significant change in the navigation environment. Some of the familiar rules of thumb no longer apply. Most importantly, and unlike many conventional instrument approaches, distance information is not necessarily displayed to the aerodrome or runway during an RNAV approach. This means the distance display may repeatedly count to zero and then jump to a higher figure at the passage of each successive waypoint and the cues for the next stage of the approach - such as step descents or turns - may be less obvious to the flight crew. It is critical to the safety of the flight, therefore, that pilots anticipate the passage of each successive waypoint in the procedure. This requires continuous monitoring of the aircraft position against the approach chart and checking that the receiver is sequencing correctly to the next leg of the procedure. Pilots must be fully familiar with the vertical profile of the approach to be flown (including the Missed Approach Procedure) together with the names and geography of each of the waypoints throughout the sequence. Until reaching the FAF, distance to the next waypoint should be displayed, but overall distance to the destination may not be apparent. This causes pilots easily to lose awareness of position along the associated descent profile, previously determined by comparison of a continually eroding distance to destination against the aircraft's level. Pilots may not always, therefore, rely on distance indication to monitor the descent and must determine the correct level to fly by reference to each successive waypoint name instead. This will require familiarity with all waypoint names and almost certainly require repeated reference to the approach chart. When flying a 'T' or 'Y' shaped RNAV procedure, the transition of the intermediate fix will normally require a turn onto the final approach track. Most systems will display a message reminding the pilot of the next track and that a turn is required but the pilot must retain satisfactory spatial orientation and adjust the HSI/CDI alignment in time to align with the next track.

### Final Approach

The final approach trajectory should be intercepted no later than the FAF in order that the aircraft is correctly established on the final approach course before starting the descent (to ensure terrain and obstacle clearance). If the approach procedure is not correctly activated, the display may not be accurate, the sensitivity may not be correct and the safety monitoring functions of the system itself will not be in place. The instrument display and any system message page should also be checked to ensure that there are no warnings, messages or instrument flags prohibiting the continued approach.

The flight progress should be monitored for plausibility - using XTE, FMC or MAP indications, as appropriate, for the track-keeping assessments. Where a multi sensor FMC/FMS is used, the estimated position error (EPE/EPU/ANP as appropriate) should be monitored to determine the navigational accuracy. If any doubt exists about the navigational accuracy, the procedure should be discontinued.

### Monitoring the Final Descent

Some NPA procedures contain additional level restrictions in the final descent, before reaching the MDA/H, known as Step-Down Fixes (SDF). These limitations, when present in the final descent between the FAF and the MAPt, represent absolute minimum heights above terrain (or other restrictions) and are included in the procedure design as an additional safety measure. Some RNAV equipment displays these restrictions as additional waypoints in the database and the correct distance to the runway is replaced with the shorter distance to the next SDF. This removes the simple distance comparator that normally enables the pilot to calculate a stable descent profile to the runway, using height against distance out. The incorrect assumption that the SDF has been passed, (before actually reaching it) and that this (shorter) distance is now to the runway (and not, as it actually is, to the SDF), might easily lead the pilot to descend below the approach profile and into the under-shoot area.

**This is a significant difference from the technique normally used on an NPA with distance guidance such as an NDB/DME approach and full familiarity with the equipment display and the descent profile is critical at this stage of flight.**

Furthermore, the published minimum heights associated with these steps are often well below the ideal, stable descent profile. Whilst the initial and intermediate approach will be a series of descents between waypoints, it is no longer considered best practice to fly the final descent in a succession of level steps. Instead pilots must be fully familiar with the procedure presentation in their own equipment (and on the chart) and should be able to follow the advisory vertical profile by way of a continuous, stabilized descent to MDA/H.

### Missed Approach Procedure

GNSS systems are more susceptible to interference and jamming than the terrestrial approach aids. Before commencing an RNAV (GNSS) missed approach, a Missed Approach Procedure (MAP) should be available without reference to GPS derived navigation so that, in the event of a loss of GPS accuracy or loss of position during the approach, a safe return to above Minimum Sector Altitude can be made. This may be possible by DR navigation, but where this is not possible, and the MAP requires reference to terrestrial navigation aids, these must be available, tuned and correctly identified before passing the IAF and remain available throughout the approach.

