XXX-Operator logo

XXX-Street

XXXXX Town

Country

**NCC**

**OPERATIONS**

**MANUAL**

Rev. 0 of [August 2016]

**Disclaimer**

This OM template has been created to help non-complex NCC operators to comply with the provisions of Reg. (EU) No 965/2012 on air operations, Part-ORO, Subpart MLR (Manuals, logs and records).

It was drafted in accordance with the requirements of ORO.MLR.100 ‘Operations manual – General’, taking into account the specifications of AMC2 ORO.MLR.100 ‘Operations manual – General’, ‘Contents – non-commercial operations with complex motor-powered aircraft […]’

This OM template does not include:

* Provisions for helicopter operations with complex motor-powered aircraft;
* Provisions for non-commercial SPO activities;
* Provisions for aircraft leasing;
* Provisions for operation with cabin crew performing cabin safety duties.

This is a template, which must be further customised to reflect the operator’s specific type of operation.

It is not a mandatory document.

Some parts in the manual will have to be updated every time when the applicable rules are amended (e.g. fuel requirements for NCC, additional AMC/GM for the training requirements applicable to NCC operations, etc.).

Some chapters or paragraphs may be left out, as they may not apply to all NCC operators.

This OM template represents one way of structuring an operator’s OM.

The use of this template does not guarantee the operator’s compliance with the applicable rules.

It is each operator’s responsibility to ensure compliance with the appropriate regulations.

All texts highlighted in yellow require further consideration and/or completion by the operator.

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NCC OPERATIONS MANUAL
Part A

# Administration and Control of the Operations Manual

## Introduction

[Operator’s name] has received the following specific approvals:

|  |  |  |  |
| --- | --- | --- | --- |
| [aircraft 1], etc. | [XXX] | [XXX] | [XXX] |

### Statement of compliance

[Operator’s name] certifies that the Flight Operations Manual is issued and maintained in accordance with Regulation (EU) No 965/2012 on air operations, PART-NCC, PART-ORO, PART-SPA, and Regulation (EU) No 1178/2011 on aircrew, PART-FCL. The purpose of the Manual is to ensure that all operating staff operate in accordance with the procedures set forth and that all flight operations are conducted in accordance with these regulations, company policies and requirements.

**Statement**

Herewith it is certified that this manual or referenced manuals and materials contain all the relevant and required operational instructions that are complied with the relevant personnel.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date:

[Operator’s name]

Nominated Person Flight Operations

### 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 Safety and Compliance 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 [XXX] 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 Training Organization’ (ATO), the Operations Manual Part D contains the training and checking program.

### Explanation and terminology

* “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 authorised or permitted to do the act; and
* „Includes“ means „includes but is not limited to“.

### Definitions

For the definitions and abbreviations, not contained in ICAO DOC 8400, see Annex 1.

## System of Amendment and Revision

#### 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.

#### Record of Revisions and List of Effective Pages

| REVISION No | ISSUE DATE | INCORPORATED BY | DATE | Remarks |
| --- | --- | --- | --- | --- |
| 0 |  |  |  | Initial Issue |
|  |  |  |  |  |
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[to be properly filled in by the operator]

### Handwritten Amendments

Handwritten amendments and revisions are not permitted except in situations requiring immediate amendment or revision in the interest of safety. They shall be initiated and put in force by the nominated person Flight Operations and followed by a formal amendment as soon as practical.

### List of Effective Pages, temporary revisions

There are no temporary revisions. The entire manual is replaced if a revision takes place.

|  |  |
| --- | --- |
| Page No | Rev. No |
| 1 | Rev. 0 |
| 2 | Rev. 0 |
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[to be properly filled in by the operator]

### Distribution and updating of the OM

#### Distribution list, ways of distribution

All applicable personnel are listed in the distribution list.

|  |
| --- |
| **Distribution List** |
| ***Location/Person*** | ***Form*** | ***Via email to:*** | ***by*** | ***Receipt confirmation*** |
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|  |  |  |  |  |

The Nominated person Flight Operations keeps a list with the receipt confirmations including the revision status and date.

# Organization and Responsibilities

## Organizational Structure

[company organogram]

## Nominated Persons

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Function | Name | PersonnelNo. | License No. | e-mail | Tel. No. |
| ACMNPFO |  |  |  |  |  |
| NPCT |  |  |  |  |  |
| NPRE |  |  |  |  |  |
| CSM |  |  |  |  |  |

## 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 operation. He establishes and maintains 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 (EU) 965/2012 (AIR-OPS) and the National Aviation Law.

**Authority**

The Accountable Manager has control over the company personnel.

**Duties and responsibilities** (The ACM may delegate his/her 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.
* Promotes actively the safety and quality culture.
* Supervises the Operations Manual System, the Declaration and any other required Certificates.
* Establishes and maintains a continuous airworthiness management contract with a CAMO approved organization according to (EC) 2042/2003 Part-M, Section A, Subpart G for every aircraft operated.
* Subcontracts an approved maintenance organization according to (EC)2042/2003 Part-145, Section A, Annex II for all necessary maintenance tasks on the aircraft operated.
* 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.

### Safety and Compliance Manager (SCM)

**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 the regulations, 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 is 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.).

NOTE: [Where the Operator has not assigned a nominated person for a certain position, the objective, duties and responsibilities must be assigned to other nominated persons. This has to be specified in the manual.].

### Nominated Person Radiation exposure (NPRE)

**Objective**

The nominated person Radiation Exposure reports directly to the Accountable Manager.

**Duties and Responsibilities**

* Collects and reports the personal details of the employees for registration in the federal database.
* Monitors, collects and extracts the flight times/routings and proceedings of the employees based on the data stored in the [application’s name].
* Submits the extracted data to the subcontracted IASON GmbH for calculation of the radiation exposure via a certified algorithm.
* Informs the employees about the status of their radiation exposure caused by the operation of [Operator’s name].
* Reports to the Accountable Manager if special considerations based on these data regarding personnel have to take place.
* Submits the records for storage to the NPFO.

### Nominated Person for Continuing Airworthiness (NPCA)

[If the Operator has not assigned a nominated person for this position, the objective, duties and responsibilities of this nominated person must be assigned to other nominated persons (e.g., the Accountable Manager and/or the Nominated Person Flight Operation).].

### Nominated Person Flight Operations (NPFO)

**Objective**

The nominated person Flight Operations (NPFO) ensures stable, safe and efficient flight and ground operations. He 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 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 aircraft.
* Reports flight hours and landings to the CAMO as outlined in the continuous airworthiness management contract.
* Coordinates all scheduled and unscheduled maintenance tasks with the contracted CAMO for all aircraft operated.
* Ensures that the aircraft are reported as released to service by the CAMO following all possible maintenance events before commencing flight.
* 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.
* Categorises 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 (NPCT)

**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 fulfil 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;
* Checks that sub-contracted certified ATOs hold and maintain the required syllabi and authorisations.
* Is responsible for training, checking and supervision of personnel in close coordination with the NPFO.
* Promotes actively the safety and compliance culture.

## Authority, Duties and Responsibilities of the Pilot-in-Command (PIC)

**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 (FDTL) 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 FDTL requirements; and provide each operator with the data needed to schedule activities in accordance with the applicable FDTL requirements.

The crewmember shall not perform duties on an aircraft:

* For health, drug and alcohol limitations refer to chapter "Crew Health Precautions".
* If the medical requirements required for maintaining the required medical certificate are not met due to sickness or injury.
* If he/she is in any doubt of being able to accomplish his/her assigned duties. Or
* 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 operator’s 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**

* Maintain familiarity with agreed aviation practices and procedures.
* Maintain familiarity with such provisions of the Operations Manual as are necessary to fulfil his function. And
* 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:

* The safe operation of the airplane and safety of its occupants and cargo during flight.
* 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.
* 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.
* 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.
* 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.
* 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.
* 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 refuelling 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 authorised 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 crewmembers and passengers observe the restrictions on smoking;
* in an emergency situation that requires an immediate decision and action, the PIC shall 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;
* must ensure that abnormal or emergency situations, system malfunctions and IMC conditions are not simulated for any purpose in non-training flights;
* 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
* 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

### Co-pilot (COP)

Definition

The Co-pilot is a fully qualified and licensed crewmember acting as required pilot for the airplane type concerned.

Subordination

The Co-pilot 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 Co-pilot

* 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 favourably 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 Co-pilot to fulfil his function.

### Cabin Crew

[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.

# Operational Control, Supervision and Access

## Supervision of the Operation by the Operator

### Overview of License and Qualification Validities

The privileges of licenses, ratings, authorizations and/or certificates cannot be exercised, unless they are valid. The below table shows the validity periods in detail.

|  |  |
| --- | --- |
| EASA PART-FCLFlight Crew License | EASA PART FCL License is issued for lifetime.It is valid if the holder is in possession of the original document signed by him |
| EASA PART-FCLMedical Certificate Class 1 | Holder of Medical Certificate aged 60 years and below | Holder of Medical Certificate aged 60 years and above |
| 12 months | 6 months |
| English Language Proficiency | Level 4 – 4 yearsLevel 5 – 5 yearsLevel 6 – lifetime |
| Type Rating Instructor (TRI) | 36 months |
| Type Rating Examiner Authorization (TRE) | 36 months |
| License Proficiency Check (LPC) | 12 months |
| Operators Proficiency Check (OPC) | 12 months |
| Pilot Qualification to operate in either pilot’s seat | 36 months |
| Crew Resource Management* + - Initial
		- Recurrent
 | 36 month12 months |
| Dangerous Goods– no carry | 24 months |
| Actual Firefighting | indefinite |
| First Aid Training | indefinite |

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

The following processes have been established to monitor and ensure that all operations are carried out with fully licensed, rated, authorised and certified crewmembers:

|  |  |  |  |
| --- | --- | --- | --- |
| Responsibility | Tool | Method / means/ Function | Reference |
| NPFO | [to be filled in] | Establishes and maintains files containing a copy of: • Flight Crew License • Attachment to License • Medical Certificate • Passport / ID Card • Visa | [to be filled in]Pilots Master Records |
| [to be filled in] | Transfers the specific expiry dates, from copies of the applicable license, license attachments, ratings, authorizations and/or certificates, into the table | [to be filled in]Pilots Master Records |
| [to be filled in] | Monitors Scheduling according to Crew allocation to ensure no license holder is scheduled without applicable licenses, ratings, authorizations, certificates and qualifications | [to be filled in]Crew Competency Card/Crew Schedule |
| NPCT | [to be filled in] | 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 | [to be filled in]Crew Competency Card |
| 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 |
| License Holder  | Ultimately responsible for monitoring his own personal applicable license, license attachment, rating, authorization and/or certificates  |

### 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 | Via | To |
| Post Flight | PIC | * Operational Flight Plan
* ATS Flight Plan
* Mass and Balance
* AIS information
* Other Report Forms
 | […] | […] |

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
 | […] | […] |
| * Daily Journey Log
* Technical Flight Log
* Deferred / Defect List
 |

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
 | Proximity and Air Traffic Incident Report Form“. (Attachment 3) AIP Germany Chapter 1.14 | […] |
| BFU/LBA Accident, Incident and Occurrence Report Form | […] |
| Flight Duty, Duty and Rest Period Record | […] |
| Duty Time violation Captain´s Decision Report | […] |

### 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 for all Nominated Persons:

* 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 SMS 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

##### 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
 |

##### Compliance and Safety Manager

|  |
| --- |
| **NP Flight Operations is assessing the following:** |
| **Operations Personnel**  | **Assessment Areas** |
| All | Refer to Chapter 3 |

### Management of the collection process. Analysis and storage of records, flight documents, additional information and data

#### Analysis of records, flight documents, additional information and data

All records, flight documents, additional information and data shall be analysed 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 | [responsible person] |
| Maintain File | Continuously |
| Sort through files | Annually |
| Archive files | As listed below |
| Destroy files | After minimum Storage Time |

##### Storage of organization related documents

|  |  |  |  |
| --- | --- | --- | --- |
| **Document** | **Place of Storage**  | **Minimum Storage Time**  | **Responsibility**  |
| A copy of the operator’s declaration |  | 5 years | [responsible person] |
| Details of approvals held |  | 5 years | [responsible person] |
| Operations Manual and all its Revisions |  | 5 years | [responsible person] |
| Copy of the CAMO certificate on file. |  | 1 year periodically | [responsible person] |

##### Storage of information used for the preparation and execution of a flight

|  |  |  |  |
| --- | --- | --- | --- |
| **Document** | **Place of Storage** | **Minimum Storage Time** | **Responsibility** |
| Operational Flight Plan (OFP) |  | 3 months | [responsible person] |
| ATS Flight Plan |
| NOTAM, AIS |
| Mass and balance documentation |
| Journey Log |  | 36 months after date of last entry | [responsible person] |

##### Storage of reports related to incidents, accidents and occurrences

|  |  |  |  |
| --- | --- | --- | --- |
| **Document** | **Place of storage** | **Minimum storage time** | **Responsibility** |
| Proximity and Air Traffic Incident Report Form“ (Attachment 3)  |  | 5 Years | [responsible person] |
| Accident, Incident and Occurrence Report Form |  | 5 Years | [responsible person] |

##### Storage of Flight Crew records

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 crewmember, provided this is within the timescales prescribed;
* If a crewmember becomes a crewmember for another operator, “The Operator” shall make the crewmember’s records available to the new operator, provided this is within the timescales prescribed.

| **Document** | **Place of storage** | **Minimum storage time** | **Responsibility** |
| --- | --- | --- | --- |
| Flight Duty and Rest Period record |  | 15 months | [responsible person] |
| License• Flight Crew License• Attachment to License• Medical Certificate |  | As long as the crewmember is exercising the privileges of the license for the operator. | [responsible person] |
| 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 | [responsible person] |
| Training and qualifications for the specific operations:EUR RVSMNAT-MNPSLVTOSTEEP APPRRNP |  | 5 Years |
| Dangerous Goods No Carry |  | 3 Years (ICAO 9284) |
| Radiation Exposure Records of the crewmembers |  | To the age of 7530 years after leaving the company95 years after the date of birth | NPRE provides Data, ACM for storage time |

##### Storage of records of other personnel

|  |  |  |  |
| --- | --- | --- | --- |
| **Document** | **Place of Storage**  | **Minimum Storage Time**  | **Responsibility**  |
| Training/qualification records of other personnel for whom a training program is required |  | Last 2 Training records | [responsible person] |

##### Storage of safety and compliance management records

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 |  | 5 years |
| Event Reports | Safety Manager |  | Permanent |
| Hazard Register | Safety Manager |  | Permanent |
| Risk Assessment, Description, Evaluation and Control (RADEC) Register | Safety Manager |  | Permanent |
| Audit Reports including the follow-up of corrective actions | Safety Manager |  | 5 years |
| Safety Training Register | [responsible person] |  | Permanent |

## N/A

## Operational control with respect to flight safety

### Common language

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

### Operational control of database and information relative to PRNAV operation

(Ref: Reg. (EU) No 965/2012, NCC.IDE.A.260)

The ARINC 28 days’ cycle NAV database update is checked by the crew.

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 | NPFO or delegated to PIC |
| ARINC cycle database update Download  |  | NPFO or delegated to PIC |
| ARINC Database Upload  |  | PIC  |

### Supervision of the contracted CAMO(s)

The operator will monitor the CAMOs approval for validity.

### Supervision of the contracted ATO

The operator will monitor the ATO’s approval for changes in order to maintain its training compliant.

## Powers of the Competent Authority

The competent Authority for [Operator’s name] is [XXX].

The Operator grants access to the competent authority.

# 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 term “Safety Assurance” is not used in Subpart ORO.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

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 organizational 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.

## Safety Accountability and Responsibilities

### Safety Manager

The Safety Manager is appointed in Chapter 1.2 of this manual.

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

The Compliance Monitoring Manager is appointed in Chapter 1.2 of this Manual.

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 organised 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. [Operator’s name] will use the [paper or 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, before 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 SMMSubmit a change request to the Safety Manager | All staff |
| Assess, validate or reject the request for change | Check relevance Evaluate related risksVerify the requested change against:Applicable regulations, standards and normsOther Company documentsValidate or reject the change | Safety Manager |
| Amend the SMM | Make the relevant changes in the SMMTrace the modificationsUpdate the version number, date of issue and list of effective pages | Safety Manager |
| Record and distribute the revision | Record/archive the new versionDistribute and publicize 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, organizational, 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;
* Crewmembers;
* 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. HC 1. Trees and vegetation
2. HC 2. Wires, power lines
3. HC 3. Meteorological conditions
4. HC 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 consist 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

Reference to Chapter 11.

#### 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 [TO BE DEFINED] and all records will be kept in their facility.

[Operator to insert its 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 analysed 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 □ Maneuver□ Pre-flight inspection □ Refueling□ 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 your 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. No: | 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, 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 haemorrhage, nerve, muscle or tendon damage; or
* involves injury to any internal organ, or
* involves second- or third-degree burns or any burns affecting more than 5% of the body surface; or
* involves verified exposure to infectious substances or injurious radiation.

### 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 centre. 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

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 to 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 crosscheck 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 rumours 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.



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 wants 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 unauthorised 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 organisations 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 the camera. He should use this to take photographs which could, in his opinion, indicate the cause of the accident. 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 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**

|  |  |  |
| --- | --- | --- |
| CEO/Deputy |  |  |
| Handling Agents last Point of Departure (Pax manifests & paperwork |  |  |
| Check for stored flight plans |  |  |
| Local Police |  |  |
| Undertaker |  |  |
| Spare |  |  |
| Spare |  |  |
| Obtain Passenger and Cargo Manifest |  |  |
| Notify Competent Authority |  |  |
| Open an ACCIDENT LOG |  |  |

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)………crewmembers.

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 Crewmembers’ 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 hospitalisedPassengers. |  |  |
| Contact the Technical Coordinator, who must notify the Engineeringcontractor to gather all aircraft documentation and have them delivered to [Operator’s name]. Secure these on receipt. |  |  |

**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 Management** |  |  |
|  **Competent Authority** |  |  |
| **ATC** |  |  |
| **Owner** |  |  |

# Crew Composition

## Flight Crew Composition

[Operator’s name] will schedule the flight crew taking into account:

### Type of aircraft to be used

The Aircraft used by [Operator’s name] can be classified as follows:

[aircraft type]

* Approach Category […]
* ILS [appropriate CAT] Procedures
* ICAO Wake Turbulence Category Medium
* ICAO classification [Large Aeroplane]
* EASA Part-FCL classification [MPA, ME]

### Area and type of operation undertaken

#### Area of operation

* [to be completed and appropriately customised]

### Types of operation

* Passenger

### Pilot seat assignment

The PIC assigned to a sector will occupy the left hand seat as stated in the Aircraft Flight Manual; the assigned Co-Pilot will occupy the right hand seat. If the assigned Co-Pilot´s License endorsement qualifies him as PIC on the class/type concerned, he shall have a current Qualification to operate in either pilot’s seat according to OM Chapter 5.

