



NOTICE OF PROPOSED AMENDMENT (NPA) No 2009-02c

**DRAFT OPINIONS OF THE EUROPEAN AVIATION SAFETY AGENCY,
FOR A COMMISSION REGULATION establishing the implementing rules for air
operations of Community operators**

and

**DRAFT DECISIONS OF THE EXECUTIVE DIRECTOR OF THE EUROPEAN AVIATION
SAFETY AGENCY on
acceptable means of compliance, certification specifications and guidance material
related to the implementing rules for air operations of Community operators**

"Implementing Rules for Air Operations of Community Operators"

C. Draft Opinion and Decision Part-OR (Subpart OPS)

NOTE: This NPA contains the draft Opinion on the Implementing Rules for Air Operations of Community Operators, the Subparts related to Air Operations of the draft Opinion on the Implementing Rules for Organisation Requirements, the Subparts related to Air Operations of the draft Opinion on the Implementing Rules for Authority Requirements and the related draft Decisions (AMC, CS and GM). The NPA is split into seven separate NPAs (2009-02A, 2009-02B, 2009-02C, 2009-02D, 2009-02E, 2009-02F AND 2009-02G) as indicated in the Table of Reference below. The documents are published in the Comment-Response Tool (CRT) available at <http://hub.easa.europa.eu/crt/>.

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III.	COMMENT RESPONSE DOCUMENT	SEE NPA 2009-02A
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C.	CROSS-REFERENCE TABLES:	SEE NPA 2009-02F
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III. DRAFT OPINION PART – ORGANISATION REQUIREMENTS (PART-OR)**Subpart OPS – Air Operations****Section I – General requirements****OR.OPS.005.GEN Scope**

This subpart establishes additional requirements to be followed by an air operator:

- (a) Conducting non-commercial operations with complex motor-powered aircraft;
- (b) To qualify for the issue or continuation of an air operator certificate to conduct commercial operations.

OR.OPS.010.GEN Definitions

For the purpose of this subpart, the following definitions will apply:

- (a) 'Code share' means an arrangement under which an operator places its designator code on a flight operated by another operator, and sells and issues tickets for that flight.
- (b) 'Flight Data Monitoring (FDM)' means the pro-active and non-punitive use of digital flight data from routine operations to improve aviation safety
- (c) 'Rectification Interval' means the maximum time an aircraft may be operated between the deferral of an inoperative item and its rectification as specified in the MEL.
- (d) 'Dry lease agreement' means an agreement between undertakings pursuant to which the aircraft is operated under the AOC of the lessee;
- (e) 'Wet lease agreement' means an agreement between commercial operators holding a valid AOC in accordance with OR.OPS.015.AOC or an authorisation in accordance with Part TCO pursuant to which the aircraft is operated under the AOC of the lessor;
- (f) 'Undertaking' means any natural or legal person, whether profit-making or not, or any official body whether having its own legal personality or not.

OR.OPS.100.GEN Operator responsibilities

- (a) The operator is responsible for the operation of the aircraft in accordance with Annex IV of the Basic Regulation, Part-OPS, the applicable subparts of this Regulation and its declaration or certificate.
- (b) The operator shall establish and maintain a system for exercising operational control and supervision over any flight operated under the terms of its declaration or certificate.
- (c) The operator shall ensure that its aircraft are equipped and its crews are qualified as required for the area and type of operation.
- (d) The operator shall establish procedures and instructions for the safe operation of each aircraft type, containing ground staff and crew member duties for all types of operation on the ground and in flight. These procedures shall not require crew members to perform any activities during critical phases of flight other than those required for the safe operation of the aircraft.
- (e) The operator shall establish a checklist system for each aircraft type to be used by crew members in all phases of flight under normal, abnormal and emergency conditions to ensure that the operating procedures in the operations manual are followed. The design and utilisation of checklists shall observe human factor principles.
- (f) The operator shall train its crew members and personnel involved in the handling of aircraft to recognise dangerous goods that may be carried inadvertently.

OR.OPS.105.GEN Aircraft used in commercial and non-commercial operations

When an aircraft is operated in commercial and non-commercial operations, the commercial operations specifications shall contain an endorsement for non-commercial operations and the operations manual shall contain a supplement with the operating procedures to be followed in the case of non-commercial operations.

Section II – Manuals, Logs and Records**OR.OPS.015.MLR Operations Manual**

- (a) The operator shall establish an Operations Manual (OM) containing all necessary instructions, information and procedures, including standard operating procedures and training programmes and syllabi, for all personnel involved in air operations to perform their duties and for the aircraft operated.
- (b) The content of the OM shall reflect the requirements set out in this Part and Part-OPS and shall not contravene the conditions contained in the operations specifications to the certificate or the declaration.
- (c) The operator shall incorporate all amendments and revisions required by the competent authority.
- (d) All personnel shall have access to the portions of the OM that are required to carry out their duties.
- (e) The OM shall be kept up to date. All personnel shall be made aware of the changes that are relevant to their duties.
- (f) The content of the OM shall be presented in a form which can be used without difficulty and that observes human factors principles.
- (g) For air operator certificate holders, the OM and its amendments shall be approved by the competent authority.
- (h) Notwithstanding paragraph (g) minor amendments to the OM not affecting the terms of the certificate, may be approved through a procedure specified in the OM.

OR.OPS.020.MLR Minimum Equipment List (MEL)

- (a) A Minimum Equipment List (MEL) shall be established by the operator for each aircraft, based on the Master Minimum Equipment List (MMEL) for the type approved by the Agency in accordance with Part-21.
- (b) The MEL and any amendment shall be approved by the competent authority.
- (c) The operator shall amend the MEL after any applicable change to the MMEL and its associated operational and maintenance procedures.
- (d) In addition to the list of items, the MEL shall contain:
 - (1) a preamble, including guidance and definitions for flight crews and maintenance personnel using the MEL;
 - (2) the revision status of the MMEL upon which the MEL is based and the revision status of the MEL; and
 - (3) the scope, extent and purpose of the MEL.
- (e) The operator shall establish rectification intervals for each instrument, item of equipment or function inoperative listed in the MEL. The operator shall:
 - (1) take account of rectification intervals specified in the MMEL when preparing the MEL. The rectification interval in the MEL shall not be less restrictive than the corresponding rectification interval in the MMEL;
 - (2) establish an effective rectification programme that includes tracking of inoperative items and co-ordinating parts, personnel, facilities and procedures necessary for a timely rectification; and

- (3) only dispatch the operation of the aircraft after expiry of the rectification interval specified in the MEL, when:
 - (i) the defect has been rectified; or
 - (ii) the rectification interval is extended in accordance with paragraph (f).
- (f) Subject to the approval of the competent authority, an operator may use a procedure for the extension of the categories B, C and D rectification intervals, provided that:
 - (1) the extension of the rectification interval is within the scope of the MMEL for the aircraft type;
 - (2) the extension of the rectification interval granted is, as a maximum, of the same duration as the rectification interval specified in the MEL;
 - (3) a description of specific duties and responsibilities for controlling extensions is established by the operator and approved by the competent authority;
 - (4) the competent authority is notified of any extension of the applicable rectification interval; and
 - (5) a plan to accomplish the rectification at the earliest opportunity is established.
- (g) The operator shall publish the operational and maintenance procedures associated with the MEL as part of the operations manual or the MEL. The operator shall:
 - (1) take the MMEL operational and maintenance procedures into account when preparing the MEL;
 - (2) plan and accomplish operational procedures prior to operating and/or during the operation with the listed item inoperative; and
 - (3) accomplish maintenance procedures prior to operating with the listed item inoperative.

OR.OPS.025.MLR Operational flight plan - commercial air transport

An operational flight plan shall be completed for each intended flight based on considerations of aircraft performance, other operating limitations and relevant expected conditions on the route to be followed and at the aerodromes concerned, except for operations with:

- (a) other than complex motor-powered aeroplanes taking off and landing at the same aerodrome;
- (b) other than complex motor-powered helicopters engaged in flight operations conducted within a local area specified in the operations manual; or
- (c) sailplanes and balloons.

by day flights over routes navigated by reference to visual landmarks.

OR.OPS.030.MLR Information retained on the ground - commercial air transport

Information relevant to the flight and appropriate for the type of operation shall be preserved on the ground for the duration of each flight or series of flights, except for operations with:

- (a) helicopters having a maximum passenger seating configuration of 9 or less engaged in flight operations conducted within a local area specified in the operations manual;
- (b) other than complex motor-powered helicopters; or
- (c) sailplanes and balloons

by day and over routes navigated by reference to visual landmarks, when other methods of recording are employed.

OR.OPS.220.MLR Record-keeping

- (a) The records of the activities referred to in OR.GEN.200 and the declaration shall be stored for at least 5 years.
- (b) The following information used for the preparation and execution of a flight and reports shall be stored for 3 months, if applicable for the operation:

- (1) Operational flight plan;
 - (2) Route specific NOTAM/AIS briefing documentation if edited by the operator;
 - (3) Mass and balance documentation;
 - (4) Notification of special loads including written information to the pilot-in-command about dangerous goods;
 - (5) Journey log; and
 - (6) Flight report(s) for recording details of any occurrence, or any event which the pilot-in-command deems necessary to report/ record.
- (c) Notwithstanding OR.GEN.200, personnel records shall be stored for the periods indicated below:

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

- (d) The operator shall:
- (1) Maintain records of all training, checking and qualification prescribed in this Section undertaken by a crew member; and
 - (2) Make the records of all conversion courses and recurrent training and checking available, on request, to the crew member concerned.
- (e) The operator shall preserve the information used for the preparation and execution of a flight and personnel training records even if the operator ceases to be the operator of that aircraft or the employer of that personnel.

Section III – Air operator declaration

OR.OPS.040.DEC Declaration

- (a) Prior to commencing operations, the operator shall declare its capability and means to discharge the responsibilities associated with the non-commercial operation of complex motor-powered aircraft to the competent authority.
- (b) When the non-commercial operation of a complex motor-powered aircraft is managed by a third party on behalf of the owner, that party shall declare its capability and means to discharge the responsibilities associated with the operation of the aircraft to the competent authority.
- (c) Operations shall not commence before an acknowledgement of receipt from the Competent Authority has been received.