Reasons for a missed approach are many and if GPS information remains available for the MAP, the pilot must be able to sequence the system correctly past the Missed Approach Point (MAPt), in order to follow the published MAP correctly. The receiver may not do this automatically and pilots should be fully competent in the necessary selection routines required by their own equipment in order to transition to the MAP and preserve accurate navigation throughout. When GPS navigation is NOT available for the MAP, it may be necessary to re-set the display function of the HSI/CDI to disengage GPS information and regain VOR/LOC display. Pilots must be fully conversant with these navigation display selections in order safely to follow the MAP. If neither GPS nor Conventional Navaids are available during a RNAV MAP (For example approach to an airport which has no conventional Navaids and the whole procedure is purely based on GPS) the Crew has to verify and brief how they can perform a missed approach without Navigational reference to get above minimum obstacle clearance or MSA before the flight. For example a 180 degrees turn back to the field if the terrain permits, and then climbing on the back course of the final approach course (with heading funktion).

### Abnormal Procedures

As the aircraft approaches the FAF, the receiver should automatically perform a final RAIM (or RAIM (FD)) prediction for the approach. The receiver will not enter the approach mode if this RAIM prediction is negative. If this happens, the approach should be discontinued. However, this RAIM check assumes availability of the full constellation and will not take account of scheduled interruptions or failures. This can lead to a successful RAIM prediction at this point when the RAIM function itself is not available. If RAIM is lost after passing the FAF, the equipment should continue to provide navigation for five minutes (where possible) before giving a RAIM loss indication. This should be enough to complete the approach.

Should RAIM detect an out of tolerance situation, an immediate warning will be given and a missed approach should be initiated immediately.

The approach should be discontinued:

* + If the receiver fails to engage or activate the correct approach mode;
	+ If a RAIM (or equivalent) warning is activated;
	+ In case of Loss Of Integrity (LOI) monitoring;
	+ If RAIM (or equivalent) function is not available and annunciated before passing the FAF; or
	+ Whenever the HSI/CDI indication exceeds half scale displacement.

In the event of communications failure, the flight crew should continue in accordance with published lost communication procedures and set squawk 7600. The flight crew should notify ATC of any problem with the RNAV/GNSS system that results in the loss of the approach capability

### RNAV / GNSS APPR Checklist

The following checklist is an additional checklist to the normal mandatory checklists. It does not replace any other mandatory checks.

**Flight Planning**

1. Confirm approach published as "RNAV (GNSS) Approach";
2. Identify and check availability of (ILS/VOR/NDB/DME) approach facilities at alternate Aerodrome.
3. If no Conventional Navaids are available at destination and/or no alternate is required, the crew has to check and Brief how the missed approach can be performed without reference to conventional navaids and maintaining at all times safe terrain clearance.
4. Check weather suitability, If no alternate is required or no alternate with conventional navaids is available, safety additions in the discretion of the crew shall be added to the weather minima.
5. Perform RAIM prediction;
6. Check NOTAMs;
7. Other Equipment - Check NOTAMS for availability of other nav-aids.

**Pre-flight Checks**

1. Check aeronautical database version is current;
2. Perform functional check on start-up. Monitor auto-test function, confirm status of system and navigation availability;
3. Check system settings and display parameters (as applicable to receiver type):
* Set CDI scaling to 'automatic';
* Check setting of alarms, airspace and altitude buffers;
* Check Map display settings, de-clutter and map orientation;
* Check heading and track display
* Check map datum to WGS 84;
* Check the units of measure of distance, speed, altitude, barometric pressure and position format;
* Select display to show at least:
	+ Desired Track (DTK);
	+ Groundspeed (GS);
	+ Distance to next waypoint (DIS);
* Check date and time format;
	1. Enter Flight Plan or Route;
	2. Add expected departure to Flight Plan or Route;
	3. Review loaded departure procedure for accuracy against published approach plate or chart;

**Descend/Before Reaching IAF**

Within 30 NM of destination:

* 1. Confirm revised ETA (within RAIM Prediction Window);
	2. Check status of system and satellite coverage;
	3. Check navigation mode, EPE, DOP or HUL (where applicable);
	4. Obtain Clearance for Approach;
	5. Re-check loaded procedure for:
		1. Waypoint sequence;
		2. Reasonableness of the tracks and distances;
		3. Accuracy of the inbound course and length of final segment;
		4. Identify any fly-over waypoints;
		5. Check presentation of procedure on any map display;
	6. Check/Set HSI/CDI navigation source to GPS;
	7. Check CDI Scaling (1 NM – Terminal Mode);
	8. Completed approach brief including minima and MAP;

**Approaching the IAF**

* 1. Re-check/Set HSI/CDI Navigation Source to GPS;
	2. Check Approach correctly activated in receiver;
	3. Set and identify terrestrial nav-aids as required;
	4. Check next Track, Distance and Level from approach chart;
	5. Complete aircraft approach checks as applicable to type.