 If a Type Rating Instructor is assigned as PIC by the NPFO for conducting a training session or a Type rating examiner to conduct a proficiency check on the aircraft, he will occupy the right hand seat and the trainee will occupy the left hand seat.

IF a TRE is conducting his duties from the “jump seat” and the trainee in the left hand seat, a TRI has to occupy the right hand seat.

### Minimum Crew Requirement and flight duty period planned

* [to be completed in accordance with the Operator’s fleet]

The NPFO will schedule the assigned crew according to the applicable Flight and Duty Time Limitations for each sector and rotation. For details, see Operations Manual Part-A, Chapter 7.

### Experience, recency and qualifications of the crewmembers

Experience

[Operator’s name] will not schedule two inexperienced flight crewmembers as one flight crew.

A flight crewmember will be considered as inexperienced, following the completion of a Type Rating or command course or a new entry to the company until he has achieved either:

as PIC: 100 Hrs. and 50 sectors as Pilot flying on the type

as COP: 100 Hrs. total time and 50 sectors as Pilot flying on the type

Recency

No flight crewmember shall be assigned to duty on a passenger carrying flight by [Operator’s name] that has not 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.

Qualification

No Crewmember shall be assigned to duty unless he fulfils all the qualification requirements and the training outlined in Chapter 5 of this Operating Manual.

## Designation of PIC

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.

No freelance Pilot shall be designated as PIC by [Operator’s name].

The designation as PIC is determined by the NPFO or delegated person for each sector taking into account:

* practical route and aerodrome experience;
* experience accumulated on the airplane type concerned;
* and [Operator’s name] company procedures (changing Leg by Leg).

If two crewmembers are both qualified as PIC on the airplane type in question, and they are scheduled together one must be designated as PIC and the other as Co-pilot.

If two experienced flight Crewmembers, both being nominated Persons Pilot-in-Command are scheduled on a series of flights, the NPFO delegates the designation of the PIC for the individual sectors to this crew.

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

### Additional Crewmembers assigned to Specialist Duties

If a country has a legal requirement that a licensed Navigator has to be on board the aircraft for a sector of a flight, the PIC will check his appointment and license and board him at the required station. The Navigator then will support the crew in the task of navigation and communication with ATC.

## Crewmember Incapacitation

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

## Operation on more than one Type or Variant

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

* A flight crewmember 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 unless both crewmembers are experienced according to this Chapter.

## 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.

# Qualification Requirements

## License, training and checking requirements

### Licence requirements

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.

The holder of a license, rating, or authorization shall not exercise privileges other than those granted by that license, rating, or authorization.

### Validity

It is the responsibility of the individual flight crewmember to ensure that he is in possession of a valid license and rating, appropriate to his function, and take all the necessary actions for the maintaining and renewal of his license.

[Operator’s name] will assist the crewmember by scheduling training, checks and courses accordingly.

### Training and checking

#### Recurrent training and checking LPC/OPC

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.

The License Proficiency check and the Operators Proficiency Check are valid for 12 months and can be combined in one session.

Refer to Recurrent Training and Checking LPC/OPC and Emergency and Safety Equipment Training and Checking in the Operations Manual Part-D.

#### Operator conversion training

The flight crewmember shall complete the operator conversion training course before commencing unsupervised flying:

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

The operator conversion training course includes training on the equipment installed on the aircraft as relevant to flight crewmembers’ roles and an introduction to the company procedures.

Refer to **Operator Conversion Training** in OM Part-D.

#### Command course

For upgrading to pilot-in-command from co-pilot, the pilot has to complete an appropriate command course, which includes the following:

* Demonstration of Competence
* Duties and responsibilities of the commander according to OM-A Chapter 1.3
* Completion of flying under supervision
* CRM training

Refer to **Command Course** in OM Part-D.

#### Difference and familiarization training

The operator ensures that a flight crewmember 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.

 Refer to the Difference Training and Familiarization Training in OM Part-D.

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

PIC´s who are required to fly on left and right hand seats are required to do a Right Hand Seat check. The qualification is valid for 36 month

Refer to Pilot Qualification to operate in either Pilot's Seat RH Seat Training in OM Part-D

#### Route and Aerodrome Knowledge familiarization

To enable the flight crew to obtain the required route and aerodrome qualification, Operator provides handouts for areas and aerodromes that require such an instruction according to OM-C. This familiarization includes:

* terrain and minimum safe altitudes
* communication and air traffic facilities, services and procedures
* navigational facilities
* Aerodrome classification (A, B, C)

Refer to Route and Aerodrome Knowledge Familiarization Training in OM Part-D.

#### CRM Training

Once in a 12-month period each flight crewmember will go through a CRM training.

Refer to CRM Training in OM Part-D.

#### Training of dangerous goods

Once in a 12-month period each flight crewmember will go through a Dangerous Goods training for non-carrying operators

Refer to DGR Training in OM Part-D.

#### Cold weather operation training

An annual training / familiarization of crews and appropriate operator’s personnel have to be done by self-study prior the winter period.

For Training Procedures refer to OM-Part-D.

For **“AEA Recommendations for De-Icing/Anti-Icing of Aircraft on the Ground”** refer to “Files and Forms”.

## Flight Crew

### Nominated Person Pilot-in-Command

The minimum qualification requirements to qualify a flight crewmember to act as Pilot-in-Command (PIC) on company aircraft are:

* Airline Transport Pilot License, EASA Part-FCL ATPL(A); and
* valid Type Rating(s) (TR) with the qualification as PIC including Instrument Rating (IR) CAT I
* a total of at least 1500 flight hours in the class
* 500 hours flight time on Multi Pilot (MP), Multi-Engine (ME) airplane type; and
* 500 hours flight time as Pilot-in-Command (PIC), and
* 500 hours flight time under Instrument rules (IR)
* hold a valid Medical Class 1
* competent in the English language

The following requirements are applicable to PIC´s who are new to the type or to the company or have completed a command course

* has accumulated 50 hours of flight time under the supervision of a company PIC. This PIC shall have an experience of at least 100 hours flight time on the type.

### Co-pilot

Minimum requirements to qualify a flight crewmember for employment as co-pilot (COP) on company airplanes are:

* Commercial Pilot License, EASA Part-FCL CPL(A) with ATPL credit; and
* valid Type Rating(s) (TR) with the qualification as PIC including Instrument Rating (IR) CAT I
* a total of at least 500 flight hours in the class
* 100 hours flight time under Instrument rules (IR)
* hold a valid Medical Class 1
* competent in the English language

### Co-pilot upgrading to nominated person Pilot-in-Command

The minimum required experience for a Co-pilot to be upgraded to a Pilot-in-Command is:

* a total of at least 1500 flight hours in the class
* 500 hours flight time on Multi Pilot (MP), Multi-Engine (ME) airplane type; and
* 500 hours flight time as Pilot-in-Command (PIC), and
* 500 hours flight time under Instrument rules (IR), and
* 6 month in service with [operator’s name].

### Operation on more than one Type or Variant

Operation on more than one Type or Variant

Before flight crewmembers exercising the privileges of two license endorsements, the recent experience requirements according to Chapter 4 of this manual for all flown types must be fulfilled.

## Cabin Crew

 [When the operator assigns cabin crew with responsibilities related to the safety of the passenger cabin, the requirements of Reg. (EU) No 965/2012 ORO.CC Section 1 should be adhered to.]

## Training and checking personnel

All training and checking has to be conducted by appropriately qualified personnel or if required by an EASA Part-FCL approved ATO. In the case of flight and flight simulation training and checking, the personnel providing the training shall be an EASA-FCL rated Type Rating Instructor (TRI) and an EASA-FCL appointed Type Rating Examiner (TRE) for checking.

All courses that do not require an approval by the competent authority, like the operator conversion or the differences and familiarization courses are conducted by qualified personal as below:

**Ground Instructor**

The minimum requirements to act as Ground Instructor are:

* Received Training in the area of "teaching and learning", including practical demonstrations including Operator’s specific elements (see Note);
* 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.

Note: Class Rating-, Type-Rating Instructors and Flight Instructors employed with the company are credited for this competence by default.

## Other Operations Personnel

### Hostess

A Hostess will not conduct any flight safety related tasks on board. The sole purpose of a Hostess on board is to provide service related tasks to our passengers.

A Hostess shall not be assigned and shall not undertake duties as a Hostess unless the following criteria are met:

* Have an age of at least 18 years.
* Received a safety briefing from the Pilot-in-Command or a Ground Instructor.

### Taxiing of airplanes

The following skills and knowledge shall be assessed while checking if a person other than a company pilot rated on the type can be authorised to taxi an airplane. Authorization is within the responsibility of the co-pilot, the Pilot-in-Command or the Accountable Manager.

* 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.

# Crew Health Precaution

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 millilitre), 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, drugs, sleeping tablets and/or anti-depressants

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 authorised 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 behaviour 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 Authorised 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.

## Radiation Exposure

[Operator’s name] constantly tracks the flight times and the route profiles flown for every permanently employed crewmember via [the Flight Operations software (Aviation Office)] and reports these to a certified provider [name], which calculates the received dose. These reports are transmitted in a 3 months schedule to the [Competent Authority of the Operator] Database. This procedure is in accordance with the national regulations [reference, if any].

If a crewmember realizes she is pregnant, she shall report to the NPFO as soon as possible.

[Optional: brief description of the measures to be taken if the annual dose is above the accepted limit accumulated in the crewmembers professional life.]

The crewmember is informed annually about his or her individually collected dose and has to participate in an annual training that is listed in OM Part D.

# Flight Time Limitations

## Flight and Duty Time Limitations and Rest Requirements

### Applicable Regulation

[Operator’s name] is subject to the regulation [reference of the national FTL regulation applicable to non-commercial operations].

[The applicable regulation may either be referred to or attached to the Ops Manual, functioning as substitute text for this subchapter.]

### 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.

## Exceedance of flight and duty time limitations

Should it be necessary for the conduct of a planned flight to extend Flight Duty or to reduce an extended Rest Period in accordance with the regulation [national regulation reference], the PIC’s Decision shall be documented by a form.

# Standard Operating Procedures

## Flight preparation

(Ref. NCC.OP.145 / NCC.OP.195 and 225 = T/O and landing performance)

Flight routes and altitudes shall be based on, and in the following order:

* Safety
* Regulations and instructions in force
* ATS procedures
* Company operational procedures
* Passenger comfort
* Planned departure time
* Economy

A flight may only be planned for which:

* The instruments and equipment installed on the aircraft required are available, taking into account the expected flight conditions;
* the route and aerodrome information and instructions such as text papers, charts and maps contained in the Operations Manual Part C, Airway Manual, covering the flight or series of flights including any diversion which may be reasonable to be expected are recent and available;
* the flight can be safely made in accordance with any given performance data for the aircraft being operated;
* 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;
* the aircraft operating limitations, contained in the flight manual, or equivalent, will not be exceeded
* if required, the over flight- and landing permissions are received and available on board;
* ground facilities and services are available for the anticipated aerodromes, including the firefighting and rescue service category;
* customs and immigration requirements are verified and fulfilled;
* the meteorological and NOTAM/AIS briefings are collected and analysed.

### Minimum flight altitudes

(Ref. NCC.OP.125 according to AMC1 NCC.OP.125)

For all flights operated by [Operator’s name], the minimum altitude/flight level is be governed by national regulations, air traffic control requirements or by the need to maintain a safe height margin above terrain or obstacles en route. [Operator’s name] has chosen to use the [XXX Manual] for guidance in this respect.

#### VFR Flights

Shall be conducted at an altitude were the en-route flight path clears all obstacles or terrain by at least 1000 ft vertically, whenever cities or other densely populated areas are overflown, then the minimum vertical clearance shall be 1500 ft. VFR Night Flights shall not be conducted.

#### IFR Flights

The PIC may not fly below the published minimum safe altitudes in any route segment, except when necessary for take-off or landing. The information is provided by the [XXX Manual], or if not listed, by the state overflown.

#### Performance – General

(Ref. NCC.POL.115)

Before a flight is commenced, it shall be determined that, having regard to performance in the conditions to be expected on the intended flight, and to any obstructions at the places of departure and intended destination and on the intended route, the aircraft is capable of safely taking off, reaching and maintaining a safe height thereafter and making a safe landing at the place of intended destination.

Consideration for operation on grooved or damp runways.

* A damp runway is be considered as dry.
* A grooved runway actual state will be as reported by the airport authority

##### Take-off mass limitations

(Ref. NCC.POL.120)

[Operator’s name] is solely operating Performance Class A aircraft and those aircraft shall be dispatched considering an engine failure in all phases of flight.

The PIC is responsible for making sure that the aircraft never exceeds the mass limitations according AFM for 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 concerning the route.

#### Take-off

(Ref. NCC.POL.125)

When determining the maximum take-off mass, the pilot-in-command shall consider the following elements:

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, if not already accounted for by the manufacturers performance data; 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.

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.
2. to continue the take-off and clear all obstacles following the net take-off flight path until the airplane is in a position to comply with the one engine inoperative en-route requirement.

As a published Standard Instrument Departure procedure considers all engines to be operative and an engine failure during take-off is an emergency procedure that requires detailed consideration of the situation at a specific runway, [Operator’s name] has contracted [service provider] to provide Take-off Weight Limit charts and contingency departure procedures for their aircrafts to comply with the above requirements.

The analyses can be requested by internet for the vast majority of worldwide available runways. For account information. Refer to Part-C of this manual.

In special cases, where the airport is not covered by APG (e.g. non-ICAO design compliant airport), [Operator’s name] will provide a Take Off Limit Excel Sheet.

See Part-B and Part-C of this manual.

##### En-route — one engine inoperative

(Ref. NCC.POL.130)

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.

##### Landing

(Ref. NCC.POL.135)

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.

An operational factor of 20% has to be added to the actual landing distance (ALD) to derive the required landing distance (RLD) for [Operator’s name] operations.

In case of emergency, the operational factor is not required.

The following should be considered when calculating the ALD:

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 favourable 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 and MELs.

### Criteria for the adequacy of Aerodromes to be used

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

For operations under Instrument Flight Rules (IFR), an approved approach procedure must be available for each destination and alternate aerodrome.

#### PCN/CAN and Runway dimensions

The runway PCN the length and the width are compliant for the specific aircraft at the conditions of the planned arrival and departure.

#### Obstacle situation

The relevant obstacles in the local area are such that the performance requirements for the relevant aircraft type are complied with in the conditions which maybe expected to exist at the time of operation.

#### Aerodromes with Steep Approach

A steep approach is an approach using a glide slope angle of more than 4.5 degrees.
The following criteria shall be met before commencing a steep approach:

* The aircraft is certified for Steep Approaches
* The performance data of the AFM flight supplement have to be taken into account
* Regulatory requirements of the specific airport or the national NAA have to be complied with

#### Isolated Aerodrome

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.

#### Rescue and fire-fighting services RFFS

The Requirements for Fire Fighting and rescue services ICAO-Annex 14 (chapter 9) are listed in the table below:

|  |  |  |
| --- | --- | --- |
| [aircraft registration] | Aircraft type | ICAO Category [X] |
| [aircraft registration] | Aircraft type | ICAO Category [X] |

It is policy not to operate to aerodromes with inadequate fire and crash facilities.

When assessing suitability of an aerodrome, the following factors must be taken into account:

* Aerodromes with reduced or inadequate facilities will accept an aircraft making an emergency landing or a landing where the PIC decides that a diversion or holding delay may be a greater potential hazard.
* If during flight the fire fighting and rescue services category is downgraded, the PIC exercises his responsibility to continue or to divert.
* The required aerodrome category may be downgraded by one category, i.e. the actual aerodrome category may be one category below the aircraft RFFS category.

#### Aerodrome Categorization for Flight Crew Competence

(Ref. ORO.FC.105)

Aerodromes for [Operator’s name] operations are categorised, in order of difficulty, from category A to category C according to characteristics as mentioned below and as outlined in Part-C of this manual.

* 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 according to [service provider] TL-Charts, or AFM and airport data.
		- published circling minima not higher than 1’000 ft above aerodrome level; and
		- night operations capability.

Any category A airport can be selected as operating site without special considerations. Category A airports are not listed in Part-C of this manual.

If a for one of the above mentioned reasons an airport does not qualify as Category A, the NPFO together with a NPPIC of the specific aircraft type performs an evaluation and classifies the site as either B or C and lists it in Part C of this manual. If applicable, a risk assessment in accordance with Chapter 3.8.2 of this manual has to be performed in the course of the classification.

The PIC must meet the qualification requirements according chapter 5 before operating into any category B or C airport. For details, refer to chapter 5.

### Methods of establishing Aerodrome Operating Minima

(Ref. NCC.OP.110, 105)

#### Planning Requirements

##### Take-Off Alternates

The operational flight plan specifies a take-off alternate if:

* Meteorological conditions at the take-off airport are below the applicable approach minima or
* Performance considerations preclude return to the departure airport

For selection as a take-off alternate, an aerodrome must satisfy the following conditions:

* Meteorological reports and/or forecasts must indicate that the weather at the departure aerodrome will be at or above the applicable landing minima for ± 1 hour of the aeroplane’s estimated time of arrival (ETA).
* If only non-precision and/or circling approaches are available, Ceiling must be taken into account.
* Any one-engine inoperative limitations must be taken into account, e.g. loss of CAT II capability.

##### Destination Aerodrome

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 conditions 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:

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

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.

##### Destination Alternate and En-Route Alternate Aerodromes

For selection as a destination alternate or en-route alternate an aerodrome shall fulfil the requirements below:

* The aerodrome shall have a published instrument approach procedure and,
* Meteorological reports and/or forecasts shall indicate that the cloud ceiling and visibility at the aerodrome will be at or above the published minima at the aeroplane’s expected time of arrival or,
* Where there is no published instrument procedure, available meteorological reports and/or forecasts make it reasonably certain that the cloud ceiling and visibility would be at or above VFR minima.

#### Operating Minima

Specific minima for particular combinations of approach aids, runways and lighting will normally be depicted in the [XXX Manual] for the airport concerned.

##### Minima for Take-off

The Take-off minima 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.

Minima for Take-off — aerodrome without low visibility procedure (LVP) available or in force

|  |  |
| --- | --- |
| **Facilities** | **RVR/VIS (m)\***  |
| All – Day and Night | 800 |

Minima for Take-off — airplanes (without low visibility take-off (LVTO) approval)

Note: LVTO Procedures must be available and in force at the airport.

|  |  |
| --- | --- |
| **Facilities**  | **RVR/VIS (m)\***  |
| Day only: Nil\*\*  | 500 |
| Day: at least runway edge lights or runway centreline markings Night: at least runway edge lights or runway centreline 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 and crew (with low visibility take-off (LVTO) approval)

Note: LVTO Procedures must be available and in force at the airport.

|  |  |
| --- | --- |
| **Facilities**  | **RVR (m) \*, \*\***  |
| Day: runway edge lights and runway centre line markings Night: runway edge lights and runway end lights or runway centre line lights and runway end lights  | 300  |
| Runway edge lights and runway centre line lights  | 200  |
| Runway edge lights and runway centre line lights  | TDZ, MID, rollout 150\*\*\*  |
| High intensity runway centre 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

(Ref. 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, see below.