OR.OPS.041.DEC Content of the declaration

- (a) The declaration shall be made on the form contained in Appendix 1.

Appendix 1 to OR.OPS.041.DEC Template Declaration

Declaration
Operator Name: Contact details:
CAMO Name: Contact details:
Aircraft operation
Starting date of operation / applicability date of the change:
Address of main base of operation
Type(s) of operation
Type(s) of aircraft and registration(s)
Details of approval held (attach the OPSPECS)
Management system
Description including organisational structure

Section IV – Air operator certification

- (a) Without prejudice to Regulation (EC) 1008/2008, prior to commencing commercial air operations, the operator shall apply for and obtain an air operator certificate issued by the competent authority.
- (b) Applicants shall provide the following information:
 - (1) The official name and business name, address and mailing address of the applicant;
 - (2) Description of the proposed operation, including the type(s) and number of aircraft to be operated;
 - (3) Description of the management system, including organisational structure;
 - (4) The name of the accountable manager;
 - (5) The names of the nominated post holders, as required by OR.OPS.210.AOC(a) together with their qualifications and experience; and

- (6) A copy of the Organisation Manual, as required in OR.GEN.200 (a)(6).
- (c) Applicants shall demonstrate to the competent authority that:
 - (1) they comply with all the applicable requirements of this Part and Parts-OPS;
 - (2) all aircraft operated have a certificate of airworthiness in accordance with Part-21;
 - (3) Its organisation and management are suitable and properly matched to the scale and scope of the operation; and
 - (4) Every flight can be conducted in accordance with the provisions of the Operations Manual.

OR.OPS.020.AOC Operation specifications and privileges of an air operator certificate holder

- (a) The privileges that the operator is certificated to conduct shall be specified in the operations specifications of the certificate.
- (b) The privileges of the holder of an air operator certificate may include any of the operations requiring specific approvals referred to in Part-OPS.SPA.

OR.OPS.025.AOC Changes

In the case of an amendment to the certificate, applicants shall provide the competent authority with the relevant parts of the Operations Manual, the Organisation Manual and all other relevant documentation.

OR.OPS.030.AOC Leasing

ANY LEASE-IN

- (a) Without prejudice to Regulation 1008/2008, any lease-in agreement for aircraft registered in a third country and used by an operator for which any Member State ensures oversight of operations or used into, within or out of the Community by an operator certified in accordance with this section (Community operator) shall be subject to prior authorisation of the competent authority.

WET LEASE-IN

- (b) To obtain the authorisation as referred to in (a) above for the wet lease-in of an aircraft registered in a third country, an operator for which a Member States ensures oversight of operations, shall demonstrate to the competent authority that:
 - (1) The lessor is an operator holding an authorisation in accordance with Part-TCO; and
 - (2) The following requirements are met:
 - (i) Part-OPS.GEN;
 - (ii) for commercial air transport (CAT) operations Part-OPS.CAT, excluding OPS.CAT.220.A if authorised by the state of the operator;
 - (iii) for commercial operations other than CAT, Part-OPS.COM;
 - (iii) Part-FCL Annex III;
 - (iv) OR.GEN Section 2, OR.OPS.GEN, OR.OPS.MLR excluding OR.OPS.020.MLR, OR.OPS.FC, the cabin crew medical and training requirements of OR.OPS.CC, OR.OPS.TC, OR.OPS.FTL including related CS-FTL and OR.OPS.SEC;
 - (v) Part-M; and;
 - (vi) Part-145.
 - (3) Compliance with the essential requirements and applicable implementing rules may be demonstrated by applying the procedures contained in the operations manual of the lessor.

DRY LEASE-OUT

- (c) Any dry lease-out of an aircraft of an operator for which any Member State ensures oversight of operations, shall be subject to the prior authorisation of that Member State's competent authority.
- (d) To obtain the authorisation as referred to in (c) above, the following conditions shall be met:
 - (1) the competent authority has transferred its responsibilities for oversight of operations and maintenance to the competent authority of the lessee;
 - (2) the aircraft is removed from the AOC of the lessor; and
 - (3) the aircraft is maintained in accordance with an approved maintenance programme.

OR.OPS.035.AOC Code share arrangements

- (a) Any code share arrangement between an operator certified in accordance with this section (community operator) and a third country operator shall be subject to prior authorisation of the competent authority.
- (b) To obtain an authorisation to enter into a code share arrangement with a third country operator, the community operator shall demonstrate to the competent authority that:
 - (1) The third country operator holds an authorisation in accordance with Part-TCO.
 - (2) The Community operator conducts an initial onsite audit and for the duration of the code share arrangement regular audits of the third country operator to ensure compliance of the third country operator with the essential requirements of the Basic Regulation and the standards maintained by that operator in conducting its operations; Onsite audits shall be conducted at least once every 24 months.
- (c) The audits, including any findings shall be recorded. Level 1 findings shall be closed before entering in or continuing a code share agreement, level 2 findings within 12 months of the audit. The Community operator shall submit the audit report including findings and their closure to the competent authority. All audit reports shall be kept for at least 5 years.

OR.OPS.201.AOC Flight data monitoring – aeroplanes

- (a) An operator shall establish and maintain a flight data monitoring system, which shall be integrated in the management system, for aeroplanes with a maximum certificated take-off mass of more than 27 000 kg.
- (b) The flight data monitoring system shall be non-punitive and contain adequate safeguards to protect the source(s) of the data.

OR.OPS.210.AOC Personnel requirements

- (a) The operator shall, in accordance with OR.GEN.210(b) nominate post holders responsible for the management and supervision of the following areas:
 - (1) flight operations;
 - (2) crew training;
 - (3) ground operations; and
 - (4) compliance monitoring.
- (b) Adequacy and competency of staff.
 - (1) The operator shall employ sufficient staff for the planned ground and flight operations.
 - (2) All personnel assigned to, or directly involved in, ground and flight operations shall:

- (i) be properly trained;
 - (ii) demonstrate their capabilities in the performance of their assigned duties; and
 - (iii) be aware of their responsibilities and the relationship of their duties to the operation as a whole.
- (c) Supervision of staff
 - (1) The number of supervisors to be appointed shall be sufficient in relation to the structure of the operator and the number of staff employed.
 - (2) The duties and responsibilities of these supervisors shall be defined, and any other necessary arrangements shall be made to ensure that they can discharge their supervisory responsibilities.
 - (3) The supervision of crew members and personnel involved in the operation shall be exercised by individuals with adequate experience and the skills to ensure the attainment of the standards specified in the operations manual.

OR.OPS.215.AOC Facility requirements

In accordance with OR.GEN.215, the operator shall:

- (a) arrange appropriate ground handling facilities to ensure the safe handling of its flights;
- (b) maintain operational support facilities at the main operating base, appropriate for the area and type of operation;
- (c) ensure that the available working space at each operating base is sufficient for personnel pertaining to the safety of flight operations. Consideration shall be given to the needs of ground staff, staff concerned with operational control, the storage and display of essential records and flight planning by crews.

OR.OPS.300.AOC Documentation requirements

- (a) The operator shall produce the manuals and any other documentation required and amendments thereof.
- (b) The operator shall be capable of, without delay, distributing operational instructions and other information.

Section V – Flight Crew**Chapter 1****General****OR.OPS.015.FC Composition of flight crew**

- (a) The composition of the flight crew and the number of flight crew members at designated crew stations shall be no less than the minimum specified in the aircraft flight manual or in any operating limitations prescribed for the aircraft.
- (b) The flight crew shall include additional flight crew members when required by the type of operation, and shall not be reduced below the number specified in the operations manual.
- (c) All flight crew members shall hold a licence and ratings issued in accordance with Part FCL, appropriate to the duties assigned to them.
- (d) A flight crew member may be relieved in flight of his duties at the controls by another suitably qualified flight crew member.

OR.OPS.020.FC Designation as pilot-in-command

- (a) One pilot amongst the flight crew shall be designated by the operator as pilot-in-command.
- (b) The operator shall only designate a flight crew member to act as pilot-in-command if he/she:
 - (1) complies with the minimum level of experience specified in the Operations Manual;
 - (2) except in the case of balloons:
 - (i) has adequate knowledge of the route or area to be flown and of the aerodromes, facilities and procedures to be used;
 - (ii) in the case of commercial operations, has had experience within the last 12 months of the route or area to be flown and of the aerodromes, facilities and procedures to be used;
 - (3) in the case of multi-crew operations, has completed a command course provided by the operator, as specified in the Operations Manual;

OR.OPS.025.FC Flight engineer

When a separate flight engineer station is incorporated in the design of an aeroplane, the flight crew shall include one crew member who is suitably qualified in accordance with applicable national rules.

OR.OPS.030.FC Crew resource management (CRM) training

Except in the case of balloons:

- (a) Before acting in a multi-crew environment, a flight crew member shall have received appropriate CRM training as specified in the Operations Manual.
- (b) Elements of CRM training shall be included in the aircraft type training and recurrent training as well as in the command course.

OR.OPS.035.FC Operator conversion training

- (a) Except in the case of balloons, a flight crew member shall complete the operator conversion training course:
 - (1) when changing to an aircraft for which a new type or class rating is required; or
 - (2) when commencing at an operator.
- (b) The operator conversion training course shall include training on all the equipment installed on the aircraft.

OR.OPS.040.FC Differences training and familiarisation training

- (a) Flight crew members shall complete differences or familiarisation training when required by Part-FCL and when changing equipment or procedures on types or variants currently operated.
- (b) The operations manual shall specify when such differences training or familiarisation training is required.

OR.OPS.045.FC Recurrent training

Each flight crew member shall complete annual recurrent aircraft 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.

OR.OPS.050.FC Pilot qualification to operate in either pilot's seat

Flight crew members who may be assigned to operate in either pilot's seat shall complete appropriate training and checking as specified in the operations manual.

OR.OPS.055.FC Operations on more than one type or variant

- (a) Flight crew members operating more than one type or variant of aircraft shall comply with all of the requirements prescribed in this Section for each type or variant, unless credits related to the training, checking, and recent experience requirements are approved in accordance with Part-21 for the relevant types or variants.
- (b) Appropriate procedures and/or operational restrictions shall be specified in the operations manual for any operation on more than one type or variant.