**At the IAF and Intermediate Fix (IF)**

* 1. Set HSI/CDI to next track and turn aircraft when advised by receiver; IF NOT AUTOMATICALLY DONE!!!
	2. Descend in accordance with procedure.

**Approaching the FAF**

* 1. Check for RAIM if no automatic check 2NM before FAF has been performed.
	2. Complete aircraft landing checks as applicable to type;
	3. Check altimeters set and crosschecked;
	4. Check CDI Scaling (0.3 NM-Approach mode (LNAV/VNAV not approved for vertical guidance Glide Path! LPV Approved);
	5. Check correct approach mode annunciator as applicable to receiver type;
	6. Check system messages and flags clear;
	7. Re-check final track on approach chart;
	8. Review minima (Step-down, MDA/H and RVR/visibility, CDA);

**Final Descent**

* 1. Monitor cross-track error on HSI/CDI;
	2. Monitor final descent using altimeter against vertical profile on chart.

**Missed Approach**

* 1. Go-around in accordance with normal aircraft procedures;
	2. If RNAV information is lost or a loss of integrity (or RAIM) message or warning is visible:
		1. Re-set HSI/CDI navigation source to VOR/LOC;
		2. Continue with published MAP or as directed by ATC;
		3. Inform ATC that RNAV navigation has been lost;
	3. If RNAV information is still available:
		1. Change receiver mode to MAP or OBS tracking as applicable;
		2. Continue with RNAV (GNSS) MAP or as directed by ATC.

### Temperature Correction Chart

Pressure altimeters are calibrated to indicate true altitude under ISA conditions. Any deviation from ISA will result in an erroneous reading on the altimeter. In the case when the temperature is higher than ISA, the true altitude will be higher than the figure indicated by the altimeter and the true altitude will be lower when the temperature is lower than ISA. The altimeter error may be significant and becomes important when considering obstacle clearances in very cold temperatures. In conditions of extreme cold weather pilots should add the values derived from the altitude correction chart to the published minimum altitudes to ensure adequate obstacle clearance.

Unless otherwise specified, the elevation of the aerodrome in use is taken as the elevation of the altimeter source.

* 1. Altitudes assigned by ATC normally account for temperature variation but pilots must be aware of the effect of low temperature on true altitude and assure themselves that obstacle clearance is not compromised.
	2. Radar vectoring altitudes assigned by ATC are temperature compensated and require no corrective action by pilots.

These corrections must be applied, as appropriate, when conducting an instrument approach:

* 1. To DA (except Baro-VNAV procedures that have a temperature limit) and MDA.
	2. Non-precision approach with nominal descent path: to minimum altitudes after passing the Final Approach Fix.

It may be necessary to apply temperature corrections to the engine failure acceleration altitude.

**Values to be added by the pilot to minimum promulgated heights/altitudes (ft)**

|  |  |
| --- | --- |
| AerodromeTemperature | Height above the elevation of the altimeter setting source (ft) |
|  | 200 | 300 | 400 | 500 | 1000 | 2000 | 3000 | 4000 | 5000 |
| 0˚C | 20 | 20 | 30 | 30 | 60 | 120 | 170 | 230 | 280 |
| -10˚C | 20 | 30 | 40 | 50 | 100 | 200 | 290 | 390 | 490 |
| -20˚C | 30 | 50 | 60 | 70 | 140 | 280 | 420 | 570 | 710 |
| -30˚C | 40 | 60 | 80 | 100 | 190 | 380 | 570 | 760 | 950 |
| -40˚C | 50 | 80 | 100 | 120 | 240 | 480 | 720 | 970 | 1210 |
| -50˚C | 60 | 90 | 120 | 150 | 300 | 590 | 890 | 1190 | 1500 |

## Flight Crew Training

### CBT PBN initial Training

The Basic theoretical classroom training is done by a CBT.

### Avionic Specific Introduction

Additional Aircraft System specific theoretical Training is done by an Operator authorized Person on type, FNPT or Simulator.

#### Initial practical in Aircraft or FTD Training

Practical in Aircraft or Simulator Session

The Practical Flight shall be done by a Person authorized by the Operator.