#### Commencement and Continuation of an Approach

(Ref. NCC.OP.230)

The pilot-in-command may commence an instrument approach regardless of the reported runway visual range/visibility (RVR/VIS).

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 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.

The touchdown zone RVR shall always be controlling.

NOTE: Some states may have more stringent Approach Ban criteria that forbid a pilot to commence an approach if the RVR is below the specified minima.

##### Category 1 Approach minima

A Category I Precision Approach is one using ILS, MLS or PAR with a decision height (DH) not lower than 200 feet, and a Runway Visual Range (RVR) not less than 550 metres. The DH shall be not less than the highest of:

* the published approach procedure DH where applicable;
* the obstacle clearance height (OCH) for the category of aircraft;
* The minimum height to which the Precision Approach aid can be used without the required visual reference. or
* the minimum DH specified in the AFM or equivalent document, if stated.

Visual Reference:
No pilot may continue a Precision Approach below DH, unless at least one of the following visual references for the intended runway is distinctly visible to, and identifiable by the pilot.

* Elements of the approach lighting system.
* The threshold, or its markings, lights or identification lights.
* The visual glideslope indicator(s)
* The touchdown zone, zone markings or zone lights.
* The runway edge lights.

Runway Visual Range (RVR)

The touch-down zone RVR is always controlling. [If reported and relevant, the mid point and stop end RVR are also controlling.

Note: “Relevant”, in this context, means that part of the runway used during the high-speed phase of the landing down to a speed of approximately 60 kt.]

The minimum RVR is governed by the DH and the approach lighting and runway lighting/marking available as shown in the table below. For night operations, at least runway edge, threshold and runway end lights must be on.

RVR for Category 1 Approach vs Facilities and DH

|  |  |
| --- | --- |
| Decision Height(7) | **Facilities/RVR(5)** |
| Full(1)(6) | Basic(3)(6 | **Intermediate****(3)(6))** | Nil(4)(6 |
| 200 | 550 | 700 | 800 | 1000 |
| 201-250 | 600 | 700 | 800 | 1000 |
| 251-300 | 650 | 800 | 900 | 1200 |
| 301 and above | 800 | 900 | 1000 | 1200 |

NOTES:

(1) Full facilities comprise runway markings, 720 meters of HI/MI approach lights, runway edge lights, threshold and end lights. Lights must be on.

(2) Intermediate facilities comprise runway markings. 420-719 meters of HI/MI approach lights, runway edge, threshold and end lights. Lights must be on.

(3) Basic facilities comprise runway markings, <420 meters of HI/MI approach lights, runway edge, threshold and end lights. Lights must be on.

(4) Nil approach light facilities comprise runway markings, runway edge, threshold and end lights or no lights at all.

(5) The RVR values are either as reported or met visibilities converted as in the table below.

(6) The above figures are only applicable to conventional approaches with a slope not exceeding 4°.

(7) The DH mentioned in the table refers to the initial calculation of DH. When selecting the associated RVR it is not necessary to take account of ‘rounding up’ to the nearest ten feet, which may be done for operational purposes, e.g. conversion to decision altitude (DA).

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

(SPA-LPV)

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:

* the minimum height to which the approach aid can be used without the required visual reference;
* the obstacle clearance height (OCH) for the category of aircraft;
* the published approach procedure DH where applicable;
* the system minimum specified in the table below; or
* the minimum DH specified in the AFM or equivalent document, if stated.

Visual Reference:
No pilot may continue a Precision Approach below DH, unless at least one of the following visual references for the intended runway is distinctly visible to, and identifiable by the pilot.

* Elements of the approach lighting system.
* The threshold, or its markings, lights or identification lights.
* The visual glideslope indicator(s)
* The touchdown zone, zone markings or zone lights.
* The runway edge lights.

|  |  |
| --- | --- |
| **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.)

The minimum descent height (MDH) for an NPA operation flown without the CDFA technique shall not be lower than the highest of:

* the OCH for the category of aircraft;
* the system minimum specified in the table below; or
* the minimum MDH specified in the AFM, if stated.

Visual Reference:
No pilot may continue a Precision Approach below DH, unless at least one of the following visual references for the intended runway is distinctly visible to, and identifiable by the pilot.

* Elements of the approach lighting system.
* The threshold, or its markings, lights or identification lights.
* The visual glideslope indicator(s)
* The touchdown zone, zone markings or zone lights.
* The runway edge lights.

|  |  |
| --- | --- |
| **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  |

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. |

##### 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:

* multiple failures of facilities other than indicated in the table below are not acceptable.
* failures of facilities are treated separately; and
* 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  |
| Centreline lights  | No effect if flight director (F/D), HUDLS or auto-land; otherwise RVR 750 m  | No effect  |
| Centreline 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  |

#### Circling

(Ref. NCC.OP.112)

* 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  |

Circling Approach Obstacle Clearance Radii (For aerodromes up to 2,000 ft MSL)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **APPROACH\*****CATEGORY** | **Radius****TERPS****(FAA)** | **Obstacle Clearance****TERPS****(FAA)** | **Radius****PANS-OPS****(EU-OPS)** | **Obstacle Clearance****PANS-OPS)****(EU-OPS)** |
| **A** (100 kts) | 1.3 sm | 300 ft | 1.68 nm | 295 ft |
| **B** (135 kts) | 1.5 sm | 300 ft | 2.66 nm | 295 ft |
| **C** (180 kts) | 1.7 sm | 300 ft | 4.20 nm | 394 ft |

\* Maximum speed in knots assumed for PANS-OPS


#### Visual Approach minima

(Ref. NCC OP.110)

For a visual approach operation, the RVR should not be less than 800 m.

### En-route operating minima for VFR flights or VFR portions of a flight

(Ref. NCC.OP.180)

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 commercially available manuals.

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.

(To be adapted to SERA)

|  |
| --- |
| **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.

### Presentation and application of operating minima

#### Presentation

Specific minima for a given aerodrome will normally be as shown in the [XXX Route Manual] used by the [Operator’s name]. If the Route Manual does not contain such information for a particular aerodrome, the details will be included in the PIC’s flight brief. For precision approaches, minima are listed in terms of Decision Height (or Decision Altitude when QNH is used as the altimeter setting) and RVR. For non-precision approaches, minima are listed in terms of Minimum Descent Height (or Altitude for QNH settings) and RVR. For circling approaches, the Minimum Descent Height/Altitude will be shown together with a minimum in-flight visibility (IFV).

#### Application

A PIC is not permitted to operate to minima that are lower than those published in the Route Manual or notified by the state that controls the aerodrome in question. A PIC may nevertheless elect to operate to higher minima than those established by any of these means if he considers that to do otherwise might compromise the safety of his aeroplane or its passengers under the circumstances of the flight. Once the flight has started, the PIC must be prepared to amend the intended minima for any aerodrome he is scheduled to use, in order to take account of any change in status of the relevant approach aids that occurs during the flight.

#### Categorisation 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  |

##### Conversion of reported meteorological visibility to RVR

|  |  |
| --- | --- |
| **LIGHTING ELEMENT IN OPERATION** | **RVR = Visibility****multiplied by** |
|  | **DAY** | **NIGHT** |
| HI approach and runway lighting | 1.5 | 2.0 |
| Any type of lighting installation other than the above | 1.0 | 1.5 |
| No lighting | 1.0 | N/A |

NOTE: The table above may not be used to derive RVR for take-off.

##### Altitude Correction Chart

Pressure altimeters are calibrated to indicate true altitude under ISA conditions. In the case where 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 under conditions of extremely low temperatures. The chart below gives corrections to apply to indicated altitudes.

**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 |

#### Runway bearing strength

The LCN/CAN/PCN of an aircraft may not exceed the maximum allowable runway bearing strength as published in the [XXX Manual]. Pre-arranged exceptions may be allowed by the aerodrome authorities.

### Interpretation of meteorological information

All flight crew members are required to develop and maintain a sound working knowledge of the system used for reporting aerodrome actual and forecast weather conditions and of the codes associated with it. For decoding of the various relevant information, refer to the [XXX Manual], the chapter on Meteorology.

### Fuel and Oil supply

(Ref. NCC.OP.130)

#### Fuel

The PIC is responsible for making sure that: he carries enough fuel for VFR flights at:

* day, to fly to the destination and thereafter to continue fly for another 30min at 1500ft AGL of destination at holding speed.
* night, to fly to the destination and thereafter to continue fly for another 45min at 1500ft AGL of destination at holding speed.

He carries enough fuel for IFR flights:

* 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
* 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:

* forecast meteorological conditions;
* anticipated ATC routings and traffic delays, destination and alternate.
* procedures for loss of pressurization or failure of one engine while en-route, where applicable; and
* any other condition that may delay the landing of the airplane or increase fuel and/or oil consumption.

#### Oil

The engine oil contents must be sufficient to cover the same elements as those for the fuel. The PIC has to ensure before flight that the engine oil contents have been checked in accordance with the manufacturer’s recommendations.

Any additional oil requirements for in-flight replanning must also be taken into account.

Between flights, he shall ensure that no excess oil consumption has taken place.

#### Maintenance of fuel and oil consumption records

Fuel records will be logged on the OFP and the aircraft technical log

Oil records will be logged in the aircraft technical log.

### Mass and centre of gravity

(Ref. NCC.POL.100 and 105)

#### Definitions

Passengers:

* Adult > 12 years
* Child 2 – 12 years
* Infant < 2 years

#### Preparation of mass & balance documentation

Mass and balance data will be generated by the flight crew for each flight using the [Flight planning application’s name]. The software will create a full electronic load sheet as part of the Operational flight plan, taking into account maximum mass values and CG limits as well as distribution of all loaded items.

Prior to flight, the PIC has to verify, by signing the Operational Flight Plan with his signature, that all Mass and Centre of Gravity data on the load sheet are correct and all load is properly distributed and secured.

#### Passenger baggage and cargo mass

[Operator’s name] uses standard masses. The PIC can decide to use actual masses. Weights can be derived by verbal statement.

Standard passenger mass values

The following standard mass values for passengers (including 6 kg for hand baggage) will be used for each flight:

|  |  |  |  |
| --- | --- | --- | --- |
| **PASSENGER SEATS** | **1-5** | **6-9** | **10-19** |
| Male | 104 kg | 96 kg | 92kg |
| Female | 86 kg | 78 kg | 74 kg |
| Children | 35 kg | 35 kg | 35 kg |

|  |  |  |  |
| --- | --- | --- | --- |
| **PASSENGER SEATS** | **1-5** | **6-9** | **10-19** |
| Male | 229 lbs | 212 lbs | 203 lbs |
| Female | 190 lbs | 172 lbs | 163 lbs |
| Children | 77 lbs | 77 lbs | 77 lbs |

Articles such as an overcoat, an umbrella, a small handbag or purse, reading material or a small camera are not considered as hand baggage.

Standard crew mass values

The following standard mass values for crewmembers (including hand baggage) will be used

|  |  |  |
| --- | --- | --- |
| **Crew** | **kg** | **lbs** |
| Flight Crew | 85 | 187 |
| Additional Crew | Use standard passenger masses |

Standard baggage mass values

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.

Cargo mass value

Actual mass must be used when taking cargo into account.

#### Last minute changes (LMC)

Last minute change fields are reserved in the load sheet. Last minute changes shall be verified by the PIC to be within permissible limits and must be entered in the load sheet.

#### Seating policy, procedures

The cockpit crew will check that the actual seating of the passengers corresponds with the seating assumptions and will consider the effect of deviations.

In case a computerised 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.

#### Specific Gravity of Fuel and Oil

Mass values are used on the aircraft fuel displays (quantity, fuel flow, fuel used). However, to determine the required amount of uplift fuel, the correct specific gravity must be used to convert the mass value into volume. Whenever possible and practicable, the specific gravity of fuel - as obtained from the fuelling crew can be used. As this is often not practicable, the following specific gravity values may be used if no other values are available.

**FLUID (15°C) SPECIFIC GRAVITY**

JET-A1 0,79 kg/l

Oil 0,88 kg/l

### ATS Flight plan

#### General

An ATS flight plan shall be filed for every IFR flight and every VFR flight with more than 30 min flight time to enable use of SAR-services should a flight become overdue at destination.

For details regarding the alerting of search and rescue services, refer to the Emergency Response Plan in Chapter 3 of this manual

#### Responsibility of the PIC

Whichever type of flight is used, the CMD must ensure that it is filed/activated, with the appropriate notice, prior to departure.

Normally, the ATS flight plan will be activated or closed by respective ATS units.

When a flight is departing or arriving at an uncontrolled airfield without ATC service, the PIC must ensure that an ATD or ATA is relayed to the appropriate ATS immediately after departure or arrival. Failure to submit an arrival report may result in activation of SAR services.

### Operational Flight plan

An operational flight plan is prepared and used for each flight of [Operator’s name]. It is created by using the AVIATION OFFICE application. For details of the specific aircraft, see the sample copy in Part-B of this manual.

### Aircraft Technical Log

One copy of the journey log of the aircraft is dedicated as the technical log. For details of the specific aircraft see the sample copy in Part-B of this manual.

### List of documents to be carried

(Ref. NCC GEN.140)

The following documents, manuals and information shall be carried on each flight as originals or copies unless otherwise specified. If originals are not a requirement they may be available in a form other than on printed-paper, however accessibility, usability and reliability should be assured.

* the AFM, or equivalent document(s);
* the original certificate of registration; (\*)
* the original certificate of airworthiness (CofA); (\*)
* the noise certificate; (\*)
* the operators declaration; (\*)
* the list of specific approvals; (\*)
* the aircraft radio license; (\*)
* the third party liability insurance certificate(s); (\*)
* the journey log, or equivalent, for the aircraft;
* details of the filed ATS flight plan, if applicable;
* current and suitable aeronautical charts for the route area of the proposed flight and all routes along which it is reasonable to expect that the flight may be diverted;
* information concerning search and rescue services for the area of the intended flight;
* procedures and visual signals information for use by intercepting and intercepted aircraft;
* the MEL or CDL;
* the current parts of the operations manual that are relevant to the duties of the crewmembers, which shall be easily accessible to the crew members;
* appropriate notices to airmen (NOTAMs) and aeronautical information service (AIS) briefing documentation;
* appropriate meteorological information;
* passenger manifests, if applicable; and
* any other documentation that may be pertinent to the flight or is required by the States concerned with the flight.

In case of loss or theft of documents specified by an asterisk (\*), the operation may continue until the flight reaches its destination or a place where replacement documents can be provided.

## Ground procedures

The following ground handling functions are sub-contracted to local contractors:

* Fuelling/Defueling
* De-icing and anti-icing
* Passenger, Baggage and Cargo handling
* Waste servicing

Subcontracting the ground handling functions is the responsibility of the Pilot-in-Command or his delegate.

### Fuelling procedures

Normally refuelling takes place with no passengers aboard but when it is necessary for passengers to remain on board, the precautions listed in 8.2.2 must be observed. The PIC is to verify that the fuel quantity ordered is sufficient to meet his calculated requirements for the flight. He, or a flight crew member nominated by him, must check that:

* The correct type, grade and quantity of fuel has been loaded.
* Unless the Airplane Flight Manual/Operating Manual states otherwise, that fuel drains are operated to check for water content, and left properly closed.
* Fuel tank caps are properly secured.
* Airplane fuel gauges indicate that the tanks have been filled to the required levels.
* Details of the fuel uplift have been correctly entered in the flight log and a gross error check is carried out. and
* Unless the FCOM states otherwise, if an APU located within the fuelling zone, or which has an exhaust efflux discharging into the zone, is stopped for any reason during a fuelling operation, it must not be restarted until the flow of fuel has ceased, and there is no risk of igniting fuel vapours.

### Refuelling with passengers embarking, on board or disembarking

(Ref. NCC.OP.155)

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

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

### Aircraft Passenger and Cargo Handling

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.

#### Carriage of passengers, passenger seat allocation

(Ref. AMC1 NCC.OP.165; NCC.OP.135, 140, 165, 170)

**Seat allocation**

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 to ground movement or a critical phase of flight**

Before 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 crewmember and checked by a flight crewmember. They are recommended to keep their belts on during the whole time while they are seated.

### Refusal of embarkation

The PIC has the final authority to refuse embarkation, allow transportation and initiate disembarkation of any person, who in his opinion may present a potential hazard to the safety of the aircraft and his occupants. In either case, the PIC will take the necessary actions in cooperation with the local airport authorities.

### De-Icing and Anti-Icing on the ground

(Ref. NCC.OP.185 and 190)

Certification for flight in icing conditions

[Operator’s name] aircraft are certified for flights in a variety of icing conditions, the details are contained in the AFM of the specific aircraft.

Ground De-icing/Anti-icing

PICs are to ensure that de- and anti-icing operations appropriate to the conditions are carried out on the ground before departure, and that pre-flight inspection indicates that all significant deposits of hoar frost, ice and snow have been removed before any attempt is made to take off. Any effect of ground de-icing on the aircraft performance must be taken into account, if applicable. The instructions in the aircraft Operations Manual and this manual shall be followed by all company personnel and any sub-contracted personnel concerned.

Depending on the facilities available at the aerodrome, and on the aircraft type, de-icing may be achieved by brushing, the spraying of fluids or a combination of both. The Airplane Flight Manual/Operating Manual describes which areas must be clear of contamination (e.g. control surface, balance panels, hinges, engine intakes or static ports). Anti-icing is a procedure which protects the treated areas against refreezing or an accretion of snow, frost or ice during a certain period of time. De-icing is a procedure that clears the snow, frost or ice.

Holdover time

Holdover Time (HOT) is a calculated period during which an anti-icing fluid will prevent accretion of snow or refreezing on the treated areas of an airplane. Holdover time is counted from the last application of fluid to the moment when the fluid starts loosing effect.

De-icing fluids

**Type I** fluids have good de-icing properties, but provide only limited protection against refreezing. The have the shortest Holdover Times.

**Type I**I and Type IV fluids include thickening agents, which allow fluid to remain on aircraft longer to absorb and melt the frost or freezing precipitation. This provides longer HOTs but also means a higher speed is required to shear off the fluid.

**Type III** fluids are relatively new and have properties between Type I and Type II/IV fluids. Type III fluids also contain thickening agents and offer longer HOTs than Type I but are formulated to shear off at lower speeds. They are specifically designed for small commuter-type aircraft but work well as well for larger aircraft.