OR.OPS.060.FC Provision of training

All the training required in this section shall be conducted:

- (a) in accordance with the training programmes and syllabi established by the operator in the OM;
- (b) by appropriately qualified personnel. In the case of flight and flight simulation training, the personnel providing the training and conducting the checks shall be qualified in accordance with Part-FCL.

Chapter 2**Additional requirements for commercial air transport****OR.OPS.115.FC Composition of Flight Crew**

- (a) Inexperienced flight crew members shall not be part of the same flight crew.
- (b) The pilot-in-command may delegate the conduct of the flight to another pilot suitably qualified in accordance with Part FCL and fulfilling the requirements of OR.OPS.020(b).

The delegation shall include all the responsibilities of the pilot-in-command.

- (c) Specific requirements for aeroplane operations under IFR or at night.
 - (1) The minimum flight crew shall be 2 pilots for all turbojet aeroplanes and all turbo-propeller aeroplanes with a maximum passenger seating configuration of more than 9.
 - (2) Aeroplanes other than those covered by (c)(1) may have the minimum flight crew reduced from 2 to 1 pilot provided that:
 - (i) The pilot has undertaken training on the operator's procedures, in particular regarding:
 - Engine management and emergency handling;
 - Use of normal, abnormal and emergency checklist;
 - ATC communication;
 - Departure and approach procedures;
 - Autopilot management, if applicable; and
 - Use of simplified in-flight documentation;
 - (ii) The recurrent checks required by OR.OPS.145.FC are performed in the single-pilot role on the relevant type or class of aeroplane in an environment representative of the operation;
 - (iii) For operations under IFR:

- the pilot has a minimum of 50 hours flight time under IFR on the relevant type or class of aeroplane, of which 10 hours as pilot-in-command; and
 - the pilot has completed 5 IFR flights, including 3 instrument approaches, in a single-pilot role, or undertaken an IFR instrument approach check during the preceding 90 days on the relevant type or class of aeroplane; and
- (iv) For operations at night:
- the pilot has a minimum of 15 hours flight time at night which may be included in the 50 hours flight time under IFR in paragraph (iii) above; and
 - the pilot has completed three take-offs and landings at night on the type or class of aeroplane in the single pilot role, or undertaken a night take-off and landing check during the preceding 90 days on the relevant type or class of aeroplane.
- (d) Specific requirements for helicopters.
- (1) For all operations using helicopters with a maximum passenger seating configuration (MPSC) of more than 19 and for IFR operations using helicopters with a MPSC of more than 9:
- (i) The minimum flight crew shall be two pilots; and
 - (ii) The pilot-in-command shall be the holder of an Airline Transport Pilot Licence (Helicopter) issued in accordance with Part FCL.
- (2) Operations not covered by paragraph (d)(1) above may be operated by a single pilot under IFR or at night provided that:
- (i) The pilot has undertaken training on the operator's procedures, in particular regarding:
 - Engine management and emergency handling;
 - Use of normal, abnormal and emergency checklist;
 - ATC communication;
 - Departure and approach procedures;
 - Autopilot management, if applicable;
 - Use of simplified in-flight documentation; and
 - (ii) The recurrent checks required by OR.OPS.145.FC are performed in the single-pilot role on the particular helicopter type in an environment representative of the operation; and
 - (iii) For IFR operations, the pilot:
 - has 25 hours total IFR flight experience in the relevant operating environment; and
 - has 25 hours flight experience as a single pilot on the specific type of helicopter, approved for single pilot IFR, of which 10 hours as pilot-in-command or pilot-in-command under supervision, including 5 sectors of IFR line flying under supervision using the single pilot procedures; and
 - complies with the minimum required recent experience of 5 IFR flights as a single pilot, including 3 instrument approaches, carried out during the preceding 90 days on a helicopter approved for this purpose or undertakes an IFR instrument approach check as a single pilot on the relevant type of helicopter or an FSTD.

OR.OPS.120.FC Command course

Except in the case of balloons, the command course shall include at least the following elements:

- (a) Training in an FSTD, including line orientated flying training (LOFT), or flying training;
- (b) The operator proficiency check, operating as pilot-in-command;
- (c) Training on pilot-in-command responsibilities;
- (d) Line training as pilot-in-command under supervision, for a minimum of:
 - (1) 10 sectors, in the case of aeroplanes; and
 - (2) 10 hours, including at least 10 sectors, in the case of helicopters.
- (e) Completion of a line check as pilot-in-command; and
- (f) Elements of crew resource management training.

OR.OPS.130.FC Initial Operator's Crew Resource Management (CRM) training

- (a) Except in the case of balloons:
 - (1) A flight crew member shall have completed an initial CRM training course before commencing unsupervised line flying.
 - (2) Initial CRM training shall be conducted by at least one suitably qualified CRM trainer who may be assisted by experts in order to address specific areas.
- (b) If the flight crew member has not previously received theoretical training in Human Factors to the ATPL level, he/she shall complete, before, or combined with, the initial CRM training, a theoretical course provided by the operator and based on the human performance and limitations syllabus for the ATPL as established in Part-FCL..

OR.OPS.135.FC Operator conversion training and checking

- (a) Except in the case of balloons:
 - (1) crew resource management training shall be integrated into the operator conversion training course;
 - (2) during the operator conversion course the flight crew member shall not undertake flying duties on another type or class of aircraft.
- (b) The amount of training required by the flight crew member for the operator's conversion course shall be determined in accordance with the standards of qualification and experience specified in the Operations Manual, taking into account his/her previous training and experience.
- (c) The flight crew member shall complete:
 - (1) the operator proficiency check and the emergency and safety equipment training and checking before commencing line flying under supervision; and
 - (2) the line check upon completion of line flying under supervision.
- (d) Aeroplanes. Pilots that have been issued a type rating based on a zero flight time training (ZFTT) course shall:
 - (1) commence line flying under supervision not later than 21 days after the completion of the skill test or after refresher training provided by the operator;
 - (2) conduct the first 4 take-offs and landings of the line flying under supervision in the aeroplane under the supervision of a TRI(A) occupying the other pilot seat, unless otherwise specified in accordance with Part-21.

OR.OPS.145.FC Recurrent training and checking

- (a) Each flight crew member shall complete recurrent training and checking relevant to the type or variant of aircraft on which they operate.
- (b) Operator Proficiency Check:
 - (1) Each flight crew member shall complete operator proficiency checks to demonstrate his/her competence in carrying out normal, abnormal and emergency procedures, as part of a normal flight crew complement.
 - (2) When the flight crew member will be required to operate under IFR, the operator proficiency check shall be conducted without external visual reference.
 - (3) The period of validity of the operator proficiency check shall be 6 calendar months.
- (c) Line Check. Except in the case of balloons, each flight crew member shall complete a line check on the aircraft to demonstrate his/her competence in carrying out normal line operations described in the Operations Manual. The period of validity of a line check shall be 12 calendar months.
- (d) Emergency and Safety Equipment training and checking. Each flight crew member shall complete training and checking on the location and use of all emergency and safety equipment carried. The period of validity of an emergency and safety equipment check shall be 12 calendar months.
- (e) Except in the case of balloons:
 - (1) Elements of CRM shall be integrated into all appropriate phases of the recurrent training.
 - (2) Each flight crew member shall undergo specific modular CRM training. All major topics of CRM training shall be covered over a period not exceeding 3 years.
- (f) Each flight crew member shall undergo ground training and aircraft/FSTD training at least every 12 calendar months.
- (g) The validity periods mentioned in (d)(3), (e) and (f) shall be counted from the end of the month when the check was taken.
- (h) When the training or checks required above are undertaken within the last 3 months of the validity period, the new validity period shall be counted from the original expiry date.

OR.OPS.155.FC Operation on more than one type or variant

- (a) When a flight crew member operates both helicopters and aeroplanes the operation shall be limited to one type of each.
- (b) The procedures or operational restrictions for operation on more than one type or variant established in the Operations Manual shall cover:
 - (1) The flight crew members' minimum experience level;
 - (2) The minimum experience level on one type or variant before beginning training for and operation of another type or variant;
 - (3) The process whereby flight crew qualified on one type or variant will be trained and qualified on another type or variant; and
 - (4) All applicable recent experience requirements for each type or variant.

Chapter 3

Additional requirements for commercial operations other than commercial air transport

OR.OPS.240.FC Recurrent training and checking - Operator Proficiency Check

- (a) Each flight crew member shall complete annual operator proficiency checks to demonstrate his/her competence in carrying out normal, abnormal and emergency procedures, covering the relevant aspects associated with the specialised tasks described in the Operations Manual;
- (b) Appropriate consideration shall be given when the operations are undertaken under IFR or at night;
- (c) The period of validity of the operator proficiency check shall be 12 calendar months in addition to the remainder of the month when the check was taken. When the operator proficiency check is undertaken within the last 3 months of the validity period, the new validity period shall be counted from the original expiry date.

Section VI – Cabin crew

OR.OPS.005.CC Scope

This section establishes the requirements to be met by an operator when operating an aircraft with cabin crew.

Chapter 1

Common requirements

OR.OPS.105.CC Number and composition of cabin crew

- (a) At least one cabin crew member shall be assigned for the operation of any aircraft with a maximum passenger seating configuration of more than 19 when carrying one or more passengers.
- (b) The cabin crew shall be composed of at least one cabin crew member for every 50, or fraction of 50, passenger seats installed on the same deck of an aircraft.
- (c) For operations when more than one cabin crew member is assigned the operator shall nominate one cabin crew member to be responsible to the pilot-in-command.

OR.OPS.110.CC Conditions for assignment of cabin crew to duties

- (a) Cabin crew members shall be assigned to duties on an aircraft only if they:
 - (1) are at least 18 years of age;
 - (2) have been assessed physically and mentally fit to perform all assigned duties and responsibilities safely in accordance with the medical requirements specified in Part-MED as applicable to the type of operations;
 - (3) have completed all training required by Part-CC and this Chapter to perform the assigned duties; and
 - (4) have been checked as proficient to perform all assigned duties.
- (b) The cabin crew members and their functions with regard to flight and passenger safety shall be clearly identified to the passengers.