The Practical Training shall consist of:

##### Initial Training:

1. 3 Approaches to an Airport having RNAV Approach with LPV Minima.
2. In these Approaches should be covered the following:
	1. Standard RNAV Instrument Departure (visualizing the increased accuracy HIS indication, altitude constrains and speed limits) flown with autopilot)
	2. Followed by a RNAV STAR flown with high speed in order to visualize the CAS messages concerned with unable VNAV high speed, to high, cannot reach waypoint at required altitude due to excessive height or speed) flown with autopilot in VNAV mode.
	3. Than a RNAV Approach from the RNAV STAR without system failures down to LPV minima (verify LPV in HSI) and missed approach at minima flown with Autopilot. (Activate auto sequencing by pressing SPND Soft key on PFD.
	4. Visualizing the increased accuracy for missed Approach on HSI (MAPR 0.3NM)
	5. Out of the standard Missed Approach Radar Vectors to intercept an active Leg of the RNAV STAR in order to proceed back to the RNAV Approach.
	6. Following a RNAV Approach where once established on approach the simulated Warning “APR DWNGRADE" comes up. Reversion to LNAV minima!
	7. Missed Approach at LNAV MDA followed by Radar Vectors to intercept extended Final on the Approach. Activation of VTF and intercepting with Approach mode.
	8. Once established on the Approach, simulated GPS fail followed by the LOI indication. Flight will be continued in VMC to a full stop landing.

##### Recurrent in an LPC:

1. One Approach containing the following:
	1. Following a RNAV Approach where once established on approach the simulated Warning “APR DWNGRADE (see box at the end for more info)” comes up. Reversion to LNAV minima!

VTF and Standard Missed Approaches will be exercised with ILS/LOC Approaches in the normal part of the LPC.

# PED and EFB NCC.GEN.130 according AMC20-25

## Introduction

### Nominated Person EFB Administrator

### EFB general philosophy, environment and dataflow

The content and structure of this Manual is based on the EASA recommendation in the AMC 20-25 and its guidance material. Non relevant items from the AMC and GM have been reduced or omitted in this Manual, considering the size of operation (1 Aircraft and 5 Pilots). The operator is Operating EFB Type 1 on the basis of IPAD hardware with Type A and B Software, in combination with the Aircraft MFD Chart Display. The EFB Type 1 is not intended to be used in critical phases of flight, whereas the MFD Chart Display may be used during all phases of flight. There is no Paper Backup EXCEPT THE QRH retained on board.

The EFB system is designed and approved to be used during the following phases of flight:

* 1. Pre flight
	2. Taxi
	3. Cruise
	4. After Landing
	5. Post flight

|  |  |  |
| --- | --- | --- |
| Seq. | Phase | Start of Phase |
| 1 | PREFLIGHT | ELECTRICAL POWER APPLIED TO THE AIRCRAFT OR CREW ROOM PREPARATION |
| 2 | TAXI | 1ST ENGINE STARTED WITH THE INTENTION TO TAXI FOR TAKEOFF |
| 3 | TAKEOFF | ENTERING ACTIVE RUNWAY FOR TAKEOFF |
| 4 | CRUISE | ABOVE 1,500FT AGL OR MSA, WHICHEVER IS HIGHER (AFTER TAKEOFF OR GO-AROUND) |
| 5 | APPROACH | DESCENDING BELOW 1,500FT AGL OR MSA, WHICHEVER IS HIGHER |
| 6 | LANDING | WITHIN THE FINAL APPROACH SEGMENT OF THE APPROACH |
| 7 | AFTER LANDING | LEAVING THE ACTIVE RUNWAY AND/OR PROTECTED AREA (LVO) |
| 8 | POSTFLIGHT | ALL ENGINES SHUT DOWN |

The flight phases indicated in amber are considered ‘CRITICAL FLIGHT PHASES’ for all intents and purposes with regards to the EFB. This means that for those phases of flight, certain restrictions on operating the EFB may exist. In any case, pilots must be aware and extremely careful in operating the EFB (if approved) during those phases to avoid distraction from critical flying duties and related tasks.

### EFB system architecture

Class 1 EFB Systems are generally Commercial-Off-The-Shelf (COTS)-based computer systems used for aircraft operations (e.g. IPAD),

* 1. Are not attached to an aircraft mounting device,
	2. Are considered to be a controlled PED,
	3. May only connect to aircraft power through a certified power source (Original Apple Chargers!)
	4. Are normally without aircraft data connectivity except under specific condition (not applicable to the operator), and
	5. Are stowed during critical phases of flight.

The Class 1 EFB is used in combination with the Aircraft MFD Chart Display. The MFD Chart Display is certified through the Aircraft Type Certification. If the MFD Chart Display is not functional or not up to date further limitations apply.

* 1. A Class 1 EFB is not considered to be part of the certified aircraft configuration, i.e. not in the aircraft type design nor installed by a change to the type design nor added by a Supplemental Type Certificate.