Holdover time tables

The holdover timetables show guideline maximum holdover time under various weather conditions. The tables in Appendix H below are generic tables which apply to Active Frost conditions and Type I, II, III and IV fluids.

If the take-off cannot be performed within a holdover time, de/anti icing must be repeated.

**CAUTION:**

* The time of protection will be shortened in severe weather conditions.
* Heavy precipitation rates or high moisture content, high wind velocity and jet blast may cause a degradation of the protective film.
* This is also the case when the aircraft skin temperature is significantly lower than the outside air temperature (cold soaked wings).

Please refer to the current AEA Guidelines for Holdover Times in Annex A (ED30) of this manual.

It will be only available for 2016/17, then discontinued.

One or two step and combined fluid procedures

**Table 1 - Guidelines for the application of Type I fluid/water mixtures (minimum concentrations) as a function of OAT**

|  |  |  |
| --- | --- | --- |
| **OAT** | **One-Step Procedure** | **Two-Step Procedure** |
| **De-icing/Anti-icing** | **First step: De-icing** | **Second step: Anti-icing (1)** |
| **0 °C (32 °F)****and above** | Heated fluid/water mixture with a freezing point of at least 10 °C (18 °F) below OAT | Heated water or a heated fluid/water mixture | Heated fluid/water mixture with a freezing point of at least 10 °C (18 °F) below OAT |
| **below****0 °C (32 °F)****down to LOUT** | Heated fluid/water mixture with a freezing point at OAT or below |
| **(1)** To be applied before first step fluid freezes.  |
| NOTE 1: Temperature of water or fluid/water mixtures shall be at least 60 °C (140 °F) at the nozzle. Upper temperature limit shall not exceed fluid and aircraft manufacturer's recommendations. NOTE 2: This table is applicable for the use of Type I Holdover Time Guidelines. If holdover times are not required, a temperature of 60 °C (140 °F) at the nozzle is desirable. NOTE 3: To use Type I Holdover Time Guidelines, at least 1 litre/m2 (~2 Gals/100ft2) must be applied to the de-iced surfaces. **CAUTION:** Wing skin temperatures may be lower than OAT. If this condition is identified, a stronger mixture (more glycol) may need to be used to ensure a sufficient freezing point buffer.  |

**Table 2 - Guidelines for the application of Type II and Type IV fluid/water mixtures (minimum concentrations) as a function of OAT**

|  |  |  |
| --- | --- | --- |
| **OAT** | **One-Step Procedure** | **Two-Step Procedure** |
| **De-icing/Anti-icing** | **First step: De-icing** | **Second step: Anti-icing (1)** |
| **0 °C (32 °F)****and above** |

|  |  |  |
| --- | --- | --- |
| **50/50**Heated **(3)**Type II or IV fluid/water mixture |  |  |

 | Heated water or a heated Type I, II or IV fluid/water mixture | **50/50**Heated/unheatedType II or IV fluid/water mixture |
| **below****0 °C (32 °F)****down to LOUT** | **50/50**Heated **(3)**Type II or IV fluid/water mixture |

|  |  |
| --- | --- |
| Heated Type I, II or IV fluid/water mixture with a freezing point at OAT or below |  |

 | **50/50**Heated/unheatedType II or IV fluid/water mixture |
| **below -3** °**C** (27 °F) **to -14** °**C** (7 °F) |

|  |
| --- |
| **75/25**Heated **(3)**Type II or IV fluid/water mixture |

 |

|  |  |
| --- | --- |
| Heated Type I, II or IV fluid/water mixture with a freezing point at OAT or below |  |

 | **75/25**Heated/unheatedType II or IV fluid/water mixture |
| **below -3** °**C** (27 °F) **to -14** °**C** (7 °F) |

|  |  |  |
| --- | --- | --- |
| **100/0**Heated **(3)**Type II or IV |  |  |

 | Heated Type I, II or IV fluid/water mixture with a freezing point at OAT or below | **100/0**Heated/unheatedType II or IV |
| **below -14** °**C** (7 °F) **to -23** °**C** (- 9 °F)  | Type II /Type IV fluid may be used below -23 °C (-9 °F) provided that the freezing point of the fluid is at least 7 °C (13 °F) below OAT and that aerodynamic acceptance criteria are met (LOUT). NOTE: Type II/Type IV fluid may not be used below -25°C (-13°F) in active frost conditions. Consider the use of Type I fluid/water mixture when Type II or IV fluid cannot be used (see Table 1).  |
| **(1)** Fluids must only be used at temperatures above their LOUT. **(2)** To be applied before first step fluid freezes. **(3)** Clean airplanes may be anti-iced with unheated fluid.  |
| NOTE: For heated fluid and fluid mixtures, a temperature not less than 60 °C (140 °F) at the nozzle is desirable. When the first step is performed using a fluid/water mixture with a freezing point at OAT, the temperature at the nozzle shall be at least 60 °C (140 °F) and at least 1 litre/m2 (~2 Gals/100 ft2) must be applied to the surfaces to be de-iced. Upper temperature limit shall not exceed fluid and aircraft manufacturer's recommendations. **CAUTION:** Wing skin temperatures may be lower than OAT. If this condition is identified, it shall be verified if a stronger mixture (more glycol) may need to be used to ensure a sufficient freezing point buffer. As fluid freezing may occur, 50/50 Type II, III, or IV fluid shall not be used for the anti-icing step of a cold soaked wing as indicated by frost or ice on the lower surface of the wing in the area of the fuel tank. **CAUTION:** An insufficient amount of anti-icing fluid, especially in the second step of a two step procedure, may cause a substantial loss of holdover time. This is particularly true when using a Type I fluid mixture for the first step (de-icing). **CAUTION:** Some fluids shall only be used undiluted. For some fluids the LOUT may differ. For details refer to fluid manufacturer's documentation. NOTE: Type III fluid has been removed from this table since the application of the current Type III fluids is fluid specific and does not fit this table. *For correct application/use of Type III fluids, refer to the FAA and/or Transport Canada Type III holdover time guidelines on their websites.*  |

GENERAL PRECAUTIONS

Before de-icing with fluids, the possibility of using a warm hangar should be investigated. Unless the airplane is being de-iced by a known operator, the flight crew may be required either to undertake de-icing operations themselves, or to supervise the operation. In either case, care should be taken to ensure that whether removed by broom, squeegee or the application of fluid spray, deposits are swept away from control surface hinge areas and system intakes, and that the sprays themselves are not directed to these areas. Since the de-icing fluid may be further diluted by melting deposits, refreezing may occur if the solution runs onto other parts of the airplane. Close attention should be paid to this possibility. Care should be taken to prevent de-icing fluid from accumulating around cockpit transparencies, on which it may cause smearing and loss of vision as speed is increased during the subsequent take-off.

During de- and anti-icing, the engines should be shut down. If it is necessary to have the engines running, for example when taxiing through de-icing rigs, the operation must be performed with the air conditioning packs switched off. See the specific Aircraft Operating Manual for further details. When de-icing operation has been completed, ideally as close to the scheduled departure time as possible, a careful walk-round inspection of the airplane is to be completed in order to confirm that flying and control surfaces have been cleared of deposits, and that intake and drain holes are free of any obstruction. Necessary equipment, as for example a ladder, should be available.

If possible, control surfaces should be moved over their full range, and jet engine compressors rotated by hand to ensure that they have not become frozen in position. Undercarriage components should be checked for cleanliness, and micro switches and up locks for normal functioning.

COMMUNICATION WITH DE-ICING PERSONNEL

Unless an approved sub-contractor is used, the PIC must give the necessary instructions when ordering anti-icing/de-icing according to ”De-icing/Anti-icing Procedures” in the Maintenance Manual. After completion, ground personnel must inform the PIC verbally (usually by radio) giving the de-icing data, which includes fluid type, the parts of the aeroplane that have been treated and when the HOT began.

PRE-TAKE-OFF CHECK

As a last assurance that the aeroplane is completely free of snow, frost and ice, the PIC shall perform a pre-take-off check within 2 minutes before take-off. The flight crew shall go through and estimate the following:

a) HOT.

b) Type, intensity and variation of precipitation since completion of anti-icing.

c) Temperature (including ‘Skin-Temperature’ if possible)

d) Temperature in relation to dew point.

e) Wind intensity and jet blasts if any.

A visual check shall be made, from within the cabin if necessary. Pre-take-off check is considered completed when beyond all doubt, after estimation of the items above, the airplane can be kept free of snow, frost and ice during take-off. Cabin crew should be briefed to report if they notice a build-up of ice or snow on the wings.

DOCUMENTATION

The PIC is to ensure that an appropriate entry is been made and signed in the Technical Log and that in particular, the type and concentration of fluid, the start and completion times of the de-icing process and the name of who is responsible for the post de- icing/anti-icing, if other than the PIC, have been entered. If there is any subsequent departure delay, or further deterioration in the weather conditions, he should use this information, together with that in the Holdover Tables to form a realistic idea of whether further de-icing is required.

A record should also be made on the Journey Log when de-/anti-icing is performed.

## Flight Procedures

### VFR/IFR Policy

It is [Operator’s name] policy that flights should normally be routed via the most convenient, available airway network and in accordance with the Instrument Flight Rules, irrespective of the forecast and actual weather conditions for the route. When the departure or destination aerodrome is in uncontrolled airspace, that segment of the flight may be flown under Visual Flight Rules.

The ATC flight plan must indicate clearly whether the flight is to be conducted under IFR or VFR or a mixture of both. In cases where the rules governing the flight are expected to be changed en-route, the change from IFR to VFR, or vice versa, is to be annotated on the flight plan, as is the position at which the change is planned to take place.

If circumstances such as an un-forecasted deterioration in weather conditions indicate the need for a revised clearance, this is to be requested immediately from the appropriate ATC unit. Flight in VMC is to be maintained until the IFR clearance is received**.**

#### Change from IFR to VFR

An aircraft electing to change the conduct of its flight from compliance with the IFR to compliance with the VFR must notify the appropriate ATS unit to specify that IFR flight is cancelled. No reply other than the acknowledgement “IFR flight cancelled at ……….. [time]” should normally be made by the ATC.

If the airdrome does not provide an instrument approach procedure cancellation of the IFR portion shall only be requested if Visual Flight Conditions are encountered before leaving controlled airspace (minimum radar vectoring altitude)

When an aircraft operating under IFR is flown in or encounters VMC, it must not cancel its IFR flight unless it is anticipated, and intended, that the flight will be continued for a reasonable period of time in VMC.

#### Change from VFR to IFR

If the airdrome does not provide an instrument departure procedure, take-off shall only be commenced if Visual Flight Conditions are prevailing and, after becoming airborne an IFR clearance has been issued by the competent ATS unit before entering IMC.

### Navigation Procedures

Irrespective of the navigation equipment fitted to [Operator’s name] aircraft, it must be checked for serviceable and normal operations before each flight. Reliance should not be placed on information derived from ground beacons until the appropriate coded signal has been identified. When entering pilot data waypoints into an FMS, one pilot should read aloud the co-ordinates, tracks or distances while the other pilot operates the keyboard and reads back the figures he has programmed, as a cross-check of their accuracy.

NOTE: Refer to the International Navigation Manual for more information on checking waypoints.

Crew members must remain alert to the possibility of errors in programming or performance, and be prepared to revert to the use of raw data provided by such standard VOR, ADF and DME equipment as is available.

#### Area Navigation (RNAV)

(SPA-BRNAV, P-RNAV)

Definition:

A navigation method that enables airplane operations on any desired flight path within station-referenced navigation aids or within capability limits self-contained aids, or a combination of both.

System usage:

An RNAV system may be used in the horizontal plane (LNAV), but may also include functional capabilities for operations in the vertical plane (VNAV).

Airspace environment overview:

An Overview of the relation between airspace designation and required navigation performance (RNP) is given in the table below:

|  |  |  |
| --- | --- | --- |
| **Airspace** | **Description** | **RNP** |
| MNPS (now NAT HLA) | North Atlantic | 6.3 (historic), 4 (new) |
| MNPS (now NAT HLA) | North Atlantic | 10 time limited |
| B-RNAV | Basic RNAV | 5 |
| P-RNAV SID/STAR | Procedure based on RNP 1augmented by DME/DME; VOR/DME | 1 |
| LNAV/VNAV/LPV APPCH | Procedure based on RNP | various |

An overview of the RNAV approvals of [Operator’s name] aircraft is given in the table below:

|  |  |  |
| --- | --- | --- |
| **Type** | **Call sign** | **RNAV Approvals** |
| [operator’s aircraft type] | XXX | YYY |
| [operator’s aircraft type] | XXXX | YYY |

#### Minimum Navigation Performance Specification (MNPS)

(Ref. Reg. (EU) No 965/2012, Annex V, Subpart SPA.MNPS)

General

Atlantic MNPS Airspace is considered a complex area and corresponding qualification requirements shall be complied with. MNPS airspace extends from FL285 to FL420.

Flight Planning

As ETOPS Rules are not applicable to [Operator’s name] as NCC-Operator, flights through North Atlantic High Level Airspace (NAT HLA) shall be planned as non-ETOPS flights (120 minutes flying time of an adequate airport in wind still conditions at singe engine cruising speed).

Flights will be planned at random routes at flight levels appropriate to the semi-circular rules and the direction of the flight. The routes are planned, so that specific ten degrees of longitude (i.e. 30W,40W, 50W etc.) are crossed at whole degrees of latitude.

A copy of the current NAT track message shall be available for each flight planned through the proximity of the organised track system (OTS).

Serviceable equipment

A minimum of two serviceable independent Long Range Navigation Systems (LRNS) are required for entry into the MNPS airspace. Each LNRS shall be capable of providing a continuous indication of the aircraft position relative to the desired track. An LNRS may be one of the following:

* One navigation system using inputs from one or more IRS´s.
* One Navigation system using inputs from one or more Global Navigation System Sensors (GNSS)

Notes:

* a FMC with inputs from one or more sensors (IRS/GNSS) is considered to be a LNRS
* an aircraft with two sensors(IRS/GNSS) but only one FMC does meet track keeping requirements, whoever does not provide for the redundancy should the FMC fail.
* A number of special routes have been developed for aircraft equipped with only one LNRS and carrying normal short-range navigation equipment (VOR, DME, ADF) These routes are within MNPS airspace and are known as “Blue Spruce” and “T9”.
* The carriage of HF communications is mandatory for flights in Shanwick OCA. Aircraft with only VHF communications equipment should plan outside Shanwick OCA and ensure that they remain within VHF coverage.

Procedure prior to entering the North Atlantic High Level Airspace (NAT HLA)

Oceanic clearances are required for all flights within NAT controlled airspace. It is recommended that pilots should request their oceanic clearance at least 40 minutes to the oceanic entry point ETA. At some airports located close to oceanic boundaries, the oceanic clearance must be obtained before departure (i.e. Shannon, Gander, Goose Bay).

Note:

The ATC clearance includes the assigned Mach number, which is to be maintained. ATC uses Mach number together with pilot’s position reports to calculate ETO´s for significant points along the track. Adhere strictly to the assigned Mach number unless a specific re-clearance is obtained.

On random routings oceanic clearances are required to be read back in full, including all track coordinates and recorded, in writing, on the operational flight plan(OFP). It is standard procedure at [Operator’s name] that both pilots copy the clearance.

When the cleared route differs from the OPF, the OFP shall be revised accordingly using the track and distance between the waypoints. This data should be compared with the FMC readout. When entering waypoints in the FMC from the OFP the waypoint number shall be circled to signify that insertion of the correct coordinates in the FMC has been checked by the other crewmember. The circled waypoint number shall be ticked to signify that the relevant track and distance information has been double-checked.

In MNPS airspace

In order to accomplish Route Monitoring immediately after waypoint passage:

* Verify that the “To” or “Active” Waypoint is correct.
* Check the correct distance to the next waypoint
* Check that the aircraft turns onto the correct track.
* Transmit a position report to ATC.

Approximately 10 minutes after waypoint passage the present position shall be plotted. Plot the position using the navigation system associated with the autoPilot-in-Command. Any deviation of 25 nm or more must be notified to ATC immediately. An Aviation Safety Report (ASR) must be filed.

#### Basic RNAV (B-RNAV)

(SPA-BRNAV)

The country overflown is responsible to provide the required navigation structure to support
B-RNAV

The following conditions shall be met before entering B-RNAV airspace:

* All equipment outlined in Part-B of this manual for the specific aircraft shall be operative.
* When using FMS Navigation with automatic position updating the Actual Navigation Performance (ANP) shall be consistent to the Required Navigation Performance (RNP).
* FMS navigation with automatic position updating: The expected time in RNP area added to elapsed time since the FMS was placed in inertial navigation mode shall be less than the time limit stated in the AFM.

#### Required Navigation Performance (RNP)

Required Navigation Performance is a statement of the navigation performance accuracy of the aircraft, essential to operations within a defined airspace.

RNP airspace:

Generic term referring to airspace, routes and procedures where minimum navigation performance requirements have been established. Aircraft must meet or exceed or exceed these requirements in order to use this airspace.

RNP-(X):

A designator is used to indicate the minimum navigation requirements to be fulfilled to operate in an airspace, on a route, or on a procedure (i.e. RNP-1, RNP-5).

Actual Navigation Performance (ANP):

The in-flight navigation performance of the aircraft (computed by the FMS)

In-flight RNP capability:

* FMS navigation with automatic position updating: When the ANP falls below the required RNP inside RNP airspace, ATC shall be informed and conventional navigation procedures shall be adhered to.
* When using FMS navigation without automatic position updating: The expected time in RNP area added to elapsed time since the FMS was placed in inertial navigation mode shall be less than the time limit stated in the AFM.

For detailed procedures for [hhhh] see Section [x.x] Part-B of this manual.

#### Precision RNAV (P-RNAV)

(SPA-PRNAV)

Precision-Area Navigation (P-RNAV) is the European terminal airspace RNAV application and it is the natural progression from Basic RNAV which became mandatory in European airspace in April 1998. The P-RNAV track keeping accuracy equates to cross track accuracy of RNP1 (+/- 1NM).In the European airspace PRNAV navigation will be backed up by the ground aid (DME/DME) infrastructure. Therefore, the procedure can be adhered to, even if the GNSS sensors fail.

Conditions to enter P-RNAV airspace.

The following conditions shall be met before entering P-RNAV airspace:

* All items as given in the AFM shall be operative
* When using FMS navigation with automatic position updating the ANP shall be sufficient for the required RNP
* When using FMS navigation without automatic position updating: The expected time in RNP area added to elapsed time since the FMS was placed in inertial navigation mode shall be less than the time limit stated in the AFM.

P-RNAV Procedures

A P-RNAV Procedure shall not be used if doubt exists as to the validity of the procedure in the database. New Waypoints shall not be created by manual entry into the loaded procedure in the FMS. The loaded procedure shall not be modified or manually entered using temporary waypoints or fixes not provided in the database. Tactical waypoints may be loaded from the database for route modifications in the form of radar headings or “direct to” clearances.