OR.OPS.115.CC Training courses and associated checking

- (a) A detailed programme shall be established by the operator for each training course in accordance with the applicable requirements of Part-CC and of this Section as applicable to cover the duties and responsibilities to be performed by the cabin crew members;
- (b) Each training course shall include theoretical and practical instruction together with individual or collective practice as relevant to each training subject in order that the cabin crew member achieves the adequate level of proficiency in accordance with this Section;
- (c) Training and checking of each cabin crew member shall be conducted for each training course by personnel suitably qualified and experienced for the subject to be covered; and
- (d) Checking of the proficiency of each cabin crew member shall be conducted for all training received, except for crew resource management training.

OR.OPS.120.CC Initial safety training

The operator shall provide the cabin crew member with an initial safety training course in accordance with the applicable requirements of Part-CC unless the cabin crew member holds a cabin crew attestation issued in accordance with Part-CC.

OR.OPS.125.CC Operator's aircraft type training and differences training

- (a) A cabin crew member shall undergo appropriate aircraft type training in accordance with (c) before being:
 - (1) first assigned by the operator to act as a cabin crew member; or
 - (2) assigned by that operator to operate on another aircraft type.
- (b) In addition to (a), a cabin crew member shall undergo appropriate differences training in accordance with (c) as applicable before they are assigned:
 - (1) on a variant of an aircraft type currently operated; or
 - (2) on currently operated aircraft types or variants with different safety equipment, safety equipment location or normal and emergency safety procedures.
- (c) The programme of the operator's aircraft type training, and differences training as relevant, shall:
 - (1) involve training and practice on a representative training device or on the actual aircraft;
 - (2) comprise training in the operator's standard operating procedures for cabin crew members to be first assigned to duties by the operator; and
 - (3) cover in addition to the aircraft type-specific training subjects specified in Part-CC at least the following subjects as relevant to the aircraft type or variant to be operated:
 - (i) description of the cabin configuration;
 - (ii) location, removal and use of all portable safety equipment carried on-board the aircraft type or variant;
 - (iii) the operator's normal and emergency procedures;
 - (iv) passenger briefing, safety demonstrations and crowd control;
 - (v) fire and smoke training using the operator's equipment;
 - (vi) the operator's evacuation procedures;
 - (vii) pilot incapacitation; and
 - (viii) the operator's crew resource management training.

OR.OPS.130.CC Familiarisation

After completion of a training course on an aircraft type or a variant, a cabin crew member with no previous comparable experience shall complete appropriate familiarisation under supervision before being assigned as one of the minimum number of cabin crew required for the aircraft type or variant.

OR.OPS.135.CC Operator's recurrent training

- (a) The programme of the recurrent training course shall cover all actions assigned to each member of the cabin crew in normal and emergency procedures and drills relevant to each aircraft type or variant to be operated.
- (b) Every 12 calendar months cabin crew members shall undergo recurrent training complying with the applicable requirements of Part-CC and covering in addition at least the following training subjects for each aircraft type or variant to be operated:
 - (1) location and handling of all safety and emergency equipment carried on-board;
 - (2) stowage of articles in the cabin;
 - (3) information to the flight crew in case of surface contamination;
 - (4) operator's emergency procedures;
 - (5) operator's evacuation procedures;
 - (6) incident and accident review relevant to the operator;
 - (7) operator's crew resource management;
 - (8) aero-medical aspects and first aid; and
 - (9) security procedures.
- (c) In addition to the training subjects specified in (b), cabin crew members shall also be trained on the following within intervals not exceeding 3 years:
 - (1) each cabin crew member:
 - (i) actually fighting a fire using the operator's equipment; and
 - (ii) undergoing pilot incapacitation training if applicable;
 - (2) use of pyrotechnics (actual or representative devices);
 - (3) demonstration of the use of the life-raft, or slide-raft, where fitted; and
 - (4) demonstration of the operation of all other exits including flight deck windows.

OR.OPS.140.CC Operator's refresher training

- (a) A cabin crew member who has not undertaken any flying duties for more than 6 months shall undergo a refresher training on the aircraft type to be operated before being assigned to duties.
- (b) A cabin crew member who has not undertaken flying duties on one particular aircraft type during the preceding 6 months shall before being assigned on that type complete either:
 - (1) the applicable refresher training in accordance with (c); or
 - (2) 2 refresher sectors on the aircraft type under appropriate supervision.
- (c) The refresher training programme for each aircraft type shall cover as a minimum:
 - (1) emergency procedures;
 - (2) evacuation procedures;
 - (3) actual operation and opening by each cabin crew member of each type or variant of normal and emergency exits in the normal and emergency modes;
 - (4) demonstration of the operation of all other exits; and
 - (5) location and handling of all safety and emergency equipment carried.

Chapter 2

Additional requirements for commercial air transport

OR.OPS.205.CC Number and composition of cabin crew

- (a) The minimum number of cabin crew members determined in accordance with Part 21 for the certification of the aircraft type or variant to be operated with the same number of passenger seats installed shall apply when greater than the applicable number specified in OR.OPS.105.CC.
- (b) The operator shall take into account the type and duration of operations when determining the number and composition of the cabin crew.
- (c) When more than one cabin crew member is required, the composition of the cabin crew shall comprise a senior cabin crew member nominated by the operator and qualified in accordance with OR.OPS.260.CC.
- (d) The minimum required number of cabin crew members determined in accordance with (a) may be reduced in unforeseen circumstances provided that:
 - (1) the number of passengers has been reduced, taking particular account of the special categories of passengers carried, if any;
 - (2) there is at least:
 - (i) 1 cabin crew member for every 50, or fraction of 50, passengers carried on the same deck of the aircraft; or
 - (ii) 1 cabin crew member per pair of floor level emergency exits, whichever number is the greater; and
 - (3) a report is submitted to the competent authority after completion of the flight.
- (e) During ground operations, when the aircraft is at its parking station and one or more passengers are on board, the minimum required number of cabin crew members may be reduced only if:
 - (1) the number of cabin crew members present on board complies with the number required in (d) (2) above;
 - (2) no refuelling/de-fuelling is taking place; and
 - (3) procedures to be applied with this reduced number of cabin crew are established in the operations manual.

OR.OPS.210.CC Conditions for assignment to duties

- (a) The operator shall:
 - (1) only assign cabin crew members holding a cabin crew attestation issued in accordance with Part-CC.
- (b) The operator shall also ensure that:
 - (1) all and only the cabin crew members assigned to duties on a flight wear the operator's cabin crew uniform; and
 - (2) such uniform is compatible with the safety functions of cabin crew and is clearly identifiable to the passengers.

OR.OPS.215.CC Training courses and associated checking

Following the successful completion of a training course and associated checking, the operator shall provide each cabin crew member with an updated list showing the validity period of the related training and checking of the aircraft type(s) and variant(s) on which the cabin crew member is proficient.

OR.OPS.250.CC Operation on more than one aircraft type or variant

- (a) Aircraft types and variants for cabin crew shall be:
 - (1) the types and variants determined in accordance with the applicable requirements of Part-21; and
 - (2) in the additional case of a cabin configuration specific to the operator, the related variant of an aircraft type shall be determined as a different type for cabin crew when not similar in the location and type of portable safety equipment and in the emergency procedures.
- (b) A cabin crew member shall not be assigned to duties on more than 3 aircraft types determined in accordance with (a), except that the cabin crew member may be assigned on 4 aircraft types if for at least 2 of the types:
 - (1) safety equipment and type-specific normal and emergency procedures are similar; and
 - (2) non-type-specific normal and emergency procedures are identical.

OR.OPS.255.CC Single cabin crew member operations

- (a) The operator shall select, recruit, train and check the proficiency of the cabin crew members to be assigned to single cabin crew member operations according to criteria appropriate to this type of operations.
- (b) Cabin crew members shall only be assigned to single cabin crew member operations after they:
 - (1) have completed the additional training course required for single cabin crew member operations;
 - (2) have successfully passed the checks verifying their proficiency in performing the duties and responsibilities performed in single cabin crew member operations; and
 - (3) for new entrant cabin crew members who have no previous comparable experience, have undertaken familiarisation flying of at least 20 hours and 15 sectors on the aircraft type under the supervision of a suitably experienced cabin crew member.
- (c) The programme of the training course for single cabin crew operations shall at least cover the following subjects:
 - (1) responsibility to the pilot-in-command for the conduct of normal and emergency procedures;
 - (2) importance of co-ordination and communication with the flight crew, including as regards management of unruly or disruptive passengers;
 - (3) review of operator's requirements and of legal requirements;
 - (4) accident and incident reporting; and
 - (5) flight and duty time limitations and rest requirements.

OR.OPS.260.CC Senior cabin crew member

- (a) The operator shall nominate cabin crew members to the functions of senior cabin crew member only if they:
 - (1) have at least 1 year experience as operating cabin crew member; and
 - (2) have successfully completed a senior cabin crew training course.
- (b) The senior cabin crew training course shall cover all duties and responsibilities of senior cabin crew members and shall include at least the following subjects:
 - (1) pre-flight briefing;
 - (2) co-operation with the crew;
 - (3) review of operator's requirements and of legal requirements;

- (4) accident and incident reporting;
 - (5) human factors and crew resource management (CRM); and
 - (6) flight time limitations and rest requirements.
- (c) The senior cabin crew member shall have responsibility to the pilot-in-command for the conduct and co-ordination of normal and emergency procedures specified in the operations manual, including for discontinuing non-safety-related duties for safety or security purposes.
- (d) The operator shall establish procedures to select the most suitably qualified and experienced cabin crew member to replace the nominated senior cabin crew member in case he/she becomes unable to operate.

Section VII – Technical crew member in HEMS, HHO and NVIS operations

OR.OPS.005.TC Scope

- (a) This Part establishes the requirements to be met by technical crew members in HEMS, HHO and NVIS operations other than flight or cabin crew.
- (b) A technical crew member in HEMS, HHO and NVIS operations is assigned by the operator to duties in the aircraft or on the ground for the purpose of assisting the pilot during HEMS, HHO or NVIS operations, which may require the operation of specialised on-board equipment.