Therefore, Class 1 EFB systems do not require airworthiness approval.

**Type A software** applications include pre-composed, fixed presentations of data currently presented in paper format.

Type A software applications are the electronic library and the Weather APP.

**Type B software** applications include dynamic, interactive applications that can manipulate data and presentation.

Type B application is the Jeppesen Flight Deck.

### Limitations of the EFB system

1. The EFB must be charged to at least 80% prior flight if no in Aircraft charging is available.
2. If in Aircraft charging is available, the EFB must be charged to at least 40% prior to flight.
3. The EFB must be charged only with original Apple chargers.
4. Chart Display:
	1. If the Aircraft MFD Chart Display is available and up to date, at least 1 EFB must be functional and up to date prior flight.
	2. If the Aircraft MFD Chart Display is NOT available or up to date, at least both EFB must be Functional and up to date.
	3. If neither:
		1. The Aircraft MFD Chart Display and 1 EFB nor
		2. Both EFB and no MFD Chart Display are available or up to date, paper charts need to be attained prior to flight.
		3. Electronic Documentation Library:
			1. If one or both EFB are NOT available prior flight, Performance Data, System Descriptions, Limitation etc. are missing. As the electronic library is a reference Library, dispatch is allowed until the next stop where a replacement EFB can be obtained with reasonable effort. In case Performance calculations which are not covered by the Simplified Performance Data in the QRH are required, the concerned Performance Data will have to be obtained by Paper (, FAX, EMAIL etc.) prior flight in order to complete the Calculations. All emergency procedures, Checklists and simplified Performance Data are available in the Paper QRH which is maintained up to date and on board at all times and represents the simplified Critical Data Reference Backup to the EFB Library.

### Hardware description

The Hardware used is an Apple IPad. All Versions of the IPad starting from IPad 2 are valid and comply with the Authorization of the operator. The functions of all IPad Versions are identical. The functions and buttons on the IPad are intuitive and do not require special training. A short introduction will be given by the EFB Administrator if required.

### Operating system description

The Operating System of The IPad is issued by Apple. All updates are controlled and issued by Apple. The functions of the IPad are intuitive and self-explaining. A short introduction for the basic functions will be given by the EFB Administrator.

### Detailed presentation of the EFB applications

**Jeppesen mobile Flight Deck:**

Flight crewmembers use EFB for airborne and ground navigation in order to replace paper charts. The EFB-System is capable of producing and displaying current charts. Detailed training on the Jeppesen Flight Deck will be done with the latest version of the Jeppesen Mobile Flight Deck User Guide available on www.jeppesen.com.

### EFB application customization

The operator is operating only non-customized Applications. All Applications are in their respective original issue state and are controlled and updated by the Application supplier.

### Data management:

#### Data administration

The EFB consists of the iOS issued and controlled by Apple and the following applications:

* 1. Jeppesen Flight Deck (issued and controlled by Jeppesen)

#### Organization & workflows

Within the operator the EFB Administrator is responsible for the maintenance and control of the EFBs.

#### Data loading

The EFB is strictly for Flight Operational use. NON Flight operational use is strictly forbidden. Loading of applications is restricted by a passcode and is only done by the EFB Administrator.

#### Data revision procedure

JeppFD updates can be obtained via Internet. The Updates are issued and mailed by Jeppesen in 14-day intervals (26 per year). Enroute and other paper revisions are issued on a 28-day cycle. Updates via Internet can be made anytime.

The PIC and FO have to check prior each flight the issue dates of the last revision to ensure that proposed flights are within the effective date listed. If, for any unforeseen circumstances, the pilots are not able to download the latest revision, current paper backup charts will have to be obtained. The possibility of downloading the latest revision via WLAN is still available to the flight crew.

Terminal Chart Data is no longer valid and must not be used after the “Effective until” date.

In case an update of the EFB is not possible, the Flight Crew can contact Jeppesen directly in order to check if the airports intended to be used are affected by the missing update. If there are no updates for the airports to be used, the flight can me commenced until the next station where an update is possible.

If there are updates for the airports intended for use, the crew must attain copies of the updated charts. Jeppesen will be able to supply such charts via email or fax to the hotel or Handling agent.

Important flight operational issues with the documentation will be communicated directly via email to the flight crew by the EFB Administrator and are therefore not affected by the possibility of missing internet connection for the update. Compared to the old fashioned Paper Manuals, the electronic updates are about 1 week faster available to the crew.