Before take-off the following actions shall be performed:

* Verify if navigation database is current
* Verify aircraft position and,
* Check the flight plan by comparing the charts, SID or to the applicable documents with the map display and the MCDU. This check shall include confirmation of the waypoint sequence, reasonableness of track angles and distances, altitudes or speed constraints and, where possible, which waypoints are fly-by and which are fly-over.

In the departure phase the following actions shall be performed:

* Verify the RNAV system is available and operating correctly
* Verify at the holding position at the runway that the correct aerodrome and runway data have been loaded
* Unless automatic updating of the departure point is provided, ensure initialization on the runway either by means of a manual runway threshold or intersection update, as applicable.

In the arrival phase the following actions shall be performed:

* Verity the correct terminal procedure has been loaded.
* Check the flight plan by comparing the charts, STAR or to the applicable documents with the map display and the MCDU. This check shall include confirmation of the waypoint sequence, reasonableness of track angles and distances, altitudes or speed constraints and, where possible, which waypoints are fly-by and which are fly-over.
* The flight progress should be monitored for navigational reasonableness by cross-checks with conventional navigation aids using the primary display in conjunction with the MCDU.

#### RNAV SID and STAR Procedures

The existing RNAV procedures (RNAV SID and STARS and OVERLAY) are not associated with an RNP level. When using RNAV equipment for primary navigation when adhering to a SID or STAR:

* The SID or STAR shall be available in the navigation database and the waypoint sequence shall not be altered.
* The SID/STAR waypoints and sequence in the FMS shall be verified using the published SID/STAR and,
* Radio navigation aids should be used to monitor the procedure when possible.

#### RVSM

(SPA-RVSM)

Reduced vertical separation minima(RVSM) is the reduction of the standard vertical separation required between aircraft flying between FL290 and FL410 inclusive, from 2,000 feet to 1,000 feet. This therefore increases the number of aircraft that can safely fly in a particular volume of airspace.

Only specially certified aircraft may fly in RVSM airspace. Additionally, aircraft operators must receive specific approval from the aircraft's state of registry in order to conduct operations in RVSM airspace.

Procedure prior to entering RVSM airspace

* verify primary (left, right) and standby altimeters are set to 1013.25 hPa;
* verify indications of primary altimeters agree within +/- 200 ft);
* verify autopilot is coupled to the same altimeter that is used by the reporting transponder;
* RVSM critical areas shall be thoroughly inspected during the preflight check.

The following equipment shall be serviceable prior to entering RVSM airspace:

* two primary altimeters,
* one autopilot system, including automatic altitude control,
* one altitude alerting system,
* one altitude-reporting transponder capable of being switched to operate from either of the two altimetry systems required.

Procedures in RVSM airspace

* The automatic altitude control system should be operative and engaged during level cruise flight, except when circumstances, such as need to re-trim the aircraft or turbulence require disengagement.
* When changing levels the aircraft should not be allowed to over/undershoot the cleared level by more than 150 feet. (Reduce Vertical Rate to less than 1500 ft/min in the last 100 ft before the cleared level, unless a specific rate has been assigned by ATC).
* At intervals of approximately 1 hour crosschecks between the primary altimeters should be made (agree within +/- 200 ft)

ATC shall be to be notified in any of the following events:

* failure of automatic altitude control system
* loss of primary altimetry system
* loss of engine thrust requiring descent
* loss of any equipment affecting height keeping
* encounter with greater than moderate turbulence

#### Inflight Replanning

The PIC shall evaluate conditions such as aircraft systems status, fuel status and en-route and destination weather conditions. If a change in conditions precludes safe approach and landing at a selected airport, the PIC should take appropriate action. If deteriorating conditions no longer justify previously planned operation, re-routing or diversion should be considered.

When a flight has to proceed along a route or to a destination other than the originally planned, the PIC shall check:

* The fuel requirements
* The available navigational aids for replanned route and the replanned airport
* The airborne equipment to be sufficient and satisfactory for a safe conduct of the flight.

### Altimeter setting procedures

SERVICEABILITY CHECKS

Altimeters are to be checked during the pre-flight phase as follows: set both altimeters to aerodrome QNH and check that they indicate within the tolerance allowed in the AFM.

SETTING PROCEDURES

Both altimeters and the standby altimeter shall be set and cross-checked whenever a new subscale setting is applied. Particular attention shall be paid in all instances when the setting 1013.2 hPa is relevant in RVSM airspace.

TEMPERATURE ERROR

Pressure altimeters are calibrated to indicate true altitude under International Standard Atmosphere (ISA) conditions. Any deviation from ISA will therefore result in an erroneous reading on the altimeter. The altimeter error may be significant under conditions of extremely cold temperature and appropriate corrections should be applied.

Refer to 8.2.4

### ALTITUDE ALERTING SYSTEM PROCEDURES

Whenever an altitude or flight level change is notified by the appropriate ATS unit, or the PIC elects to vary his cruising altitude/flight level and advises the ATS unit accordingly, the altitude alerting system is to be reset to the new altitude/level. The new setting is always to be checked.

NOTE: Care must be exercised when re-setting altitude alerting devices which form part of the airplane’s Automatic Flight Control System (AFCS) in order to prevent any unplanned airplane´s excursion from its desired flight path.

Approaching cleared altitudes/FLs

When approaching within a 1,000 ft of a cleared level or altitude, PM is to call “One thousand to go” and PF replies “Checked”.

In order to avoid unnecessary ACAS/TCAS RA´s it is recommended that the climb/decent-rate is adjusted to 1500ft/min within the final 1000ft before arriving at the cleared level/altitude. If a dedicated rate has been assigned by ATS this has to be maintained as long as practical.

### Ground Proximity detection

(NCC.OP.215)

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

GROUND PROXIMITY WARNING SYSTEM PROCEDURES

The following paragraphs are intended as a guide to the purposes and use of GPWS in the [Operator’s name] environment. Specific technical details and operating instructions of particular equipment are found in the AFM of the specific aircraft.

GPWS is intended to provide warning of unintentional closure with the ground as a result of which remedial action can be taken by the flight crew. It is not infallible, but an immediate and positive response must be made to all its alerts and warnings. Investigation of the reason for the alert/warning must take second place

Irrespective of their nature, all alerts and warnings are to be reported to the NPFO so that the circumstances may be investigated and the reliability of the equipment established. Flight crews must beware of becoming slow to react to EGPWS alert/warnings purely on the basis of previous suspect performance.

EGPWS (TAWS)

[Operator’s name] aircraft are equipped with Enhanced Ground Proximity Warning Systems (EGPWS) and graphical display of terrain information in the MFD. The more advanced GPWS equipment indicates the mode of operation and provides alerts as well as warnings. (Refer to the AFM for the Modes). The immediate action on receiving an alert will vary according to the stage of flight and aeroplane configuration, but should involve correcting the condition for which the alert was valid.

No attempt should be made to recover the original flight path until the cause of the alert has been positively established and eliminated. Whenever a warning is received, however, the immediate response must be to level the wings and initiate a maximum gradient climb to the (MSA) for the sector being flown, except as in the paragraph below.

UNWANTED WARNINGS

Unwanted (i.e. false or nuisance) warnings may be received during normal, safe operations when, for example, the aircraft is being vectored by ATC and is descending in an area of hilly terrain. A Mode 5 (glideslope) alert may be triggered when the aircraft is being flown outside the validity area of the glideslope signal, such as when manoeuvring visually to land on a non-instrument runway following an approach to the ILS runway. An alert/warning will also be triggered if the approach is flown with the flaps set to a different position from that normally used for landing.

Provided that flight crews remain fully aware of these limitations of the equipment, however, and follow the recommended procedures immediately on receipt of GPWS alerts and warnings, its use may well avoid an otherwise inadvertent closure, or contact, with the ground. It is emphasised that even if a warning is anticipated or suspected to be false or nuisance, immediate action is required by the crew unless it is beyond doubt that the warning is false.

[Instruction for specific company aircraft regarding operation with QFE as altimetry reference (geographical altitude]

### Airborne collision avoidance system TCAS/ACAS

(Ref. NCC.OP.220)

TCAS provide flight crew with an independent back up to visual search and the ATC environment by alerting the crew to collision hazards, independent of any ground based aids which may be used by air traffic control for such purposes. TCAS II (Traffic Alert and Collision Avoidance System Type II, commonly called ACAS – Airborne Collision and Avoidance Systems) is the specific equipment, which is currently available to meet this requirement, as detailed in the following paragraphs. (For details on specific system, see the AFM.

#### TCAS II (ACAS)

Provides collision avoidance manoeuvre advice in the vertical plane, in either of two forms:

* Traffic Advisories (TAs), which indicate the approximate position relative to the subject airplane, either in azimuth only, or azimuth and altitude, of nearby transponding aircraft which may become a threat.
* Resolution Advisories (RAs) which recommend manoeuvres or manoeuvre restrictions in the vertical plane to resolve conflicts with aircraft transponding SSR Mode C altitude.

If a TA or an RA is received, the following action should be taken:

* TA - a TA is intended to alert the crew that an RA, requiring a change in flight path, may follow. A visual search should immediately be concentrated on that part of the sky where the TA indicates the conflicting traffic to be. If the potential threat cannot be seen and gives cause for concern, air traffic control assistance should be requested in deciding whether a change of flight path is required. If the potential threat is seen, and considered to pose a definite risk of collision, the pilot should manoeuvre his airplane as necessary to avoid it, making sure that the area into which he is manoeuvring is clear. Once clear of the potential threat, and any other subsequent conflicts, the pilot should resume his previously cleared flight path and advise ATC of any deviation from his clearance.
* RA - an RA is intended to advise pilots on the manoeuvre they should carry out in order to achieve or maintain adequate separation from an established threat. The required manoeuvre should be initiated immediately, and crew members not involved in its execution should ensure that the sky ahead is clear of other traffic and continue the visual search for the established threat. Once the TCAS II indicates that adequate separation has been achieved, or visual acquisition or ATC information shows that there is no longer a conflict, the airplane should be promptly returned to its intended flight path and ATC informed.

NOTE 1: Manoeuvres should never be made in a direction opposite to that given in an RA.

NOTE 2: If an instruction to manoeuvre is received simultaneously from an RA and from ATC, and the instructions conflict, the advice given by the RA should be followed. The aircraft shall be promptly returned to the terms of the ATC instructions or clearance when the situation is resolved.

NOTE 3: Unless otherwise specified in an air traffic control instruction, pilots shall use appropriate procedures to ensure that a rate of climb or descent of less than 1,500 ft/min (depending on the instrumentation available) is achieved throughout the last 1,000 ft of climb or descent to the assigned altitude or flight level. This is to avoid unnecessary RAs in aircraft at or approaching adjacent altitudes or flight levels.

### In-Flight fuel management

(Ref. 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;
* Estimated fuel required.

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

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

The Actual Fuel Remaining 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 PIC 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.

### Adverse atmospheric conditions

#### Thunderstorms

Although flight through areas of thunderstorm activity should be avoided wherever possible, provided that the recommended techniques are employed, such flight may be carried out where no alternative course of action is possible.

##### Recommended Technique for Flying through Areas of Thunderstorm Activity

Irrespective of the equipment fitted the latest meteorological forecasts and actual weather reports should be used to plan routes along which the risk of a thunderstorm encounter is low. If, despite these precautions, the PIC finds himself committed to flying through an area of thunderstorm activity, he shall apply the following procedures:

a) Approaching the thunderstorms area:

* Ensure that crew members’ and passengers’ safety belts or harnesses are firmly fastened and any loose articles are secured.
* One pilot should control the aeroplane and the other monitors the flight instruments and electrical supplies continuously.
* Select an altitude for penetration whilst ensuring adequate terrain clearance.

Set the power to give the recommended speed for flight in turbulence, adjust the trim and note its position so that any excessive changes due to autopilot or Mach trim can be quickly assessed.

* Ensure that the pitot heaters are switched on.
* Check the operation of all anti-icing and de-icing equipment and operate all these systems in accordance with manufacturer’s or operator’s instructions.
* Disregard any radio navigation indications subject to interference from static, e.g. ADF.
* Turn the cockpit lighting fully on and lower the crew seats and sun visors to minimize the blinding effect of lightning flashes.
* Follow the recommendations found in the AFM for each aeroplane type concerning the use of autopilot and flight director.
* Continue monitoring the weather radar in order to select the safest track for penetration.
* Switch on the continuous ignition system considering any system limitations that may exist.
* Avoid flying in close proximity to a thunderstorm whenever possible.

b) Within the storm area:

* Maintain control of the aeroplane whilst concentrating on maintaining a constant pitch attitude appropriate to climb, cruise or descent, by reference to the attitude indicators, avoid harsh or excessive control movements. Do not be misled by conflicting indications on other instruments. Do not allow large attitude excursions in the rolling plane to persist.
* Attempt to maintain the original heading.
* Do not correct for altitude gained or lost through up and down draughts unless absolutely necessary.
* Maintain the trim settings and avoid changing the power setting except when necessary to restore margins from stall warning or high-speed buffet.
* If trim variations due to the autopilot (auto-trim) are large, the autopilot should be disengaged. Movement of the Mach trim, where it occurs, is however necessary and desirable. Check that the yaw-damper remains engaged.
* If negative ‘G’ is experienced, temporary warnings (e.g. low oil pressure) may occur. These should be ignored.
* On no account climb in an attempt to get over the top of the storm.

c) Air Traffic Control considerations

A pilot, intending to detour round observed weather when in receipt of an ATS which involved ATC responsibility for separation, should obtain clearance from or notify ATC so that separation from other aircraft can be maintained. If, for any reason, the pilot is unable to contact ATC to inform the controller of his intended action, any manoeuvre should be limited to the extent necessary to avoid immediate danger and ATC must be informed as soon as possible.

d) Take-off and landing

* The take-off, initial climb, final approach and landing phases of flight in the vicinity of thunderstorms may present the pilot with additional problems because of the aeroplane’s proximity to the ground, and the maintenance of a safe flight path in these phases can be very difficult.
* Do not take-off if a thunderstorm is overhead or approaching.
* At destination, hold clear if a thunderstorm is overhead or approaching. Divert if necessary.
* Avoid severe thunderstorms even at the cost of diversion or an intermediate landing. If avoidance is impossible, the procedures recommended in these paragraphs should be followed.
* Ensure that our aeroplanes are adequately secured on the ground when severe thunderstorm activity is forecast or present.

##### Use of weather radar - guidance to pilots

|  |  |
| --- | --- |
| **FLIGHT LEVEL** | **ECHO CHARACTERISTICS** |
| **Shape** | **Intensity** | **Gradient of****intensity \*** | **Rate of change** |
| Up to 200 | Avoid by 10miles:echoes withhooks,fingers andscallopededges | Avoid by 5miles:echoes withsharp edgesor strongintensities | Avoid by 5miles:echoeswith stronggradientsof intensity | Avoid by 10 miles:echoes showing rapidchange of shape, heightor intensity |
| 200 – 250 | Avoid all echoes by 10 miles. |
| 250 – 300 | Avoid all echoes by 15 miles. |
| Above 300 | Avoid all echoes by 20 miles. |

\*: Applicable to sets with Iso-Echo or a colour display. Iso-Echo produces a hole in a strong echo when the returned signal is above a pre-set value. Where the return around a hole is narrow, there is a strong gradient of intensity.

NOTE 1: If storm clouds have to be overflown, always maintain at least 5,000 ft vertical separation from cloud tops. It is difficult to estimate this separation but ATC or Met information on the altitude of the tops may be available for guidance.

NOTE 2: If the aeroplane is not equipped with radar or it is inoperative, avoid by 10 miles any storm that by visual inspection is tall, growing rapidly or has an anvil top.

NOTE 3: Intermittently monitor long ranges on radar to avoid getting into situations where no alternative remains but the penetration of hazardous areas

NOTE 4: Avoid flying under a cumulonimbus overhang. If such flight cannot be avoided, tilt antenna full up occasionally to determine, if possible, whether precipitation (which may be hail) exists in or is falling from the overhang.

#### Icing conditions

Frost, ice, snow or slush contamination can seriously affect flight characteristics Contamination increases weight and disturbs airflow. Critical surfaces, which include upper wing surfaces, control surfaces and engine cowlings, must be free of contamination unless otherwise permitted by the aircraft manufacturer

##### Taxiing

When taxiing for take-off during icing conditions, taxi slowly and carefully to avoid slipping of the aircraft. Avoid the vicinity of other aircraft due to the risk of snow blowing into the engines or on the surface of the aeroplane.

##### In flight

If severe icing is encountered during flight, the autopilot shall be disconnected and the controls moved continuously to avoid freezing. Pitot heat and static vent heaters should be selected ‘ON’ for all flights through icing conditions, and other equipment used for anti- or de-icing according to prevailing conditions and as recommended in the flight manual. The icing conditions should be reported and change of level or course requested. In a climb or descent, maintain a high vertical speed to minimize time in the area of severe ice.

Do not make steep turns, and make a straight-in approach if possible. Extra care should be taken to icing conditions during approach and landing. Check deice/defroster on windshields to keep visibility. The stalling speed may be much higher than normal and stall may occur without warning. The PIC shall consider using a higher IAS related to the structure and thickness of ice.

NOTE: The AFM may stipulate Vref increments when the aeroplane has flown in icing conditions.

##### Turbulence

If the weather conditions, cloud structure and route forecast indicate that turbulence is likely, the cabin crew should be warned in advance and the passengers advised to return to, and/or remain in their seats, and to ensure that their seat belts/harnesses are securely fastened. Catering and other loose equipment should be stowed and secured until it is evident that the risk of further turbulence has passed. Consideration must be given to flying at the turbulence speed/Mach Number recommended in the AFM.

##### Windshear

Pilots must remain alert to the possibility of wind shear, and be prepared to make relatively harsh control movements and power changes to offset its effects.

Immediately after take-off, the pilot’s choices of action will be limited, since he or she normally has full power applied, and will be at the recommended climb speed for the configuration. If the presence of shear is indicated by rapidly fluctuating airspeed and/or rate of climb/descent, ensure that full power is applied and aim to achieve maximum lift and maximum distance from the ground. Similarly, if the shear is encountered during approach, positive application of the power and flying controls should be used to keep the speed and rate of descent within the normal limits. If there is any doubt, the approach should be abandoned and action taken as in the after take-off case above. Whenever windshear is encountered, its existence should be reported to ATC as soon as possible.

#### Jetstream

Avoid flying along the edge of Jetstream due to the possibility of associated turbulence. Pilots should be aware of the effect of increased fuel consumption due to unexpected significant head wind components that can be experienced. It may be possible to avoid Jetstream by changing route and/or altitude.

#### Clear air turbulence

Clear air turbulence may sometimes be avoided by changing the cruising level if operational considerations so permit. Monitoring of aircraft reports also assists in avoidance.