OR.OPS.015.TC Conditions for assignment of technical crew to duties

- (a) Technical crew members in HEMS, HHO and NVIS operations shall only be assigned duties if they:
- (1) are at least 18 years of age;
 - (2) are physically and mentally fit to safely perform assigned duties and responsibilities;
 - (3) are periodically assessed for medical fitness, based on aero-medical best practice, to safely exercise their assigned safety duties;
 - (4) have completed all training required by this section to perform the assigned duties; and
 - (5) have been checked as proficient to perform all assigned duties.

OR.OPS.020.TC Initial and type-related training

Before being first assigned to operate, each technical crew member shall complete:

- (a) initial training, including relevant CRM elements;
- (b) type-related training on:
- (1) the location and use of all safety and survival equipment carried on the aircraft;
 - (2) all normal and emergency procedures;
 - (3) on-board equipment used for specialised tasks.

OR.OPS.025.TC Aircraft type and differences training

Each technical crew member shall complete:

- (a) Aircraft type training, including relevant CRM elements, when changing operators or when changing to a different aircraft type or class;
- (b) differences training when changing equipment or procedures on types or variants currently operated. The operator shall specify in the operations manual when such differences training is required.

OR.OPS.030.TC Familiarisation flights

Following completion of type-related or conversion training, each technical crew member shall undertake familiarisation flights prior to operating as a required technical crew member in HEMS, HHO or NVIS operations.

OR.OPS.035.TC Recurrent training

- (a) Each technical crew member shall undergo annual recurrent training relevant to the type of aircraft and equipment which the technical crew member operates. Elements of CRM shall be integrated into all appropriate phases of the recurrent training.
- (b) Recurrent training shall include theoretical and practical instruction and practice.

OR.OPS.040.TC Refresher training

Each technical crew member who has not undertaken duties in the previous 6 months in the relevant type of aircraft shall complete refresher training relevant to the type of aircraft and equipment which the technical crew member operates.

OR.OPS.045.TC Checking

- (a) Following the completion of training, each technical crew member shall undergo a check to demonstrate their proficiency in carrying out normal and emergency procedures.
- (b) Training and checking shall be conducted for each training course by personnel suitably qualified and experienced for the subject to be covered.

Section VIII – Flight and duty time limitations and rest requirements**Chapter 1****General****OR.OPS.005.FTL Scope**

This section establishes the requirements to be met by an operator to manage fatigue and to comply with the flight and duty time limitations and rest requirements for crew members (flight crew, cabin crew and technical crew members).

OR.OPS.010.FTL Definitions

For the purpose of this section, the following definitions shall apply:

- (a) 'Augmented flight crew' means a flight crew which comprises more than the minimum number required to operate the aircraft and within which each flight crew member can leave their assigned post and be replaced by another appropriately qualified flight crew member for the purpose of in-flight break;
- (b) 'Flight time' means:
 - (1) for aeroplanes and touring motor gliders the total time from the moment the aircraft first moves from its parking place for the purpose of taking off until the moment it finally comes to rest on the designated parking position at the end of the flight and all engines or propellers are stopped;
 - (2) for helicopters, the total time from the moment a helicopter's rotor blades start turning until the moment the helicopter finally comes to rest at the end of the flight, and the rotor blades are stopped;
 - (3) for sailplanes, the total time from the moment the sailplane commences the ground run in the process of taking off until the moment it finally comes to a rest at the end of flight; and

- (4) for balloons the total time from the moment the basket leaves the ground for the purpose of taking off until the moment the balloon finally comes to a rest at the end of the flight;
- (c) 'Duty' means any task that a crew member is required by the operator to perform, including, for example, flight duty, administrative work, training, positioning, and standby when it is likely to induce fatigue;
- (d) 'Duty period' means a period which starts when a crew member is required by an operator to report for commencing a duty and ends when that person is free from all duties;
- (e) 'Flight crew member' means a pilot, flight engineer, or flight navigator assigned to duty in an aircraft;
- (f) 'Flight Duty Period (FDP)' means a period which commences when a crew member is required to report for duty that includes a flight or a series of flights and which finishes when the aircraft finally comes to rest and the engines are shut down or the rotor blades are stopped, at the end of the last flight on which they are a crew member;
- (g) 'Home base' means the location nominated by the operator to the crew member from where the crew member normally starts and ends a duty period or a series of duty periods;
- (h) 'Local day' means a 24 hour period commencing at 00:00 local time;
- (i) 'Local night' means a period of eight hours falling between 22:00 hours and 08:00 hours local time;
- (j) 'A single day free of duty' means time free of all duties consisting of a single day and two local nights and which may include a rest period as part of the day off;
- (k) 'Operating crew member' means a crew member who carries out their duties in an aircraft during a flight;
- (l) 'Positioning' means the transferring of a non-operating crew member from place to place, at the behest of the operator, excluding the time from home to a designated reporting place and vice versa, or time for local transfer from a place of rest to the commencement of duty and vice versa;
- (m) 'Rest period' means a continuous and defined period of time, subsequent to and/or prior to duty, during which a crew member is free of all duties;
- (n) 'Standby' means a defined period of time during which a crew member is required by the operator to be available to receive an assignment for a specific duty without an intervening rest period;
- (o) 'Window of Circadian Low (WOCL)' means the period between 02:00 hours and 05:59 hours. Within a band of three time zones the WOCL refers to home base time. Beyond these three time zones the WOCL refers to home base time for the first 48 hours after departure from home base time zone and to local time thereafter.

OR.OPS.015.FTL Operator responsibilities

An operator shall, where applicable to the type of operation:

- (a) publish duty rosters sufficiently in advance to provide the opportunity for crew members to plan adequate rest;
- (b) nominate a home base for each crew member;
- (c) ensure that flight duty periods are planned so as to enable crew members to remain sufficiently free from fatigue so that they can operate to a satisfactory level of safety under all circumstances;
- (d) specify reporting times to allow sufficient time for ground duties;
- (e) take into account the relationship between the frequencies and pattern of flight duty periods and rest periods and give consideration to the cumulative effects of undertaking long duty hours combined with minimum rest periods;

- (f) allocate duty patterns which avoid practices that cause a serious disruption of established sleep/work pattern such as alternating day/night duties;
- (g) provide rest periods of sufficient time to enable crew members to overcome the effects of the previous duties and to be well rested by the start of the following flight duty period;
- (h) plan local days free of duty and notify crew members sufficiently in advance;
- (i) provide a meal and drink opportunity in order to avoid any detriment to a crew member's performance, especially when the Flight Duty Period (FDP) exceeds six hours;
- (k) ensure that flights are planned to be completed within the allowable flight duty period taking into account the time necessary for pre-flight duties, the flight and turn-around times;
- (l) take action to change a schedule or crewing arrangements where the actual operation exceeds the maximum flight duty period on a significant proportion of flights in that schedule during a scheduled seasonal period.

OR.OPS.020.FTL Records of flight and duty times and rest periods

- (a) Non-commercial operators of complex motor powered aircraft shall maintain records related to all crew members regarding their flight and duty times and rest periods.
- (b) Commercial operators shall maintain individual records related to the employment of all crew members regarding their flight and duty times and rest periods as follows:
 - (1) Flight, duty and rest period records, including:
 - (i) Flight times;
 - (ii) Start, duration and end of each duty or flight duty period;
 - (iii) Rest periods and days free of all duties for a period of 15 months;
 - (2) Records provided, in accordance with paragraph (c) and OPS.GEN.020, by crew members who perform functions for more than one operator for a period of 15 months.
 - (3) Reports by the pilot in command on extended flight duty periods, extended flight hours and reduced rest periods for a period of 6 months.
- (c) Upon request, the operator shall provide copies of individual records of flight and duty times and rest periods:
 - (a) to the crew member concerned;
 - (b) to another operator in respect of a crew member who is or becomes a crew member of the operator concerned.

OR.OPS.025.FTL Fatigue Risk Management System (FRMS)

- (a) An operator shall establish, implement and maintain an FRMS as an integral part of its management system. The FRMS shall ensure that the safety objectives of the Essential Requirements are met.
- (b) The FRMS shall be adapted to manage the operational risk(s) of the operator arising from crew member fatigue.
- (c) The FRMS shall correspond to the roster system or flight time specification scheme used by the operator in accordance with OR.OPS.230.FTL or OR.OPS.330.FTL
- (d) The operator shall require that crew members report any instance if they are fatigued and that safety may be affected.
- (e) The operator shall take mitigating safety measures when the FRMS process shows that the required safety performance is not maintained.

OR.OPS.035.FTL Flight Duty Period (FDP)

- (a) The operator shall establish procedures how the pilot-in-command shall, in case of special circumstances which could lead to severe fatigue, and after consultation with the crew members affected, reduce the actual FDP and/or increase the rest time in order to eliminate any detrimental effect on flight safety.
- (b) The operator shall require that the pilot-in-command submit a report whenever a FDP is increased by their discretion, or when a rest period is reduced in actual operation. Where the increase of a FDP or a reduction of a rest period exceeds one hour, the operator shall send a copy of the report, together with its comments, to the competent authority, no later than 28 days after the event.

OR.OPS.040.FTL Flight times and duty periods

Flight and duty time limitations and rest requirements shall specify the following elements of flight times and duty periods, where applicable to the type of operation:

- (a) The total duty periods to which a crew member is assigned, spread as evenly as practicable throughout their respective period:
 - (1) in any seven consecutive days; and
 - (2) in any 28 consecutive days;
- (b) The total flight time of the flights on which an individual crew member is assigned as an operating crew member, spread as evenly as practicable throughout their respective period:
 - (1) in any 28 consecutive days; and
 - (2) in any 12 consecutive calendar months.

OR.OPS.045.FTL Positioning duty

Where operators assign crew members to positioning duty, the following shall apply, taking into account the type of operation:

- (a) Positioning after reporting but prior to operating shall be included as part of the FDP but shall not count as a sector;
- (b) All of the time spent positioning shall count as duty time and shall be taken into account for the calculation of the minimum rest period.