#### Data publishing

Jepp FD updates are issued by Jeppesen in 14-day intervals (26 per year). Enroute and other paper revisions are issued on a 28-day cycle.

Updates via Internet can be made anytime. Jeppesen FD will show the Flight crew when the next update is available for preloading and if and when the Charts will expire in online and OFFLINE mode of the EFB.

### Data authoring

Navigational and Chart Data is provided by Jeppesen. They are certified and produce controlled valid Data. No further authoring of the Data is required by the Operator.

Flight Operational Aircraft Documentation is supplied by the manufacturer and requires no further authoring of the Data.

## HARDWARE, OPERATING SYSTEM, SOFTWARE APPLICATION AND CONFIGURATION CONTROL

### Purpose and scope

The purpose of this chapter is to explain how the EFB Hardware and Software is controlled in order for them to be certified Controlled EFBs, and to make the Flight Crews and all other involved Personnel aware of their responsibilities, duties and rights.

### Description of management processes:

#### Hardware configuration and part N° control

The EFB Serial Number is not changeable and is recorded with the EFB Administrator. One EFB – the Primary – is designated as Unit 1, one EFB – the Secondary – is designated as Unit 2. The units will be labeled with the aircraft registration and “Unit 1” or “Unit 2”.

The EFB Hardware configuration of the IPads cannot be changed.

#### Operating system configuration and control

The Operating System iOS is locked with a passcode in order to prevent modifications to the settings. Installation of other applications and updates of the iOS and its applications is restricted to the EFB Administrator.

#### Maintenance

For the Class 1 EFB there are no specific maintenance requirements, other than the normal (consumer) caretaking requirements for personal portable devices. These requirements have no impact on the operator maintenance procedures.

#### Operating system updating

Updates of the iOS on the EFBs, is restricted with a pass code. The iOS updates will be performed by the EFB Administrator at the home base of the Aircraft.

#### Responsibilities and accountabilities

The EFB Administrator is responsible and accountable for the Status and maintenance of the EFBs. He is responsible for the iOS updates, Application updates and the communication of available updates in the electronic library. As well he is responsible for the over sight of the electronic library updates for critical Flight Operational information and to decide if the flight crew has to receive this information before the next flight or if it can be updated once internet connection to the flight crews EFBs is available.

The EFB Administrator is responsible for supplying Apple original Accessories as required by the operation.

The Flight crews are responsible for the up to date databases in Jepp View and electronic library before every flight.

Flight crews are responsible for only using original Apple Acessories for the EFBs.

#### Records and filing

In case of Malfunctions of the EFB the EFB Tech Report form has to be filled out and submitted to the EFB Administrator without delay. The malfunctions can be reported by telephone so that the EFB Administrator can organize repair or replacement.

## FLIGHT CREW

### Training

**Theoretical Part:**

Flight Crews have to self-study the Jeppesen Flight Deck Guide, the electronic library is self explanatory. During the self-study Process the EFB Administrator is always available for support.

After the self-study phase the Flight crews have to complete an oral questionnaire with the EFB Administrator.

**Practical Part:**

The Flight crews have to complete an operational introduction which can be made up of simulated or practical, at least 2 Legs with an operator approved and trained pilot, supervising them on the operational use of the EFB.

### Operating procedures (normal, abnormal, and emergency)

**Pre-flight Procedures**

1. Run up both units and check for minimum operating power. At least one unit must have power available for a minimum of 3 hour of operating time (40%) if charging in Aircraft is available. Otherwise at least 80%.
2. Check revision status on both units to ensure current updates are loaded in the system. If not, proceed with Update Procedures.
3. Program and store at least one unit terminal charts of following airports via the Favorites selection in the airport selection menu:
* Departure airport
* Destination airport
* Destination alternate
1. Ensure that the Primary EFB is accessible from the flight deck and the Secondary EFB is accessible during flight
2. Make sure that both EFBs are in Flight Mode.

**Normal Cockpit Procedures**

1. For Departure, arrival and approach the Primary unit should be in close proximity to the PNF. When not needed, the EFB-units should be stored in their storage locations to prevent any damage to the units, to the aircraft or injury to the flight crew in case of unexpected turbulence during the flight.
2. During flight, the Primary unit must be in “Standby and Flight” mode.

**Phases of flight Procedures**

Except when aircraft operational procedures dictate otherwise the following general procedure should be used during all phases of flight:

The PF will make his setup in the FMS and compare all data with the data in the EFB.

He will then hand the EFB to the PNF and conduct the briefing solely from the FMS. The PNF will compare the “information” given by the PF with the EFB. This procedure will ensure the highest possible accuracy and redundancy.