#### Rain, snow and other precipitation

On the ground, manoeuvring may require the use of slower taxiing speeds to allow for the reduction in braking performance in snow, slush or standing water. At the same time, higher power settings may be required to overcome the drag caused by such contaminants, so great care should be taken to avoid jet blast or propeller slipstream from blowing unsecured ground equipment or contaminants into nearby aircraft. When taxiing, account may need to be taken of banks of cleared snow and their proximity to wing and engines. It may be advisable to delay the completion of such vital actions as flap selection to minimize the danger of damage to such surfaces, or the accumulation of slush on their retraction mechanisms. (Refer to the AFM) Greater distances should be observed between successive aircraft to avoid damage from jet blast or propeller wash.

On the runway, directional control may be adversely affected by surface contamination. Take-off distance may be increased due to slower acceleration. Accelerate-stop distances may be increased for the same reason and because of poor braking action and aquaplaning, landing distance will be increased for similar reasons. If landing on a contaminated runway is unavoidable, any crosswind component should be well below the normal dry runway limit. (Refer to the AFM). Touchdown should be made firmly and at the beginning of the touchdown zone, the nose wheel lowered as early as possible, and any retarding devices such as spoilers, lift dump or reverse thrust used before beginning to apply wheel brakes, in order to give the wheels time to spin up. If anti-skid braking systems are fitted and serviceable, they should be used immediately and to the maximum degree. When encountered whilst in flight, heavy precipitation can be associated with significant downdrafts and windshear. On some aeroplanes, there are specific procedures in the AFM for engine and electrical generation handling and these must be observed.

#### Sandstorms

Avoid flying in active sandstorms whenever possible. When on the ground, aeroplanes should ideally be kept under cover if dust storms are forecast or in progress. Alternatively, all engine blanks and cockpit covers should be fitted, as well as the blanks and ‘gloves’ for the various system and instrument intakes and probes. These should be carefully removed before flight to ensure that accumulations of dust are not deposited in the orifices that the covers are designed to protect.

#### Volcanic ash

The atmospheric repercussions of volcanic activity can be particularly hazardous to aeroplanes. Flight through volcanic ash can cause extreme abrasion to all forward-facing parts of the aeroplane, to the extent that visibility through the windshields may be totally impaired. Aerofoil and control surface leading edges may be severely damaged, airspeed indications may be completely unreliable through blocking of the pitot heads and engines may become so choked that power interruptions or even shut-downs occur. NOTAMs now details known areas of volcanic activity where ash may be present in the atmosphere.

Flight into such known areas is to be avoided, particularly at night or in daytime forecast IMC conditions when ash clouds may not be seen.

Reported instances of flight into such activity indicate that the weather radar will not pick up any returns so the only avoidance methods are by NOTAM or visual contact. In the event of inadvertent penetration of ash cloud, the major immediate aim is to keep all or some of the engines running and find the shortest route out of the cloud, which may be downwards.

#### Mountain waves

These form in the lee of a range of mountains when a strong wind is blowing broadside on (within about 30°) to the range. They are usually in the form of standing waves, with several miles between peaks and troughs. They can extend to 10 or 20 000 feet above the range and for up to 200 or 300 miles downwind. Encounter with mountain waves can be recognized by long-term variations in aeroplane speed and pitch attitude in level cruise. Variations may be large, too large for autopilot height-lock. Bear in mind that at cruising levels, the margin between low and high speed limits can be small. The effect of mountain waves reduces with increased height. At normal cruise altitudes, mountain waves are usually free from clear-air turbulence, unless associated with Jetstream or thunderstorms.

Near the ground in a mountain wave area, however, severe turbulence and windshear may be encountered. This region is known as a lee wave rotor, and is caused by flow separation behind the mountain range. Take-off or landing should not be attempted in a strong lee-wave rotor. If severe turbulence is encountered at low level in the lee of a mountain range, the quickest way out is up. If unable to climb, the next best is to turn directly away from the range.

#### Significant temperature inversion

Ambient temperature variations have an effect on aeroplane performance. Inversions will usually affect performance adversely. The significance of this will vary according to aeroplane type and operating weight. Examples of inversion effects include those shown below.

* Large temperature inversions encountered shortly after take-off can seriously degrade an aeroplane’s climb performance, particularly at high operating weight. Similarly, if the aeroplane is operating to a maximum landing weight limited by go-around climb performance considerations, the required gradient may not be achieved.
* The maximum cruising altitude capability of the aeroplane can be significantly reduced if a temperature inversion of even small magnitude exists in the upper levels. This may prevent an aeroplane reaching its preferred cruising altitude. Should an aeroplane encounter an area of inversion once in the cruise at limiting altitude its buffet margins may be so eroded that a descent is necessary.
* Temperature inversions at lower levels in the atmosphere are frequently associated with deteriorating visibility and can prevent the clearance of fog for prolonged periods.

### Wake turbulence

Wake turbulence is generated by a pressure exchange between the lower and upper surface of the wing. This pressure exchange causes counter rotating vortices trailing from the outer wing tips. The larger the aircraft, the larger those vortices will be. The vortex flow field covers an area about twice the wingspan in width and one wingspan in depth. The vortices from the two tips remain spaced and will drift with the wind.

The vortices will sink with a rate of decent of 400-500 fpm. There is a tendency, that the vortices will “level off” about 800-1,000 ft below the flight path of the vortex-generating aircraft.

Significant vortex generation begins on rotation when the nose wheel lifts off the ground and ends, when the nose wheel touches down on landing. In conditions with very weak or clam winds, the remaining vortices from a landing aircraft may persist up to 5 minutes or even longer. When hitting the ground, vortices tend to move sideways at a speed of approximately 3 to 5 kts. Vortex strength diminishes with time and distance behind the aircraft.

#### Aircraft wake turbulence categories

* Light (L) – aircraft with a MTOM of up to 7 tons
* Medium (M) – aircraft having a MTOM of more than 7 tons up to 136 tons
* Heavy (H) – aircraft with a MTOM in excess of 136 tons
* Super (J) – Airbus A380, B777

The aircraft operated by [Operator’s name] are of wake turbulence category […].

#### Minimum separation

Flight crews have to ensure that the following minimum time separation for departures and on final approach is being applied by ATC.

Departing aircraft (aircraft category MEDIUM)

* 2 minutes, when departing behind a HEAVY aircraft or B757
* 3 minutes, when departing behind an Airbus A380,B777
	+ - from the same runway;
		- from a parallel runway separated by less than 760m/2500ft;
		- on a runway with a displaced threshold and a heavy aircraft has just landed;
		- in the opposite direction to a heavy aircraft, which performed a low approach or
		- missed approach;
* 3 minutes, when departing behind a HEAVY aircraft or B757 from
* 4 minutes, when departing behind an Airbus A380 B777 from
	+ - an intersection of the same runway;
		- an intersection of a parallel runway separated by less than 760m/2500ft;

Minimum separation on final approach (aircraft category MEDIUM)

* 3 minutes or 7 NM following SUPER
* 2 minutes or 5 NM following HEAVY or B757
* 3 NM following a MEDIUM or LIGHT

#### Reduction of minimum separation

At the commander’s discretion and if it does not affect the safety of the flight, the separation minima of para 8.3.9.2 may be reduced if visual contact with the preceding traffic is established and a safe distance and separation can be maintained during the entire approach or the prevailing wind conditions affect the movement of wake turbulences in such a way that there is no danger for the succeeding traffic.

If adequate separation cannot be provided or when vortices are encountered despite adequate separation, the following vortex avoidance procedures are recommended for various situations:

* **Landing behind a larger aircraft:** - Stay at or above the larger aircraft’s flight path and land beyond its touchdown point.
* **Landing behind a departing larger aircraft – crossing runway.** Cross above the larger aircraft’s flight path.
* **Landing behind a departing larger aircraft – crossing runway.** Note the larger aircraft’s rotation point – if past the intersection – continue the approach – land prior to the intersection. If larger aircraft rotates prior to the intersection, avoid flight below the larger aircraft’s flight path.
* **Departing behind a larger aircraft.** Rotate prior to the larger aircraft’s rotation point and continue climb above the larger aircraft’s flight path until clear of wake vortices or, if this is not possible, stay on the upwind side of the larger aircraft’s flight path.

### Crew members at their stations

FLIGHT CREW

Flight crew members are to occupy their assigned duty stations from the time the airplane first starts to move at the beginning of its flight until it is established in the level cruise, and from the time it begins its descent on approaching the destination until the aeroplane is stationary on its allocated parking stand at the end of the flight. In level cruise, a flight crew member may, with the permission of the PIC, leave his assigned station for an agreed purpose and period.

#### Use of headsets

(Ref. NCC.OP.160)

Each flight crewmember 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:

on the ground:

* when receiving the ATC departure clearance via voice communication; and
* when engines are running;

when in flight:

* below transition altitude; or
* 10 000 ft, whichever is higher;

and

* whenever deemed necessary by the Pilot-in-Command.

In the conditions of (a), the boom microphone or equivalent shall be in a position that permits its use for two-way radio communications.

### Use of restraint devices

CREW

During take-off and landing, and whenever the PIC considers it necessary in the interests of safety, crew members shall be at their assigned crew stations, properly secured by the safety belts and shoulder harnesses provided. During other phases of the flight, each flight crew member on the flight deck shall keep his seat belt fastened while at his station.

PASSENGERS

The PIC shall ensure that each person on board is briefed before take-off on how to fasten and unfasten his safety belt. Before take-off and landing, and whenever he considers it necessary in the interests of safety, the PIC shall ensure that each passenger on board occupies a seat with his safety belt properly secured. Multiple occupancy of aeroplane seats is not permitted other than by one adult and one child less than two years of age who is properly secured by a child restraint device.

POST FLIGHT

Passengers shall be instructed to remain seated with their seat belts fastened until the aeroplane has come to a stop and the engines have shut down. A crew member shall open the aeroplane door and remain in attendance with the passengers until an approved escort is available. The PIC shall ensure that the passengers are escorted on foot or by transport as required by local aerodrome regulations.

### Admission to flight crew compartment

At the PIC’s discretion and in suitable atmospheric conditions in level flight cruise, individual passengers may be allowed to visit the flight deck. The PIC must remain seated at the controls and have his seat belt fastened.

### Use of vacant crew seats

The commander may authorize the use of vacant flight deck seats in accordance with paragraph 8.3.12.

### Incapacitation of crew members

Incapacitation is defined as any condition affecting the physical or mental health of a crew member during the performance of his duties that renders him incapable of properly performing those duties. While the remedial action which can be taken within an aeroplane in the event of flight crew incapacitation varies according to cockpit design and size, as well as to the overall crew complement of the aeroplane, the general principles are listed below:

RECOGNITION

Incapacitation falls into two categories, obvious and subtle, and of these subtle is by far the most potentially dangerous. Early recognition of subtle incapacitation will greatly enhance the preservation of a safe and calm operation. Aids to recognition of subtle incapacitation are listed below:

* Alertness to crew member’s mistakes. A mistake is not necessarily caused by incapacitation but it may be and, in any event, requires correction.
* Any un-briefed deviation from Standard Operating Procedures (SOPs). SOPs provide a yardstick of what is accepted as normal operating practice that can be used to measure a crew member’s performance. They are not absolute but any deviation from or variation to SOPs should be pre-briefed. If not, then deviations or variations must be challenged, the deviation or variation may be entirely justifiable but confirmation is necessary.
* Compliance with the above allows the trigger for the ‘Two Communications Rule’, which states that crew members shall have a very high index of suspicion of a subtle incapacitation. Any time a crewmember does not respond appropriately to two verbal communications or any time a crew member does not respond to a verbal communication associated with a significant deviation from a standard flight profile.

ACTION FOLLOWING RECOGNITION

In the event of either pilot becoming incapacitated, the other pilot will assume control of the aircraft, the Pilot not Flying will announce “I have control” and assume command of the flight and land at the first suitable airfield. If in visual contact with the runway, and the aeroplane is prepared for a safe landing and control is unaffected by the incapacitated crewmember, the approach should be continued.

* If this is not the case:
* Control the aeroplane and when control is assured engage the autopilot.
* Care for the incapacitated crew member by summoning the assistance of the passenger(s) if no other crew are available.
* Restrain the incapacitated crew member so that he cannot interfere with essential controls or switches by fitting and locking full shoulder harness, sliding the seat fully aft and locking it in the partly reclined. (Removal of the incapacitated crew member from the flight deck area is rarely practical.
* Administer oxygen at 100%
* Declare an emergency and fully inform ATS of the situation and proceed to the nearest suitable aerodrome at which medical assistance can be provided. Radar vectors from ATC can significantly reduce workload. Request an ambulance to meet the aeroplane on arrival.
* Do not allow the incapacitated crew member to take any further part in the conduct of the flight, even if they feel fully fit.
* After landing, taxi to a normal, but nearest practical ramp position where facilities exist to best remove the incapacitated crew member quickly.

### Cabin safety requirements

Since [Operator’s name] does not employ cabin crew, the final responsibility for all safety related tasks lies with the commander. In case a hostess is on board it shall be made very clear to both the passengers and the hostess that no safety related tasks shall be executed by the hostess.

#### Securing of passenger compartment and galley(s)

(Ref. 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. Likewise, he will make sure that prior to take-off and landing or whenever deemed necessary in the interest of safety, all equipment and baggage are properly secured.

#### Smoking on board

(Ref. NCC.OP.175)

Smoking on board is not allowed during engine start, taxi, take-off and landing. It is allowed subject to the PIC´s decision at other times. The “NO SMOKING” signal must be used to inform the passengers. Smoking is prohibitive in any aircraft lavatory area.

### Passenger briefing procedures

#### Passenger briefing

(Ref. NCC.OP.140)

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

1. Prior to 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 aircraft concerned type within the last 90 days, the trained passengers may fly without emergency briefing.

Stowage of baggage and cargo has to comply with the requirements in NCC.OP.135.

### Cosmic Radiation detection equipment carried on board

[Operator’s name] shall not operate aircraft above FL490. Therefore, not provisions have to be taken.

### Policy on the use of Autopilot

The use of the autopilot potentially decreases the workload of the flight crew. It is therefore [Operator’s name] policy to use the autopilot whenever possible.

For autopilot procedures and limitations, refer to the respective aircraft flight manual.

### Noise abatement procedure

(Ref. 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 take-off, 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 take-off 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):

* Take-off thrust;
* Climb at V2 + 10 KIAS (or as limited by body angle);
* Take-off 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):

* Take-off thrust;
* Climb at V2 + 10 KIAS (or as limited by body angle);
* Take-off 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.

## LVTO

[Operator’s name] does not hold an LVTO approval. A take-off below 400 meters shall not be conducted.

## ETOPS

ETOPS operation is not applicable to [Operator’s name] being an NCC operator.

## Use of Minimum Equipment List(s)

(NCC.IDE.A)

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 emphasised 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 MEL within 90 days. After that a copy of the MEL is resend to the Competent authority.

## Other types of flights

As [Operator’s name] is a non-commercial operator and does not hold an AOC, this chapter covers flights that are not conducted to serve the main purpose of the operation, which is to enable the transportation of company personnel either by passenger carrying flights or by positioning flights.

### Training Flights

The PIC of a training flight must be qualified and licensed as flight instructor (TRI) on the aircraft concerned.
The weather minima (ceiling and visibility) specified for the respective type of aircraft, approach and aerodrome are applicable.
During training flights only flight crew members involved in the training and/or representatives of the Authority may be carried on board.

### LPC/OPC proficiency checks

The PIC of a training flight must be qualified and licensed as an Examiner (TRE) and flight instructor (TRI) on the aircraft concerned.
The weather minima (ceiling and visibility) specified for the respective type of aircraft, approach and aerodrome are applicable.
Simulated emergency procedures shall be carried out in such a way to ensure there is no danger to the aeroplane or crew.
During training and proficiency check flights only flight crew members involved in the training and/or representatives of the Authority may be carried on board.

### Maintenance test flights

Maintenance test flights are performed when inflight testing/checking of the aircraft and/or its systems is required.

A test flight must be performed after special maintenance and/or repair work on an aircraft and on special request of the Authority.

Those flights shall be performed by the minimum flight crew according to the AFM. Only experienced pilots should be assigned by flight operations for test flights. If it is required by the kind of test flight there might be, in addition to the minimum crew, engineers, mechanics or inspectors on board who were directly involved in the preceding work/inspection of the aircraft. They must be recorded in the flight log as additional crew members.

The responsible engineer shall give the flight crew a briefing on

* the reason for the test flight,
* the test programme and
* how the preceding work may influence the airworthiness of the aircraft.

### Simulated situations in flight

(Ref. NCC.OP.200)

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

* situations that require the application of abnormal or emergency procedures; or
* 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.

## Oxygen Requirements

(Ref. NCC.OP.210)

### Provisions of oxygen

The amount of supplemental oxygen required shall be determined based on cabin pressure altitude, flight duration and the assumption that a cabin pressurization failure will occur at the pressure altitude or point of flight that is most critical from the standpoint of oxygen needed. After the failure the aircraft will decent in accordance with the emergency procedures as specified in the route documentation to a safe altitude for the route to be flown that will allow continued safe flight and landing.

### Use of supplemental oxygen

The PIC is responsible for ensuring that all crewmembers 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 crewmembers.

### Protective Breathing Equipment

The [Operator’s name] aircraft are equipped with one Protective Breathing Equipment (PBE) to be used should it become necessary to extinguish an onboard fire.

# Dangerous Goods

## General

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.

### Operator’s Policy

[Operator’s name] shall not transport declared dangerous goods.

### Acceptance handling and stowage of dangerous goods in excepted quantities

See IATA Table 2.3A ‘Provisions for dangerous goods carried by passengers or crew’.

#### 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 authorised 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.

### 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 vapours 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-board
* Consider landing as soon as possible
* Consider turning off non-essential electrical power
* Determine source of smoke/fumes/fire

**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 damaged 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 PIC

The PIC must be informed before the flight of the details regarding weapons or ammunition intended to be carried on board, including its location. Transportation of armed security personnel is authorised, however, to ensure safety the PIC must be informed and supervise airport screening. The PIC will ensure that, while on board the aircraft, the weapon remains safe with the ammunition removed. The weapon will remain stored in the galley until landing with the ammunition separated from the weapon.

### 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, fibre, 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, so that it cannot function accidentally.

#### Crew Regulation

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

# Security

## Flight Crew Compartment Security

Where no aircraft operated by [Operator’s name] is equipped with a crew flight compartment door, no provisions apply.

# Occurrence handling and reporting

(Ref. Reg. (EU) No 376/2014 on occurrence reporting and (EU) No 965/2012 on air operations, ORO.GEN.160)

[Operator’s name] reports to the CAA all occurrences defined in AMC 20-8, as well as the volcanic ash clouds encountered during flight.

Refer to the requirements of the competent authority of [the Operator].

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.