OR.OPS.050.FTL Standby duty

Where operators assign crew members to standby duty, the following shall be considered, where applicable to the type of operation:

- (a) Aerodrome/operating site standby shall count in full for the purpose of cumulative duty hours;
- (b) Aerodrome/operating site standby duty which is immediately followed by a flight duty shall be added to the duty period and shall count for the purpose of calculating minimum rest periods;
- (c) Aerodrome/operating site standby duty which does not lead to an assignment of flight duty shall be followed by a designated rest period;
- (d) Crew members on aerodrome/operating site standby duty shall be provided with a quiet and comfortable place not accessible to the public.

Chapter 2

Non-Commercial Operators of Complex Motor-Powered Aircraft

OR.OPS.230.FTL Flight and duty time limitations and rest requirements for non-commercial operators of complex motor-powered aircraft

- (a) Non-commercial operators of complex motor-powered aircraft shall establish, implement and maintain limitations applicable to flight times, flight duty periods, duty periods and rest periods for crew members.
- (b) To meet the requirements in (a), non-commercial operators of complex motor-powered aircraft shall either:
 - (1) establish, implement and maintain a roster system, specifying the following elements, where applicable to the type of operation:
 - (i) Number of sectors flown;
 - (ii) Time zone crossing;
 - (iii) Sleep deprivation;
 - (iv) Disruption of circadian cycles;
 - (v) Night hours;
 - (vi) Positioning;
 - (vii) Cumulative duty time for given periods of time;
 - (viii) Sharing of allocated tasks between crew members;
 - (ix) The provision of augmented crews; or
 - (2) use certification specifications published by the Agency which are appropriate for the type of operation; or
 - (3) use approved flight time specification schemes which are appropriate for the type of operation.
- (c) The flight and duty time limitations and rest requirements applied by non-commercial operators of complex motor-powered aircraft shall be contained in the operations manual and shall be supported by an adequate operator's Fatigue Risk Management System (FRMS), as described in OR.OPS.025.FTL to manage the operational risks.

Chapter 3

Commercial Operators

OR.OPS.320.FTL Records of flight and duty times and rest periods

Commercial operators shall maintain individual records related to the employment of all crew members regarding their flight and duty times and rest periods as follows:

- (a) Flight, duty and rest period records, including, for a period of 15 months:
 - (1) flight times;
 - (2) start, duration and end of each duty or Flight Duty Period; and
 - (3) rest periods and days free of all duties;
- (b) Reports by the pilot-in-command on extended flight duty periods, extended flight hours and reduced rest periods, for a period of six months.

OR.OPS.325.FTL Fatigue Risk Management System (FRMS)

The FRMS of a commercial operator shall contain the following components, where applicable to the type, size and complexity of the operations and of the corresponding flight time specification scheme:

- (a) Fatigue risk management policy;
- (b) Education and awareness training programmes;
- (c) Processes for the detection, reporting, investigation and management of fatigue risk;
- (d) Processes for monitoring crew member fatigue;
- (e) Processes for reporting, investigating and recording incidents that may be attributable wholly or partially to fatigue;
- (f) FRMS feedback and adjustment mechanism.

OR.OPS.330.FTL Flight time specification schemes

- (a) Commercial operators shall establish, implement and maintain flight time specification schemes which are appropriate for the type(s) of operation.
- (b) To meet the requirement in (a), commercial operators shall use:
 - (1) flight time specification schemes contained in certification specifications published by the Agency; or
 - (2) individual flight time specification schemes, subject to prior approval by the competent authority, as prescribed in Part AR.
- (c) When applying for the approval of an individual flight time specification scheme, the operator shall demonstrate to the competent authority compliance with the Basic Regulation and the associated implementing rules.
 When doing so, the operator shall provide the competent authority with a full description of the individual flight time specification scheme, including any revisions to manuals or procedures that may be relevant, as well as any documentation necessary. Such documentation shall:
 - (1) take into account operational experience and best practices;
 - (2) address all applicable flight and duty time limitations and rest requirements;
 - (3) include a detailed description of the fatigue risk management system;
 - (4) include a risk assessment;
 - (5) be supported by an assessment based on current scientific principles and knowledge; and
 - (6) include details regarding consultation with the affected groups.
- (d) The individual flight time specification scheme described in (c) shall contain a roster system for all crew members, including the following elements:
 - (1) Flight Duty Periods (FDP) in accordance with OR.OPS.035.FTL and OR.OPS.335.FTL;
 - (2) Flight times and duty periods in accordance with OR.OPS.040.FTL;
 - (3) Positioning duty in accordance with OR.OPS.045, where applicable to the type of operation;
 - (4) Standby duty in accordance with OR.OPS.050.FTL and OR.OPS.350.FTL, where applicable to the type of operation; and
 - (5) Rest periods in accordance with OR.OPS.055.FTL and OR.OPS.355.FTL

OR.OPS.335.FTL Flight Duty Period (FDP)

Flight time specification schemes for commercial operators shall specify the following FDP elements, where applicable to the type of operation:

- (a) Maximum basic daily FDP;
- (b) Reductions of the maximum basic daily FDP dependent on the number of sectors flown;
- (c) Reductions of the maximum basic daily FDP when this maximum would start, end or encompass the Window of Circadian Low (WOCL);
- (d) Conditions for extensions of the maximum basic daily FDP, taking into account:

- (1) the number of sectors flown;
 - (2) FDPs within the WOCL;
 - (3) a maximum number of extensions for a consecutive number of days;
 - (4) increased pre- and post-flight minimum rest periods;
 - (5) periods off duty on ground during a single FDP;
 - (6) the minimum of in-flight break allocated to each crew member; and
 - (7) the augmentation of the basic flight crew
- (e) Conditions under which the FDP, flight times and duty periods may be exceeded or rest periods may be reduced by the pilot-in-command after consultation with all crew members, in the case of unforeseen circumstances in actual flight operations after the reporting time, and the procedures used to report these modifications;

OR.OPS.350.FTL Standby duty

- (a) Flight time specification schemes for commercial operators shall specify the following elements for standby duty, where applicable to the type of operation:
- (1) A determination of the maximum length of any standby duty;
 - (2) The relationship between standby duty and any assigned flight duty resulting from the standby duty, taking into account facilities available for the crew member to rest and other relevant factors;
 - (3) A determination of the rest period following standby duty which does not lead to assignment on a flight duty;
 - (4) How standby times are counted for the purposes of cumulative duty hours.
- (b) Where commercial operators assign crew members to standby duty, the following shall be considered, taking into account the type of operation:
- (1) Standby duty shall be rostered and the affected crew members shall be notified in advance;
 - (2) The start and end time of the standby duty shall be defined and the affected crew members shall be notified in advance;
 - (3) Aerodrome/operating site standby duty shall start from the crew member reporting at the designated normal report point and shall end as notified.

OR.OPS.355.FTL Rest periods

Flight time specification schemes for commercial operators shall specify the following rest elements, where applicable to the type of operation:

- (a) Minimum rest periods in relation to the preceding duty period, which must be provided before undertaking a flight duty period starting either from home base or away from home base;
- (b) Sleep opportunity before undertaking a flight duty period starting away from home base, depending on the preceding duty period;
- (c) Additional rest periods to compensate for the effects of time zone differences and extensions of the FDP;
- (d) Weekly recurrent extended recovery rest periods to compensate for cumulative fatigue.

Section IX – Security

OR.OPS.020.SEC Disruptive Passenger Behaviour

- (a) An operator engaged in the commercial air transportation of passengers shall:
- (1) develop a disruptive passenger policy and implement a process for managing the safety risks arising from disruptive passenger behaviour;

- (2) provide training and establish means and procedures, to enable its crew members to act in the most appropriate manner to minimise the consequences of disruptive passenger behaviour on flight safety.

OR.OPS.025.SEC Security programme and Security training

- (a) An operator of a complex motor-powered aircraft shall develop and implement a security programme. The security programme shall comply with the relevant requirements of the national civil aviation security programme of the competent authority in the State of the operator. Appropriate elements of the security programme shall be included in the operations manual. The operator shall ensure that crew members have knowledge of and competence in all relevant elements of the security programme.
- (b) A commercial operator or a non-commercial operator of complex motor-powered aircraft shall establish, maintain and implement a security training programme which:
 - (a) ensures that crew members act in the most appropriate manner to prevent acts of unlawful interference, and to minimise the consequences of such events should they occur;
 - (b) include security training programmes regarding disruptive passengers and acts of unlawful interference.

OR.OPS.030.SEC Aircraft search procedure checklist

- (a) An operator of complex motor-powered aircraft shall keep onboard a checklist containing the procedures to be followed in searching for a bomb or improvised explosive device (IED) in case of suspected sabotage, and for inspecting aircraft for concealed weapons, explosives or other dangerous devices when a well-founded suspicion exists that the aircraft may be the object of an act of unlawful interference.
- (b) The checklist shall be supported by procedures providing guidance on the appropriate course of action to be taken should a bomb or suspicious object be found and, if provided by the type-certificate holder, information on the least-risk bomb location specific to the aircraft.

OR.OPS.035.SEC Cockpit security – Aeroplanes

- (a) In all complex motor-powered aeroplanes and in all aeroplanes used in commercial operations, which are equipped with a cockpit door, this door shall be capable of being locked, and means shall be provided by which the cabin crew can discreetly notify the flight crew in the event of suspicious activity or security breaches in the cabin.
- (b) All passenger carrying aeroplanes of a maximum certificated take-off mass exceeding 45 500 kg or with a maximum passenger seating configuration of more than 60 engaged in the commercial transportation of passengers, shall be equipped with an approved cockpit door that is capable of being locked and unlocked from either pilot's station and designed to meet the applicable airworthiness requirements.
- (c) The cockpit door referred to in subparagraph (b) above shall:
 - (1) be closed and locked from the time all external doors are closed following embarkation until any such door is opened for disembarkation, except when necessary to permit access and egress by authorised persons; and
 - (2) means shall be provided for monitoring from either pilot's station the entire door area outside the cockpit to identify persons requesting entry and to detect suspicious behaviour or potential threat.

OR.OPS.040.SEC Cockpit security – Helicopters

If installed, the cockpit door on a helicopter operated for the purpose of carrying passengers shall be capable of being locked from within the cockpit in order to prevent unauthorised access.