**1) Ground Operation**

When moving on the ground the PNF will have control of the EFB, and when in use will hold the Primary unit. Taxi operation will be monitored by the PNF while the unit is displaying the airport diagram. Prior to takeoff the PNF will select the appropriate departure chart for the cleared departure.

**2) Takeoff Operation**

From adjusting the takeoff power on until reaching 1.000 ft AGL or Final Segment Climb the EFB units shall be stored in the designated storage areas described later on. The Primary unit must be powered-on with the appropriate chart displayed.

**3) Departure Operation**

In case of a published departure route is being used, the PNF will have control of the EFB and will hold the Primary unit. The respective departure procedure will be displayed and progress monitored by the PNF.

**4) Enroute Operation**

During enroute operation the EFB units may remain stored in the designated storage areas. Flight crew member shall select and review the anticipated arrival and approach procedures for the destination airport leaving the next needed chart displayed. When not connected to aircraft power the unit shall be in “Standby” mode to conserve batter power.

**5) Arrival Operation**

In case of a published arrival procedure is being flown, the PNF will have control of the EFB and will hold the Primary unit.

The arrival procedure will be displayed and position on the procedure monitored by the PNF.

**6) Approach Procedure**

In case of a published instrument approach procedure is being available for the destination airport and runway of intended use, the PNF will have control of the EFB and hold the Primary unit. The approach procedure will be displayed on the Primary unit prior approach clearance and the approach progress will be monitored by the PNF. If an instrument approach procedure is not available for the runway in use, the airport diagram should be displayed on the Primary unit.

**7) Landing Operation**

Latest at 1.000 ft AGL the EFB units should be stored in the designated storage areas with power on, leaving the appropriate chart displayed.

**8) After Landing**

Ground Operation Procedures above should be followed.

**Abnormal Procedures**

When not in use, the Primary unit should be put in “Standby” mode to conserve battery power. This mode assures fast availability and consumes very little power. The Secondary unit should be turned off if not needed.

For arrival and approaches the Primary unit must be on and ready for use

**1) Primary unit fails in flight**

Continue flight to destination with the Secondary unit in use. If time permits perform the “Troubleshooting” Section of this SOP (see below).

**2) Both units fail in flight**

If current paper products are not available perform the following back-up approach procedure:

* 1. Copy the appropriate information from ATC or by using current FMS data. (See Appendix 2 for a detailed list of details that should be requested from ATC for the Approach. This list will remain in paper form on board the aircraft at all times)
	2. If applicable use FMS for approaches

**3) One unit fails prior to flight**

In case of single equipment failure, as per design of the SOP, only one EFB system is used at a time. If only one remaining system is available, PF and PNF have to share the remaining unit for their respective tasks.

**4) Both units fail prior to flight**

In case of dual equipment failure, a trip may proceed, however all charts for departure, departure alternate, destination and destination alternate airports must be available in paper format before flight. Charts for suitable diversion airports for the given route of flight must also be available for special operation (e.g. no alternate planning).

**5) Out of date database**

A trip may be commenced provided FMS database of the aircraft is current, the limitations are complied with and the following contingency procedures are followed:

**6) For expired terminal charts**

The PIC will determine if intended airports of use are affected by the latest revision.

The flight crew must obtain paper versions prior to flight for affected airports

**7) For expired enroute charts**

The PIC will review chart NOTAM’s in the current revision to determine if planned routes are affected. Changes must be noted prior to flight through affected areas.

**8) Disagree of EFB-units**

Check revision dates of both units and continue to use the unit with latest revision. Perform “Out of date database” procedure above for the out-of-date unit if applicable.

**Troubleshooting**

1. If the iPad does not power up
	1. Check that battery loading status
	2. Hold the on/off button on the edge of the short side for at least 3 seconds
2. If the screen goes dark
	1. Tap on the symbol on the short side of the iPad screen to bring the display up or turn the EFB on.

**Post Flight Procedures**

1. At all times flight crew members are responsible for the security of the EFBs.
2. Ensure that the units are stored in the designated storage areas and shut down.
3. If applicable, write down EFB-discrepancies which occurred during operation.

**Abnormal Operation Reports**

Unintended and abnormal use of EFB units, equipment or software problems or failures, electronic interference with aircraft or other systems and any other type of unusual or unexplainable event concerning the operation with EFB shall be reported verbally or in writing as soon as practicable to the EFB-Administrator. The form “EFB Tech report” should be used and sent to the EFB Administrator.

Storage of EFBs when not in flight

At home base, the units should remain in their designated aircraft storage areas unless removed for training, recharging, updating or maintenance.