## Definitions of accident, incident and occurrence

Accident

* means an occurrence associated with the operation of an aircraft, which takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked in which:
* a person is fatally or seriously injured as a result of:
	+ - being in the aircraft, or,
		- direct contact with any part of the aircraft, including parts which have become detached from the aircraft, or,
		- direct exposure to jet blast,
* except when the injuries are from natural causes, self- inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew; or
* the aircraft sustains damage or structural failure which adversely affects the structural strength, performance or flight characteristics of the aircraft, and would normally require major repair or replacement of the affected component, except for engine failure or damage, when the damage is limited to a single engine, (including its cowlings or accessories), to propellers, wing tips, antennas, probes, vanes, tires, brakes, wheels, fairings, panels, landing gear doors, windscreens, the aircraft skin (such as small dents or puncture holes) or minor damages to main rotor blades, tail rotor blades, landing gear, and those resulting from hail or bird strike, (including holes in the random); or
* the aircraft is missing or is completely inaccessible

Incident

* Incident means an occurrence, other than an accident, associated with the operation of an aircraft.

Serious Incident

* an incident involving circumstances indicating that an accident nearly occurred

Occurrence

* means any safety-related event which endangers or which, if not corrected or addressed, could endanger an aircraft, its occupants or any other person and includes in particular an accident or serious incident;

For a list of examples of reportable occurrences, see EASA AMC 20-8.

## Forms to be used

All incidents, accidents and occurrences are to be reported using the appropriate form [the Operator to indicate the forms to be used].

## Reporting of accidents, incidents and occurrences

In the case of an accident, or serious incident the PIC or, if not available, any other flight crewmember, Nominated Person, or the aircraft operator will immediately notify the authorities mentioned below.

The operator shall submit a detailed consecutive report within 14 days on request by the authority.

[Contact details of the Operator’s Competent Authority]

The reports shall contain:

* name and sojourn of the reporting person,
* location and time of the accident or the serious incident,
* make, type, call sign or tail number of the aircraft involved
* aircraft operators name,
* nature of the flight, departure and destination airport,
* name of Pilot-in-Command,
* number of crew and passengers,
* details of personal injuries and/or extend of damage,
* details of dangerous goods, if applicable,
* representation of the accident or the serious incident.

A copy of the filed report forms will be transmitted to the NPFO and Compliance and Safety Manager for evaluation and possibly activation of the Emergency Response Plan.

Incidents and occurrences shall be reported as soon as possible to the NFPO in verbal form bearing in mind that, after review and evaluation of the event, a report has to be filed within 72 hours of the incident /occurrence and sent to the aforementioned competent authority.

ATS related reports shall be filed to [the Operator’s Competent Authority – contact details].

A copy of the report will be forwarded to the NPFO and the Compliance and Safety Manager.

### Verbal notification of incidents to ATS

In the event of Air misses/near misses; dangerous proximity of two aircraft, in the course of which at least one aircraft was operated according to IFR and a diversionary manoeuvre was necessary or would have been appropriate in order to avoid a collision or a dangerous situation or any other ATS related issue, it is recommended to send the competent ATS unit beforehand a corresponding report via radio without delay.

If the crew realizes a potential bird hazard, a dangerous goods incident or any other hazardous condition they are encouraged to report to ATS via radio.

### Written reports of incidents to ATS

After the landing, the report transmitted via radio should be confirmed in writing as quickly as possible in order to help contribute to a more objective finding of the causes by reporting additional, important or corrective details, if necessary

## Operator internal reporting procedures

Any personnel involved in the operation of a flight shall report immediately to the Pilot-in-Command of any incident that has endangered or may have endangered the flight and provide all relevant information.

## Preservation of Flight-Data and Cockpit-Voice Recordings

(Ref. NCC.GEN.145)

Following an accident, a serious incident or an occurrence identified by the investigating authority, the operator of an aircraft shall preserve the original recorded data for a period of 60 days or until otherwise directed by the investigating authority.

The need for removal of the recorders from the aircraft is determined by the investigating authority with due regard to the seriousness of an occurrence and the circumstances, including the impact on the operation.

If an accident has occurred, [Operator’s name] will take every measure to ensure that the Flight Data Recorder (FDR) and the Cockpit Voice Recorder (CVR) will not be powered-on until the representative of the competent authority has accessed the devices.

The crew or a maintenance representative is advised to pull and safeguard the respective circuit breakers to prevent compromising the data due to an inadvertent power-on of the ship.

If, following an incident or occurrence, a report has been filed to the competent authority, [Operator’s name] will assure that the aircraft involved will not accumulate more than 20 hours under electrical power since the time when the event has been taken place according to the report of the crew.

During this time, the circuit breaker of the CVR has to be pulled and safeguarded by the crew and the operation of the aircraft has to be according to the provisions of the MEL.

If the competent authority or one of its representatives requires
securing of the data within that flight time, the devices will be made available to the
competent authority for data download immediately following their request.

Use of FDR recordings

The FDR 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 CVR recordings

The CVR 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 crewmembers concerned.

# Rules of the Air

All persons involved in flight operations shall comply with international treaties and conventions as well as European and national air law regulations of the states operated in and overflown.

## Visual and instrument flight rules

* SERA - Standardised European Rules of the Air apply.

## Territorial application of the rules of the air

This regulation applies to airspace users and aircraft:

* operating into, within or out of the European Union;
* bearing the nationality and registration marks of a Member State of the Union, and operating in any airspace to the extent that they do not conflict with the rules published by the State having jurisdiction over the territory overflown.

Differences to the SERA regulation and treaties in non-European member states are outlined in the [XXX Manual] sections

* Rules of the Air,
* Emergency and
* Entry Requirements.

 For the specific country referenced in Part-C of this Manual.

## Communication procedures, including communication failure procedures

An aircraft operated as a controlled flight shall maintain continuous air-ground voice communication watch on the appropriate communication channel of, and establish two-way communication as necessary with, the appropriate ATC unit.

Communication failure procedures are outlined in the [XXX Manual] the section on Emergency.

For the specific country referenced in Part-C of this Manual.

Whenever appropriate, a listening watch of the emergency frequency 121.5 Mhz should be maintained on the secondary radio set.

## Information and instructions relating to the interception of civil aircraft

Except for intercept and escort service provided on request to an aircraft, the pilot-in-command of a civil aircraft, when intercepted, shall:

* immediately follow the instructions given by the intercepting aircraft, interpreting and responding to visual signals;
* notify, if possible, the appropriate air traffic services unit;
* attempt to establish radio-communication with the intercepting aircraft or with the appropriate intercept control unit, by making a general call on the emergency frequency 121,5 MHz, giving the identity of the intercepted aircraft and the nature of the flight; and if no contact has been established and if practicable, repeating this call on the emergency frequency 243 MHz;
* if equipped with SSR transponder, select Mode A, Code 7700, unless otherwise instructed by the appropriate air traffic services unit;
* if equipped with ADS-B or ADS-C, select the appropriate emergency functionality, if available, unless otherwise instructed by the appropriate air traffic services unit.

[Tables for instructions and visual signs are attached in Annex X of this manual and are provided as handouts in every aircraft of the company.]

## Aerodrome Signals, Marshaller, and Emergency Hand Signals

Upon observing or receiving any of the signals given in Appendix X of this manual, aircraft shall take such action as may be required by the interpretation of the signal given.

Handouts of these signal tables are provided in every aircraft of the company.

## Time system used in operation

Coordinated Universal Time (UTC) shall be used and shall be expressed in hours and minutes and, when required, seconds of the 24-hour day beginning at midnight.

A time check shall be obtained before operating a controlled flight and at such other times during the flight as may be necessary.

## ATC clearances, adherence to flight plan and position reports

### ATC clearance

An ATC clearance shall be obtained prior to operating a controlled flight, or a portion of a flight as a controlled flight. Such clearance shall be requested through the submission of a flight plan to an ATC unit.

* The pilot-in-command of an aircraft shall inform ATC if an ATC clearance is not satisfactory. In such cases, ATC will issue an amended clearance, if practicable.
* Whenever an aircraft has requested a clearance involving priority, a report explaining the necessity for such priority shall be submitted, if requested by the appropriate ATC unit.

Potential re-clearance in flight

* If, prior to departure, it is anticipated that, depending on fuel endurance and subject to re-clearance in flight, a decision may be taken to proceed to a revised destination aerodrome, the appropriate air traffic control units shall be so notified by the insertion in the flight plan of information concerning the revised route (where known) and the revised destination.
* An aircraft operated on a controlled aerodrome shall not taxi on the manoeuvring area without clearance from the aerodrome control tower and shall comply with any instructions given by that unit.

Definition: “flight plan” means specified information provided to air traffic services units, relative to an intended flight or portion of a flight of an aircraft. It can be “filed” or transmitted by verbal/digital communication.

### Adherence to flight plan

An aircraft shall adhere to the current flight plan or the applicable portion of a current flight plan submitted for a controlled flight unless a request for a change has been made and clearance obtained from the appropriate ATC unit.

 If an emergency arises, which necessitates immediate action by the aircraft, the appropriate ATS unit shall be notified, as soon as circumstances permit, of the action taken and that this action has been taken under emergency authority.

### Position reports

Unless exempted by the competent authority or by the appropriate air traffic services unit under conditions specified by that authority, a controlled flight shall report to the appropriate air traffic services unit, as soon as possible, the time and level of passing each designated compulsory reporting point, together with any other required information.

Position reports shall similarly be made in relation to additional points when requested by the appropriate air traffic services unit. In the absence of designated reporting points, position reports shall be made at intervals prescribed by the competent authority or specified by the appropriate air traffic services unit.

## Visual signals to warn an unauthorised aircraft flying in or about restricted prohibited and danger areas

A series of projectiles discharged from the ground at intervals of 10 seconds, each showing, on bursting, red and green lights or stars are used as visual signals to warn unauthorised aircraft flying in or about to enter a restricted, prohibited or danger area by day and by night.

The aircraft is to take such remedial action as may be necessary.

## Procedures for flight crew observing an accident or receiving a distress transmission

Whenever a distress transmission is intercepted by a Pilot-in-Command of an aircraft, the pilot shall, if feasible:

* acknowledge the distress transmission;
* record the position of the craft in distress if given;
* take a bearing on the transmission;
* inform the appropriate rescue coordination centre or air traffic services unit of the distress transmission, giving all available information; and
* at the pilot’s discretion, while awaiting instructions, proceed to the position given in the transmission.

## Ground air visual codes for use by survivors, use of signals

Upon observing any of the signals in the Appendix of ICAO Annex 12, aircraft shall take such action as may be required by the interpretation.

Handouts of these signals are provided in every aircraft of the company.

## Distress and urgency signals

The following signals, used either together or separately, mean that grave and imminent danger threatens, and immediate assistance is requested:

* a signal made by radiotelegraphy or by any other signalling method consisting of the group SOS (.. .— — — . .. in the Morse Code);
* a radiotelephony distress signal consisting of the spoken word MAYDAY;
* a distress message sent via data link which transmits the intent of the word MAYDAY;
* rockets or shells throwing red lights, fired one at a time at short intervals;
* a parachute flare showing a red light;
* setting of the transponder to Mode A Code 7700.

The following signals, used either together or separately, mean that an aircraft wishes to give notice of difficulties which compel it to land without requiring immediate assistance:

* repeated switching on and off of the landing lights; or
* repeated switching on and off of the navigation lights in such manner as to be distinct from flashing navigation lights.
* the following signals, used either together or separately, mean that an aircraft has a very urgent message to transmit concerning the safety of a ship, aircraft or other vehicle, or of some person on board or within sight:
* a signal made by radiotelegraphy or by any other signalling method consisting of the group XXX (—..— —..— —..— in the Morse Code);
* a radiotelephony urgency signal consisting of the spoken words PAN, PAN;
* an urgency message sent via data link which transmits the intent of the words PAN, PAN.

# Portable Electronic Devices (PED) and Electronic Flight Bags (EFB)

(Ref. NCC.GEN.130 according to AMC 20-25)

***Note: This chapter is optional and some operators may find it non-applicable.***

## Introduction

[EFB Administrator – to be filled in by the Operator]

### EFB general philosophy, environment and dataflow

The content and structure of this Manual are based on the EASA recommendation in 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.

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.

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.

### Limitations of the EFB system

1. The EFB must be charged to at least 80% before the flight if no charging on the aircraft is available.
2. If in Aircraft charging is available, the EFB must be charged to at least 40% before the 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 before the 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 before the flight.
		3. Electronic Documentation Library:

If one or both EFB are NOT available before the 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 Performance Data concerned will have to be obtained by Paper (FAX, EMAIL etc.) before the 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 operator to fill in as appropriate. A short introduction will be given by the EFB Administrator if required.]

### Operating system description

[The operator to fill in as appropriate. A short introduction will be given by the EFB Administrator if required.]

### Detailed presentation of the EFB applications

[To be developed by the operator]

### EFB application customization

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

### Data management

#### Data administration

[To be developed by the operator]

#### Organization & workflows

Within [Operator’s name], 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

[To be developed by the operator]

The PIC and FO have to check prior to 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 [service provider] 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 be commenced up to 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.

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

[To be developed by the operator]

### Data authoring

Navigational and Chart Data is provided by [XXX]. 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, software 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 labelled 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 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. He is also responsible for the oversight 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 and electronic library before every flight.

Flight crews are responsible for only using original accessories of the operating system 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 [XXX] Flight Deck Guide. 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 Favourites selection in the airport selection menu:
* Departure airport
* Destination airport
1. Destination alternate
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 take-off the PNF will select the appropriate departure chart for the cleared departure.

**2) Take-off Operation**

From adjusting the take-off 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 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) En-route operation**

During en-route operation, the EFB units may remain stored in the designated storage areas. Flight crewmember 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 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 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 to 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 the 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 the affected airports.

**7) For expired en-route charts**

The PIC will review chart NOTAMs 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 the latest revision. Perform the “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
3. 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 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 that 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 crewmembers 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.

**Unauthorised 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 PIC’s 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 are aware that they are only allowed to use the original [XXX] accessories with the EFB.

NCC OPERATIONS MANUAL
Part B

[aircraft types and variants
in the Operator’s fleet]

# General Information and Units of Measurement

[Operator’s SPA approvals for each aircraft in its fleet]

# Limitations

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

# Normal Procedures

Refer to the current version of the POH.

And the supplements

# 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. Section 5

# 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 list

# 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.

NCC OPERATIONS MANUAL
Part C

# Operations Manual Part C

Instructions and information relating to:

* 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 and
* En-route communication/navigation procedures

are provided in the following documentations used by [Operator’s name].

* + - [XXX] Manual IFR
		- [XXX] Flight deck application
		- DFS ICAO Charts [operator’s State]
		- AIP [operator’s State]

If the above information is not sufficient for the purpose of planning a specific flight, the NPFO shall be contacted with the request.

## Aerodrome/operating site categorization for flight crew competence qualification

* 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 according to [service provider] TL-Chart or AFM and airport data;
		- published circling minima not higher than 1’000 ft above aerodrome level; and
		- night operations capability.
* B: All other airports which cannot be categorised as a category A airport or which require additional briefing (e.g. web-based aerodrome qualification).
* C: All airports where special considerations have to be taken, or flight training in a FFS or aircraft as part of a pilot qualifications required by the airport authority or the competent authority.

The following table lists all airports that are categorised B and C.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ICAO Identifier | Name | Country/Region | Category | Briefing/Qualification | Ref. 1.2 |
| EDAZ | Schönhagen | Germany/EUR | B/LJ45C/CL30 | VFRPermission by airport authority required |  |
| EDFE | Egelsbach | Germany/EIUR | B/LJ45B/CL30 |  |  |
| EDFM | Mannheim City | Germany/EUR | C/CL30C/LJ45 | AIP-Germany Part II,Signed statement of PIC to airport authority | X |
| EDRY | Speyer | Germany/EUR | C/CL30C/LJ45 | AIP Germany Part III | X |
| EDTG | Bremgarten | Germany/EUR |  |  |  |
| EGLC | London City | United Kingdom/EUR | N.A./CL30C/LJ45 | t.b.dApproval by airport authority | X |
| LFMD | Cannes | France/EUR | B | Web familiarisation required |  |
| LOWI | Innsbruck | Austria/EUR | B | Mountainous environment |  |
| LSZA | Lugano | Switzerland/EUR | B | Web based qualification required |  |
| LSZR | Altenrhein | Switzerland/EUR | B | Glide angle > 3° |  |
| LSZS | Samedan | Switzerland/EUR | B | Mountainous environment |  |

## Special aerodrome/operating site limitations (performance limitations and operating procedures, etc.)

[to be filled in by the operator]

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ICAO Identifier | Reference Document | Performance Limitation | Planning Tool | Risk Assessment Document # |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

NCC OPERATIONS MANUAL
Part D

# Scope of training syllabi and checking programmes

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 of training syllabi and checking programmes

The training syllabi and checking programmes should include the following elements:

## Flight Crew

### All relevant items prescribed in Annex III (ORO.FC), Annex IV (Part-CAT), Annex V (Part-SPA)

### Operator conversion courses

## Cabin Crew

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 must be observed.

## Technical Crew

For technical crew, all relevant items prescribed in Annex IV (Part-CAT), Annex V (Part-SPA) and ORO.TC must be observed.