IV. DRAFT DECISION CS TO PART – ORGANISATION REQUIREMENTS (PART-OR)**Certification Specifications (CS) to Part-OR****Subpart OPS – Air Operations****Section VIII – Flight and duty time limitations and rest requirements****CS FTL****CS FTL.1 Basic Certification Specification for Commercial Air Transport (Aeroplanes)****CS FTL.1.100 Applicability**

CS FTL.1 constitutes a flight time specification scheme in accordance with OR.OPS.330.FTL and is applicable for commercial air transport operations (aeroplanes) in conjunction with the applicable requirements for flight and duty time limitations and rest requirements.

CS FTL.1.135 Maximum daily Flight Duty Period (FDP)

(a) Maximum daily FDP without the use of extensions.

The maximum basic daily FDP shall be 13 hours which shall be reduced by 30 minutes for each sector from the third sector onwards and be further reduced (up to a maximum of two hours) when the WOCL is encroached in accordance with the limits specified in the table below:

Start of FDP	1 Sector	2 Sectors	3 Sectors	4 Sectors	5 Sectors or more
0600 - 1259	13:00	13:00	12:30	12:00	11:30
1300 - 1329	12:55	12:55	12:25	11:55	11:25
1330 - 1359	12:40	12:40	12:10	11:40	10:50
1400 - 1429	12:25	12:25	11:55	11:25	09:55
1430 - 1459	12:10	12:10	11:40	11:10	10:40
1500 - 1529	11:55	11:55	11:25	10:55	10:25
1530 - 1559	11:40	11:40	11:10	10:40	10:10
1600 - 1629	11:25	11:25	10:55	10:25	09:55
1630 - 1659	11:10	11:10	10:40	10:10	09:40
1700 - 0359	11:00	11:00	10:30	10:00	09:30
0400 - 0429	11:15	11:15	10:45	10:15	09:45
0430 - 0459	11:45	11:45	11:15	10:45	10:15
0500 - 0529	12:15	12:15	11:45	11:15	10:45
0530 - 0559	12:45	12:45	12:15	11:45	11:15

(b) Maximum daily FDP with the use of extensions.

The maximum daily FDP can be extended by up to one hour and this extension is limited to a maximum of 5 sectors. The extension is further reduced to a maximum of four sectors when the WOCL is encroached and to a maximum of two sectors when FDP encroaches the WOCL by more than two hours with the limits specified in table below:

Start of FDP	1 Sector	2 Sectors	3 Sectors	4 Sectors	5 Sectors	6 Sectors or more
0600 - 1259	14:00	14:00	13:30	13:00	12:30	Not Allowed
1300 - 1329	13:55	13:55	13:25	12:55	12:25	Not Allowed
1330 - 1359	13:40	13:40	13:10	12:40	Not Allowed	Not Allowed
1400 - 1429	13:25	13:25	12:55	12:25	Not Allowed	Not Allowed
1430 - 1459	13:10	13:10	12:40	12:10	Not Allowed	Not Allowed
1500 - 1529	12:55	12:55	12:25	11:55	Not Allowed	Not Allowed
1530 - 1559	12:40	12:40	12:10	11:40	Not Allowed	Not Allowed
1600 - 1629	12:25	12:25	11:55	11:25	Not Allowed	Not Allowed
1630 - 1659	12:10	12:10	11:40	11:10	Not Allowed	Not Allowed
1700 - 2159	12:00	12:00	Not Allowed	Not Allowed	Not Allowed	Not Allowed
2200 - 0359	11:45	11:45	Not Allowed	Not Allowed	Not Allowed	Not Allowed
0400 - 0459	11:45	11:45	11:15	10:45	Not allowed	Not allowed
0500 - 0529	13:15	13:15	12:45	12:15	Not Allowed	Not Allowed
0530 - 0559	13:45	13:45	13:15	12:45	Not Allowed	Not Allowed

The maximum number of times that extensions can be used is two in any seven consecutive days.

Where an FDP is planned to use an extension, the minimum pre flight and post flight rest periods are increased by two hours, or post flight rest only is increased by four hours. Where the extensions are used for consecutive FDPs the pre and post rest between the two operations run consecutively.

(c) FDP with different reporting time for flight crew and cabin crew

In cases where cabin crew require more time than the flight crew for their pre-flight briefing for the same flight or series of flights, the FDP of the cabin crew may be extended by the difference in reporting time between the cabin crew and the flight crew, as long as the difference does not exceed 60 minutes.

CS FTL.1.140 Flight times and duty periods

- (a) The total duty periods to which a crew member is assigned shall not exceed:
 - (1) 60 duty hours in any seven consecutive days;
 - (2) 190 duty hours in any 28 consecutive days.
- (b) The total flight time of the flights on which an individual crew member is assigned as an operating crew member shall not exceed:
 - (1) 100 flight hours in any 28 consecutive days;
 - (2) 900 flight hours in any 12 consecutive calendar months.
- (c) The total duty periods and total flight times referred to in (a) and (b) above should be spread as evenly as practicable throughout their respective periods.

CS FTL.1.155 Minimum Rest Period

- (a) Minimum rest period at home base.
The minimum rest period provided before undertaking a flight duty period starting at home base is at least as long as the preceding duty period, or 12 hours, whichever is the greater.
- (b) Minimum rest period away from home base.
The minimum rest period provided before undertaking a flight duty period starting away from home base is at least as long as the preceding duty period, or 10 hours, whichever is the greater. The minimum rest period away from home base includes an 8 hour sleep opportunity taking account of travelling and other physiological needs
- (c) Recurrent extended recovery rest periods
The minimum recurrent extended recovery rest period to compensate for cumulative fatigue is a 36-hour period including two local nights, such that there are never more than 168 hours between the end of one recurrent extended recovery rest period and the start of the next.

CS FTL.1.160 Unforeseen circumstances in actual flight operations – discretion by the pilot in command

- (a) The conditions for the modification of the limits on flight duty, duty and rest periods by the pilot in command in the case of unforeseen circumstances in actual flight operations, and after the reporting time, should comply with the following:
 - (1) The maximum basic daily FDP which results after applying CS FTL.1.135 (b) and (c) may not be increased by more than two hours unless the flight crew has been augmented, in which case the maximum flight duty period may be increased by not more than 3 hours;
 - (2) The maximum basic daily FDP which results after applying CS FTL.1.135 (b), (c) and (d) may not be increased by more than one hour unless the flight crew has been augmented, in which case the maximum flight duty period may be increased by not more than 2 hours;
 - (3) If on the final sector within a FDP unforeseen circumstances occur after take off that will result in the permitted increase being exceeded, the flight may continue to the planned destination or alternate;
 - (4) In the event of such circumstances, the rest period following the FDP may be reduced but never below the minimum rest period defined in CS FTL.1.155 (b).
- (b) The pilot in command should consult all crew members before deciding these modifications.

V. DRAFT DECISION AMC AND GM TO PART – ORGANISATION REQUIREMENTS (PART-OR)

Acceptable Means of Compliance (AMC) and Guidance material (GM) to Part-OR

Subpart OPS – Air operations

Section I – Operator requirements

AMC OR.OPS.100.GEN(b) Operator responsibilities

OPERATIONAL CONTROL

1. The organisation and methods established to exercise operational control should be included in the operations manual and should cover at least a description of responsibilities concerning the initiation, continuation, termination or diversion of each flight.

GM OR.OPS.100.GEN(b) Operator responsibilities

OPERATIONAL CONTROL

- 1 Operational control means the exercise by the operator, in the interest of safety, of responsibility for the initiation, continuation, termination or diversion of a flight.
- 2 This does not imply a requirement for licensed flight dispatchers or a full flight watch system.
- 3 If an operator employs Flight Operations Officers in conjunction with a method of operational control, training for these personnel should be based on relevant parts of ICAO Doc 7192 D3. This training should be described in the operations manual.

GM OR.OPS.100.GEN(d) Operator responsibilities

DEVELOPMENT OF STANDARD OPERATING PROCEDURES (SOP)

1 General

Risk assessment is an element in the operator's risk management and as such part of its management system. Risk assessment should provide a basis for decision-making in processes like:

- Strategic option or priority setting;
- Planning;
- Project management;
- Performing activities;
- Prioritising of activities in operations; and
- Organisational change.

Two categories of decisions related to risk may be relevant in this context:

- Business case decisions where safety risk is one of several other factors. In such cases, safety is weighed against other requirements such as functionality and profit.
- Decisions on solutions to specific risk problems, e.g. choice of risk reducing measures for one specific solution or a decision to choose between alternative solutions.

This guidance material is intended to provide basic guidelines to operators helping them to develop SOPs based on a safety risk assessment as part of managing risk as called for by the MS requirements. It only addresses the principles and provides one very basic method and some skeleton forms to help operators with little or no previous

experience in such work to get started. It is not a means of compliance as such. As an operator gathers experience, the method should be developed or changed to suite individual needs.

Assessments of safety risks are also required for other purposes, and the principles should be similar for all applications. However, these guidelines are especially adapted and simplified for the purpose mentioned above. Examples of other applications for assessment of safety risk in management processes are:

- Establishment of technical, organisational and operational risk control measures;
- Establishment of emergency response measures; and
- Risk management of technical, organisational and operational changes.

The result of the development process of an SOP should be one safe standard operating procedure for a certain type of operation, accompanied by one matching risk assessment providing evidence of the development process and the considerations and the measures taken to ensure that the risk of the operation will be acceptable. This material mainly gives guidance to the risk assessment part of the process and the interaction between the two. When applying to the competent authority for alternative means of compliance including a SOP, the risk assessment should be enclosed to document the development process.

A similar process as described here may be employed if organisations or operators intend to develop "Codes of Practice" that could be published and made available for other operators as best industry practices.

2 Scope

This guidance material only addresses the assessment of safety risks. It does not consider other kinds of risk, such as economic risk or opportunities, other than implicit in that the purpose of the operation normally is to gain a benefit such as to make profit. The safest option would of course in most cases be not to perform an operation at all, but in this context it is not considered as a relevant option if the operation can be performed with an acceptable risk.

Risk assessment consists of planning and completion of the risk analysis as well as of risk evaluation. Risk assessment includes identifying hazards and accidental events, analysing and evaluating risk and identifying measures that could eliminate or reduce the risk. This guidance material also indicates how the risk assessment of SOPs should be documented.