1. Away from home base, both units should remain on the aircraft. They may be taken off the aircraft, charged and updated under the responsibility of the PIC. The Commander will be responsible for the units.
2. During flight the Primary unit will remain on the flight deck. When not used by the flight crew members the Primary unit should be stored in the designated storage area which has to be accessible from the cockpit. In case of using only the Primary unit for the trip, the Secondary unit may be stored in a location accessible during flight.
3. In case of extreme outside air temperatures exceeding –30°C or +40°C both units shall be removed to guarantee proper operation for the next flight.

**Unauthorized use of EFB units**

In order to prevent contamination of EFB units, any data not containing approved updates or software must not be downloaded or given access to the system. Only software approved by the EFB-Administrator may be loaded onto the EFB units.

Away from home base, the flight crew must not leave the aircraft unattended and open.

**Designated Storage Place**

The designated storage place is behind the Captains seat in the chart storage cupboard.

## EFB security policy

It is the PICs responsibility to check update status of the EFB databases prior to each flight (or as appropriate) and to maintain the EFB in a controlled secure area so that no others are able to tamper with the Hard or Software.

### Security solutions and procedures

The EFBs are code locked so that no one except the EFB Administrator has access to the System Settings or Preferences. Therefore, installation or deleting of Software from the EFB is not possible without the lock code.

The flight crew is aware that they are only allowed to use original Apple accessories with the EFB.

# Operations Manual Part B

Aircraft operational matters.

## General Information and Units of Measurement

## Limitations

Refer to the current version of the AFM.

## Normal Procedures

Refer to the current version of the POH.

## Abnormal and Emergency Procedures

Refer to the current version of the POH and QRH.

## Performance

Refer to the current version of the AFM and POH.

## Flight Planning

Refer to the current version of the POH.

## Mass and Balance

Refer to the current version of the POH and the latest aircraft weighing report.

## Loading

Refer to the current version of the POH and the latest aircraft weighing report.

## Configuration Deviation List

Refer to the latest version of the CDL.

## Minimum Equipment List

Refer to the chapter MEL in the OM part A and the approved MEL.

## Survival and Emergency Equipment including Oxygen

Refer to the current version of the POH in respect to the installed equipment.

## Emergency Evacuation Procedures

Refer to the current version of the POH.

## Airplane Systems

Refer to the current version of the POH.

# Operations Manual Part C

Instructions and information relating to communications, navigation and aerodromes/operating sites, including minimum flight levels and altitudes for each route to be flown and operating minima for each aerodrome/operating site planned to be used, including the following:

## Minimum flight level/altitude

## Operating minima for departure, destination and alternate aerodromes

## Communication facilities and navigation aids

## Runway/final approach and take-off area (FATO) data and aerodrome/operating site facilities

## Approach, missed approach and departure procedures including noise abatement procedures

## Communication-failure procedures

## Search and rescue facilities in the area over which the aircraft is to be flown

## Description of the aeronautical charts that should be carried on board in relation to the type of flight and the route to be flown, including the method to check their validity

## Availability of aeronautical information and MET services

## En-route communication/navigation procedures

## Aerodrome/operating site categorization for flight crew competence qualification

## Special aerodrome/operating site limitations (performance limitations and operating procedures, etc.)

# Operations Manual Part D

## Description of scope: Training syllabi and checking programs for all operations personnel assigned to operational duties in connection with the preparation and/or conduct of a flight.

## Content: Training syllabi and checking programs should include the following

### For flight crew, all relevant items prescribed in Annex IV (Part-CAT), Annex V (Part-SPA) and ORO.FC

### For cabin crew, all relevant items prescribed in Annex IV (Part-CAT), Annex V (Part-CC) of Commission Regulation (EU) 1178/2011 and ORO.CC;

### For technical crew, all relevant items prescribed in Annex IV (Part-CAT), Annex V (Part-SPA) and ORO.TC;

### For operations personnel concerned, including crew members:

#### Relevant items prescribed in SPA.DG Subpart G of Annex IV (SPA.DG) and

#### Relevant items prescribed in Annex IV ORO.SEC; and

## Procedures:

### Procedures for training and checking.

### Procedures to be applied in the event that personnel do not achieve or maintain the required standards.

### Procedures to ensure that abnormal or emergency situations requiring the application of part or all of the abnormal or emergency procedures, and simulation of instrument meteorological conditions (IMC) by artificial means are not simulated during operations.

## Description of documentation to be stored and storage periods

1. [↑](#footnote-ref-1)