## Training concerning Specific Approvals (SPA)

### Relevant items prescribed in SPA.DG Subpart G of Annex IV (SPA.DG)

# Procedures

### Procedures for training and checking

### Procedures to be applied if 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

## Annex 1 – Abbreviations and acronyms

|  |  |
| --- | --- |
| **A**A/C AircraftA/T AutoThrottleAAL Above Aerodrome LevelABM AbeamABN Aerodrome BeaconACAS Airborne Collision Avoidance SystemACM Accountable ManagerACN Aircraft Classification NumberAD AerodromeADF Automatic Direction FinderAEA Association of European AirlinesAFM Aircraft Flight ManualAFTN Aeronautical Fixed Telecommunication NetworkAGL Above Ground LevelAIP Aeronautical Information PublicationALAM Actual Landing MassALT Altitude, AlternateALTN AlternateAMC Aeromedical CentreAME Aeromedical ExaminerANS Air Navigation ServiceANSP Air Navigation Service ProviderAOC Air Operator CertificateAOE Airport of EntryAOM Aircraft Operating ManualAP AutopilotAPCH ApproachAPT AirportAPU Auxiliary Power UnitARP Aerodrome Reference PointASAP As Soon As PossibleASDA Accelerate Stop Distance AvailableASE Altimetry System ErrorASI Air Speed IndicatorASR Aerodrome Surveillance RadarATA Actual Time of ArrivalATC Air Traffic ControlATD Actual Time of DepartureATIS Automatic Terminal Information ServiceATM Air Traffic ManagementATPL Airline Transport Pilot LicenseATS Air Traffic ServiceAVBL AvailableAWO All Weather OperationsAWY Airway**B**BALS Basic Approach Light SystemBCN BeaconB-RNAV Basic Area NavigationBM Basic Mass**C**C Degrees CelsiusCAME Continuous Airworthiness Management Exposition | CAMO Continuous Airworthiness Management OrganisationCAS Calibrated Air Speed, Crew Alerting SystemCAT Commercial Air TransportCAT I Precision Approach Category ICAT II Precision Approach Category IICAT III Precision Approach Category IIICAVOK Clouds And Visibility OKCB Circuit BreakerCCM Cabin Crew MemberCDFA Continuous Descend Final ApproachCDL Configuration Deviation ListCFIT Controlled Flight Into TerrainCFL Cleared Flight LevelCG Centre of GravityCH ChannelCL Checklist, Centre Line, centre line lightsCLRD ClearedCM Crewmember, CommanderCMV Converted Meteorological VisibilityCNS Communication / Navigation /SurveillanceCONT ContinuousCONT Contingency fuelCPDLC Controller Pilot DataLink CommunicationsCPT CaptainCRM Crew Resource ManagementCRP Compulsory Reporting PointCRT Cathode Ray TubeCRZ CruiseCTOT Calculated Take-Off TimeCVR Cockpit Voice Recorder**D**DA Decision AltitudeDCT DirectEP DepartureDER Departure End of RunwayDEST DestinationDFDR Digital Flight Data RecorderDG Dangerous GoodsDGD Shippers Declaration for Dangerous GoodsDH Decision HeightDIL Deferred Item ListDIST DistanceDME Distance Measuring EquipmentDOI Dry Operating IndexDOM Dry Operating MassDPP Decision Point Procedure**E**EAT Expected Approach TimeEDP Electronic Data ProcessingEET Estimated Elapsed TimeEFB Electronic Flight BagEFIS Electronic Flight Instrument SystemEFP Engine Failure ProcedureEFVS Enhanced Flight Vision SystemEGPWS Enhanced Ground Proximity Warning SystemENG Engine |
| EOBT Estimated Off-Block TimeERA En-route AlternateERP Emergency Response PlanEROPS Extended Range OperationsEST EstimateETA Estimated Time of ArrivalETD Estimated Time of DepartureETE Estimated Time En-RouteEU European UnionEVS Enhanced Vision SystemEXTR Extra Fuel**F**F FahrenheitFAF Final Approach FixFALS Full Approach Light SystemFAP Final Approach PointFD Flight DirectorFDR Flight Data RecorderFF Fuel FlowFH Flight HoursFL Flight LevelFLAS Flight Level Allocation SchemeFMS Flight Management SystemFPL Flight PlanFO First OfficerFOPS Flight Operations SupportFt Foot (Feet)FSI Flight Service International**G**GA Go-AroundGEN GeneratorGPS Global Positioning SystemGPWS Ground Proximity Warning SystemGS Ground SpeedG/S Glide SlopeGP Glide Path**H**HGD HeadingHF High FrequencyHg MercuryHIALS High Intensity Approach Lighting SystemHIRL High Intensity Runway LightshPa HectopascalHUD Head-Up DisplayHUGS Head-Up Guidance SystemHz Hertz**I**IAP Instrument Approach ProcedureIALS Intermediate Approach Light SystemIAS Indicated Air SpeedICAO International Civil Aviation OrganisationIDG Integrated Drive GeneratorIFR Instrument Flight RulesILS Instrument Landing SystemIMC Instrument Meteorological ConditionsIMP Interline Message ProcedureIn Inches | INOP InoperativeIRS Inertial Reference SystemIRU Inertial Reference UnitISA International Standard Atmosphere**K**Kg KilogramKm Kilometrekt Knot, knots**L**LAM Landing MassLEMAC Leading Edge MAC [station]LDG LandingLFL Landing Field LengthLLZ LocalizerLMC Last Minute ChangeLOC LocalizerLTC Line Training CaptainLVO Low Visibility OperationsLPV Localiser Performance with Vertical GuidanceLVTO Low Visibility Take-off**M**M MachMAC Mean Aerodynamic ChordMALAM Maximum Allowed Landing MassMAPt Missed Approach PointMATOM Maximum Allowed Take-off MassMCC Multi Crew ConceptMDA/H Minimum Descent Altitude / HeightMEA Minimum En-Route AltitudeMEL Minimum Equipment ListMETAR Meteorological Aviation Routine ReportMinBlock Minimum Block FuelMLAM Maximum Structural Landing MassMM Middle MarkerMMEL Master Minimum Equipment ListMMTO Maximum Mass for Take-offMNPS Minimum Navigation Performance SpecificationMOCA Minimum Obstruction Clearance AltitudeMOPSC Maximum Operating Passenger Seating CapacityMORA Minimum Off-Route AltitudeMOTNE Meteorological Operational Telecommunication Network EuropeMPA Motor Powered Aircraft, Multi-Pilot AircraftMSA Minimum Safe/Sector AltitudeMSL Mean Sea LevelMTOF Minimum Take-Off FuelMTOM Maximum Structural Take-off MassMWZFM Maximum Wing Zero Fuel MassMZFM Maximum Structural Zero Fuel Mass**N**NAA National Aviation AuthorityNAT North Atlantic, North Atlantic TrackNAV NavigationNDB Non-directional BeaconNIL No Item ListedNM Nautical MilesNOTAM Notice To Airman |
| NPFO Nominated Person Flight OperationsNPCT Nominated Person Crew TrainingNPRE Nominated Person Radiation Exposure**O**OAT Outside Air TemperatureOCA / H Obstacle Clearance Altitude / HeightOCA Oceanic Control AreaOCC Operations Control CentreOCD Oceanic Clearance DeliveryOEI One engine inoperativeOEP Oceanic Entry PointOFP Operational Flight PlanOM Operating MassOM Outer MarkerOML Operational Multi-Pilot LimitationORCA Oceanic Route Clearance Authorization ServiceOTS Organised Track System**P**PA Pressure AltitudePAPI Precision Approach Path IndicatorPAR Precision Approach RadarPAX PassengerPDG Procedure Design GradientPED Portable Electronic DevicePET Point of Equal TimePF Pilot FlyingPFD Primary Flight DisplayPIC Pilot-in-CommandPIREP Pilot ReportPNF Pilot Non-FlyingPOB Persons on BoardPPR Prior Permission RequiredP-RNAV Precision Area NavigationPSA Passenger Service AttendantPSI Pounds Per Square InchPLAM Performance Limited Landing MassPTOM Performance Limited Take-off Mass**Q**QDM Magnetic Bearing to stationQDR Magnetic Bearing from StationQFE Actual local pressure at airport elevationQFU Magnetic runway orientationQNE Standard Atmosphere (1013 hPa)QNH Actual local pressure reduced to sea levelQRH Quick Reference Handbook**R**RA Radio Altimeter, Radio AltitudeRFFS Rescue and Fire Fighting ServicesRNAV Area NavigationRCLL Runway Centreline LightsRNP Required Navigational PerformanceRPL Repetitive Flight PlanRQRD RequiredRVR Runway Visual RangeRTZL Runway Touchdown Zone LightsRVSM Reduced Vertical Separation MinimumRWY Runway | **S**SAE Society of Automotive EngineersSApp Stabilised Approach SAR Search And RescueSAT Static Air Temperature SID Standard Instrument DepartureSMS Safety Management SystemSNOWTAM Snow Warning To AirmenSOP Standard Operating ProceduresSRA Surveillance Radar ApproachSTD StandardSTAR Standard Arrival RouteSWC Significant Weather Chart**T**TAF Terminal Aerodrome ForecastTAS True Air SpeedTAT Total Air TemperatureTBA To Be AnnouncedTBD To Be DeterminedTDZ Touchdown ZoneTDZL Touchdown Zone LightingTF Trip FuelTF Trip FuelTLB Technical Log BookTOC Top Of ClimbTOD Top of DescentTOD Take-off Distance AvailableTORA Take-off Run AvailableTOF Take-off FuelTOF Take-off FuelTOFL Take-off Field LengthTOM Take-Off MassTRE Type Rating ExaminerTRI Type Rating InstructorTWR TowerTWY Taxiway**U**U/S UnserviceableUTC Universal Time CoordinatedV1 Take-off Decision SpeedV2 Take-off Safety SpeedVFR Visual Flight RulesVFTO Final Take-off SpedVHF Very High FrequencyVR Rotation speedVREF Landing Reference SpeedVS Stall SpeedVTGT Approach Target Speed:VTGT = VREF + ½ HWC + full gusts**W**WPT WaypointWX WeatherWXR Weather Radar**Z**Z Zulu Time (UTC)ZFM Zero Fuel Mass |

## Annex 2 – DEFINITIONS

**Accelerate Stop Distance Available – ASDA**

The length of the take-off run available plus the length of the stopway, if such stopway is declared available by the appropriate Authority and is capable of bearing the mass of the aircraft under the prevailing operating conditions.

**Additional Cabin Crew Members**

All persons who perform other than safety related tasks assigned to him or her by the operator or commander in the cabin on board an aircraft

**Anti-Icing**

A precautionary procedure that provides protection against the formation of frost or ice and accumulations of snow on treaded surfaces of the aircraft for a limited period of time (holdover time (HOT)).

**Cabin Crew Member**

All persons who perform, in the interest of safety of passengers, duties assigned to him/her by the operator or the commander in the cabin of an aircraft.

**Cargo Aircraft**

Any aircraft which is carrying goods or property but not passengers.

**Circling**

The term used to describe the visual phase of an instrument approach to bring an aircraft into position for landing on a runway which is not suitably located for a straight-in approach.

**Complex Motor-powered Aircraft**

An aircraft with either a maximum certificated take-off mass exceeding 5.700 kg or certificated for a maximum passenger seating configuration of more than nineteen, or certificated for operation with a minimum crew of at least two pilots, or equipped with (a) turbojet engine(s) or more than one turboprop engine.

Helicopters and tilt rotor aircraft are not covered in the Operations Manual.

**Contaminated Runway**

A runway is considered to be contaminated when more than 25 % of the runway surface area (whether in isolated areas or not) within the required length and width being used is covered by the following: Water, slush or loose snow by more than 3mm (0,125in), compacted snow or ice

**Continuous Descend Final Approach – CDFA**

A specific technique for flying 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 15m (50ft) above the landing runway threshold or the point where the flare manoeuvre should begin for the type of aircraft flown.

**Converted Meteorological Visibility – CMV**

A value (equivalent to an RVR) which is derived from the reported meteorological visibility, as converted in accordance with the requirements of chapter 8.4.

**Critical Phase of Flight**

Critical phase of flight means take-off run, the take-off flight path, the final approach, the landing including the landing roll, the go-around and any other phases of flight as determined by the commander.

**Damp Runway**

A runway is considered damp when the surface is not dry, but when the moisture on it does not cause it to appear reflective. A damp runway may be considered as dry runway.

**Decision Altitude/Height - DA/H**

A specified altitude/height in the precision approach at which a missed approach must be initiated if the required visual reference to continue has not been established.

**Deferred Decision Altitude – DDA**

A specified altitude in a non-precision approach using the CDFA technique at which a

missed approach must be initiated if the required visual reference to continue has not been established. The DDA is to be used as the approach minimum when Baro VNAV DA is not available due to aircraft limits or when only an MDA/H is published. It is calculated by adding 50 ft to the published MDA/H.

**De-Icing**

A procedure by which frost, slush and snow is removed from an aircraft in order to provide uncontaminated surfaces.

**De-Icing/Anti-Icing**

Is the combination in which the procedure described under “Anti-Icing” and “De-Icing” above may be performed in one or two steps.

**Dry Runway**

A dry runway is one which is neither wet nor contaminated, and includes those paved runways which have been specially prepared with grooves or porous pavement and maintained to retain “effectively dry” braking action.

**Dry Snow**

Fine, powderlike-snow, which does not stick and may be blown or brushed away.

**Final Approach**

That part of an instrument approach procedure which commences at the specified final approach fix or point, or where such a fix or point is not specified: at the end of the last procedure turn, base turn or inbound turn of a racetrack procedure, if specified; or at the point of interception of the last track specified in the approach procedure; and ends at a point in the vicinity of an aerodrome from which a landing can be made or a missed approach procedure is initiated.

**First Aid Oxygen**

A supply of undiluted oxygen for passengers who, for physiological reasons, might require oxygen following a descent from cabin pressure altitude above 25.000 ft. **Note:** First aid oxygen is only required on aircraft where cabin attendants are required under OPS-1 or company regulations.

**Flight Crew**

All persons performing flight duty on the flight deck of an aircraft and are required by the AFM or the type of operation (e.g. augmented flight crew, training and check flights).

**Freezing Conditions**

Conditions in which the outside air temperature is below +3° C (37,4° F) and visible moisture in any form (such as fog with visibility below 1,5 km, rain, snow, sleet or ice crystals) or standing water, slush ice or snow is present on the runway.

**Freezing Drizzle**

Fairly uniform precipitation composed exclusively of fine drops (diameter less than 0,5 mm (0,02 in)) very close together which freezes upon impact with the ground or other exposed objects.

**Freezing Fog**

A suspension of numerous minute water droplets which freezes upon impact with ground or other exposed objects, generally reducing the horizontal visibility at the earth’s surface to less than 1 km (5/8 mile).

**Freezing Precipitation**

Corresponds to freezing rain or freezing drizzle.

**Frost/Hoar Frost**

Ice crystals that form in ice saturated air at temperature below 0° C (32° F) by direct sublimation on the ground or other exposed objects.

**Frost**

Ice-crystal deposits formed on cold, clear nights by sublimation on surfaces which have a temperature lower than the surrounding air. Such deposits on leading edges and upper surfaces, even when they are very thin (hoar frost) can seriously affect an aircraft’s performance. Frost 3 mm or less on the lower surface of a wing has no effect and may be discounted. The OM Part B specifies limits of frost deposits for take-off.

**Holdover Time**

Estimated time for which an anti-icing fluid will prevent the formation of frost or ice and the accumulation of snow on the protected surfaces of an aircraft, under all weather conditions, on the ground.

**Landing Distance Available – LDA**

The length of the runway which is declared available by the appropriate Authority and suitable for the ground run of an aircraft landing.

**Light Freezing Rain**

Precipitation of liquid water particles which freezes upon impact with exposed objects, either in the form of drops of more than 0,5 mm (0,0,2 in) or smaller drops which, in contrast to drizzle, are widely separated. Measured intensity of liquid water particles are up to 2,5 mm (0,10 in)/hour or 25 grams/dm2/hour with a maximum of 2,5 mm (0,10 in) in 6 minutes.

**Low Visibility Procedures - LVP**

Procedures applied at an aerodrome for the purpose of ensuring safe operations during Category II and III approaches and Low Visibility Take-offs by protecting sensitive areas and regulating the flow of air traffic.

**Low Visibility Take-off - LVTO**

A take-off on a runway where the RVR is less than 400 m but not less than 150m. The commander must be satisfied that the runway lighting and markings comply the requirements for LVTO – Low Visibility Procedures are in force.

**Minimum Descent Altitude/Height (MDA/H)**

A specified altitude/height in a non-precision or circling approach below which descent may not be made without visual reference.

**Non-precision Approach and Landing**

An instrument approach and landing which does not utilise electronic glide path guidance.

**Obstacle Clearance Altitude/Height - OCA/H**

The lowest altitude (OCA), or alternatively the lowest height above the relevant runway threshold or above the aerodrome elevation as applicable (OCH), used in establishing compliance with appropriate obstacle clearance criteria.

**Obstacle Clearance Limit - OCL**

The height above aerodrome elevation below which the minimum prescribed vertical clearance cannot be maintained either on approach or in the event of a missed approach.

**Passenger Classification:**

Adults, male and female, are defined as persons of an age of 12 years and above Children are defined as persons of an age of two years and above, but who are less than 12 years of age. Infants are defined as persons who are less than two years of age.

**Passenger Service Attendant - PSA**

Any person other than a flight crew member or cabin crew member on board an aircraft who provides adequate service to passengers. Tasks related to the safety of the aircraft and passengers (e.g. operation of cabin doors, conduct of passenger safety briefings etc.) will not be performed by PSA’s.

**Performance limited Take-off Mass- PTOM**

The maximum mass of an aircraft to comply with take-off performance requirements.

**Performance limited Landing Mass - PLAM**

The maximum mass of an aircraft to comply with approach and landing performance requirements.

**Precision Approach and Landing**

An instrument approach and landing using precision azimuth and glide path guidance with minima as determined by the category of operation.

**Pre Take-off Check**

This check ensures that the representative surfaces of the aircraft are free of ice, snow, slush or frost just prior to take-off. This check should be accomplished as close to the time of take-off as possible and is normally made from within the aircraft by visually checking the wings or other critical surfaces, defined by the aircraft manufacturer.

**Rain or High Humidity (On Cold Soaked Wing)**

Water forming ice or frost on the wing surface, when the temperature of the aircraft´s wing surface is at or below 0° C (32° F).

**Reported RVR.**

The RVR communicated to the commander of an aircraft by, or on behalf of, the person in charge of the aerodrome.

**Runway Visual Range – RVR**

The range over which the pilot of an aircraft on the centreline of a runway can see the runway surface markings or the light delineating the runway for identifying its centreline. Passenger cabin and other applicable areas.

**Separate Runways**

Runways at the same aerodrome that are separate landing surfaces. These runways may overlay or cross in such a way that if one of the runways is blocked, it will not prevent the planned type of operations on the other runway.

**Stabilised Approach – SApp**

An approach which is flown in a controlled and appropriate manner in terms of configuration, energy and control of the flight path from a pre-determined point or altitude/height down to a point 50 feet above the threshold or the point where the flare manoeuvre is initiated, if higher.

**Sterile Flight Crew Compartment**

Any period of time when the flight crew members are not disturbed or distracted, except for matters critical to the safe operation of the aircraft or the safety of the occupants.

**Supplemental Oxygen – Non-Pressurised Aircraft**

A supply of oxygen to be provided in unpressurised aircraft to the occupants whenever flight altitudes above 10,000 ft are used.

**Supplemental Oxygen – Pressurised Aircraft**

A supply of oxygen to the required number of occupants for the required flight time at the appropriate altitude(s), following a cabin depressurisation.

**Take-off Distance Available – TODA**

The length of the take-off run available plus the length of the clearway available.

**Take-off Run Available – TORA**

The length of the runway which is declared available by the appropriate Authority and suitable for the ground run of an aircraft taking off.

**Traffic Load – TL**

The total mass of passengers, baggage and cargo including any non-revenue loads.

**Visual Approach**

An approach by an IFR flight when either part or all of an instrument approach procedure is not completed and the approach is executed with visual reference to terrain. **Note:** A visual approach may not be conducted when the RVR, or factored equivalent, is less than 800 metres.

**Wet Runway**

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

**Wet Snow**

Has a much higher liquid content and tends to stick on airframe/engine components and may freeze.