This risk assessment is one part of an operator's safety and risk management. Other parts of these management processes will influence the planning and completion of a risk assessment and are, when relevant, mentioned here. These parts are communication and consultation, the context/framework, risk treatment, monitoring and review.

3 Definitions

- a. *Accidental event*: An event that might cause injury to or loss of life or damage to or loss of property.

Note 1: Property may include health, material, functions, public values and reputation.

Note 2: An accidental event may be intentional (security related) or unintentional (safety related).

Note 3: The term "hazardous event" is often used simultaneously.

- b. *Barrier*: Something that can either prevent an event from taking place or protect against its consequences.

Note: Barrier may also be referred to as a control or treatment measure.

- c. *Consequence*: Possible outcome or impact of an event.

Note 1: There can be more than one consequence from one event.

Note 2: Only negative consequences are considered in this context

- Note 3: Consequences can be expressed qualitatively or quantitatively.
- d. *Frequency*: A measure of the number of occurrences per unit of time.
- e. *Hazard*: A source (action or condition) that could cause an accidental event.
Note: Hazard is also often described as a source that could cause harm.
- f. *Likelihood*: Chance of something happening.
Note: In this guidance material likelihood is used as a general term. The equivalent but more precise terms probability and frequency are often used depending on the context.
- g. *Probability*: Extent to which an accidental event is likely to occur.
Note 1: Normally expressed as a number between 0 and 1.
Note 2: Frequency rather than "probability" may be used in describing risk.
Note 3: Degrees of belief about probability can be chosen as classes or ranks, such as
- rare/unlikely/moderately likely/almost certain, or
 - incredible/improbable/remote/occasional/probable/frequent.
- h. *Residual risk*: Risk remaining after implementation of risk treatment.
- i. *Risk/Safety risk*: Expression for the combination of the probability of an accidental event and its consequence.
- j. *Risk acceptance criteria*: Criteria that form the basis for a decision on acceptable risk.
Note 1: Risk acceptance criteria may be expressed qualitatively or quantitatively.
Note 2: Acceptable risk is the risk that in the given circumstances is acceptable according to current values in society and the organisation.
- k. *Risk analysis*: Systematic process to understand the nature of and to deduce the level of safety risk. The risk analysis involves identifying accidental events and their causes/contributing factors and consequences.
Note: Provides the basis for risk evaluation and decisions about risk treatment.
- l. *Risk assessment*: The overall process of planning, hazard identification, risk analysis and risk evaluation.
- m. *Risk evaluation*: Procedure based on the risk assessment to determine whether acceptable risk has been achieved.
Note 1: The process includes identification and documentation of risk reducing measures and recommendations.
Note 2: Risk evaluation assists in decisions about risk treatment.
- n. *Risk identification*: The process of determining what, where, when, why and how something could happen.
- o. *Risk management process*: The systematic application of management policies, procedures and practices to the tasks of communicating, establishing the context, identifying, analysing, evaluating, treating, monitoring and reviewing risk.)
- p. *Risk reduction*: Actions taken to lessen the likelihood, negative consequences, or both, associated with a safety risk.
- q. *Risk treatment*: Process of selection and implementation of measures to modify risk.
Note 1: The term 'risk treatment' is sometimes used for the measures themselves.
Note 2: Risk treatment measures can include avoiding, modifying, sharing or retaining risk.

- r. *Safety*: Is the state in which the risk of harm to persons or property damage is reduced to, and maintained at or below, an acceptable level through a continuing process of hazard identification and risk management.
- s. *Stakeholders*: Those persons and organisations who may affect, be affected by, or perceive themselves to be affected by a decision, activity or risk.
- t. *Threat*: Something that can release a hazard.

4 Communication and consultation

Good communication with internal and external interested parties is essential when performing risk assessments to help ensure access to all relevant information and assist in ensuring buy-in from all relevant parties affected by the assessment's conclusions and recommendations. Communication and consultation should take place at all relevant stages of the process.

5 Establishing the context

5.1 General

The need to establish a SOP normally stems from a desire to carry out business. This might be either directly as a commercial flight or as a flight in preparation for such flight, such as technical test flights and training flights. Sometimes flights are performed without any mercantile goal but to obtain other benefits, such as pleasure flights for a pilot.

Most flights might be called "standard flights", meaning they are performed repeatedly under a predetermined set of conditions. Such flights are performed according to SOPs and are promoted and sold as part of an operator's regular business.

Experience has shown that operator's personnel is sometimes challenged to determine if an activity requested by a customer could be performed as a standard flight, i.e. if the task can be performed within the predetermined set of conditions that are the basis for the existing SOPs. Coupled with a system of pre-authorisation or delegation of authorisation, this problem could potentially put pressure on the crew to conduct an activity for which no SOP exists, for which it is not qualified or does not have the right equipment. The operator should not commit itself to carry out an activity until it is determined that the flight can be performed safely and in accordance with the operator's privileges to avoid undue commercial pressure on the crew.

If a requested activity does not fall within the predetermined set of conditions of an existing SOP, a new procedure should be developed. If it is a single flight or just few flights, such flights may be considered "non-standard flights". Non-standard flights could be risk assessed as a single case, but it is generally advisable to establish a new procedure for that type of flight.

It should be noted that often the operator's approvals are limited by the SOPs that have been approved by or notified to the competent authority. In such cases no changes or additions to the set of SOPs are allowed without prior arrangement with that authority.

The method described in here may be used for development of SOPs for "standard flights" and procedures for "non-standard flights".

Often a new operation is in many aspects similar to operations for which the operator already has established SOPs. In such cases, only the elements of the operation that are different need a full assessment. It is however important to make sure that all aspects of the changes are included. This includes particularly an assessment whether the changes affect any of the standard elements and the interface between new and old elements.

5.2 External and internal context

The external and internal context as well as stakeholder context should be established and taken into consideration particularly with respect to how they relate to the operation in question and influence the planning and completion of risk assessments.

The external context is associated with the environment where the operation takes place. The external context includes factors that the operator should consider when developing the risk criteria such as:

- Legal and regulatory requirements;
- Industry best practices;
- External interested parties needs and perceptions;
- Company reputation; and
- Cultural and social values.

The internal context is the internal environment that will be involved with or could affect the operation. These may be factors such as:

- Strategies, objectives and goals;
- Culture, ethical guidelines, common values, etc.;
- Organisation; and
- Available resources.

Available resources are relevant with respect to capacity and competence:

- for the risk assessment process (see below); and
- for performing the operation, i.e. available to be considered for use in the SOPs (aircraft, equipment, personnel, experience, finances, etc.).

5.2.1 Stakeholders/Interested parties

External stakeholders may be persons living in the vicinity of where the operation takes place and that could be affected by noise and flights at low altitude (frightened) or even more directly if the operation involves dropping of objects/spraying or certain helicopter operations like heli logging, power line maintenance, etc. In addition to posing a safety risk to persons on the ground, such operations might also pose a risk to the operator's reputation if, e.g. the public does not feel it has been properly informed or warned beforehand. The latter part is not subject to further discussion in this guidance material.

5.2.2. Regulatory requirements

The operator should determine the regulatory requirements applicable for a particular operation as well as the necessary privileges.

Compliance with the relevant rules and regulations must be assured and an assessment should be made if additional privileges are required before the operation can be started.

Regulations are generally developed to control or mitigate certain safety risks that stem from specific or general hazards. Such hazards controlled by regulations don't need to be further developed in the operator's risk assessment if the assessment determines that the regulatory treatment is sufficient. If the regulation is not specific, has several options or directly calls for a risk assessment, the hazard obviously should be assessed and the appropriate treatment implemented.

5.2.3. Industry standard/best practice

If an industry best practice exists for a particular type of operation, its applicability and suitability should be evaluated by the operator. This evaluation could provide valuable input to the SOP and risk assessment. Some industry best practices (code of practices/COP) are developed specifically to function as basis for SOPs and should have associated hazard lists and proposals for treatment of relevant safety risks. Operators developing SOPs based on such industry standard/best practice should still perform their own risk assessment to ensure the COP is suitable and customised to their own operation.

5.2.4. Operator's resources

The operator's current aircraft, equipment and staff are normally part of the risk assessment when planning an operation as most changes in this field are often time-consuming and costly. One outcome of an operational risk assessment may be that the operator does not possess the right equipment or personnel for the activity. If this is the case for a single mission or missions on short notice, it would mean that the operator is unable to perform the activity.

If the operator however plans to expand into new types of operations, a recommendation to acquire different aircraft/equipment or employ or train staff could be a risk treatment measure to enable the operator to perform the new operation by making the risk acceptable. In such cases the current aircraft/equipment/staff would not be part of the risk assessment, but the delivery and certification/approval times for new equipment or time to employ or train staff might be as well as the changes required in the organisation to accommodate for example the more advanced and complex technology.

5.3. Risk acceptance criteria

As part of the overall management system, safety and risk strategies and goals should have been established. For the particular assessments, risk acceptance criteria should be established based on these strategies and goals. Furthermore, management responsibility on the acceptability of risks should be defined. Minor risks may be accepted by line managers, whereas more significant risks may need to be accepted by senior management. The risk acceptance criteria should help in decision making with respect to risk acceptance. The established criteria influence the planning and completion of a risk assessment, e.g. the selection of method as the assessment results will be compared with the acceptance criteria during risk evaluation. Risk acceptance criteria may be fixed targets or refer to accepted methods, standards and norms, such as regulations, CSs, AMCs and guidance material. The maximum acceptable risk is in most cases directly or indirectly influenced or determined by regulations which either specify a target (e.g. for safe forced landing it requires a reasonable expectancy of no injuries to persons in the aircraft or on the surface) or an acceptable means on how to achieve the minimum required safety level.

Safety risk acceptance criteria should at least address, in the following order of priority:

- third parties' life, health and property;
- passengers and operational personnel;
- crew members;
- the natural environment; and
- corporate well-being.

As low as reasonably practicable (ALARP) is a risk acceptance criterion that is not exclusively based on fixed risk level targets but is a systematic and documented process to reduce safety risk below the maximum allowed by requirements, standards or when the risk is otherwise considered unacceptable. For ALARP to be an acceptable method of establishing risk acceptance criteria, an adequate risk management system is required to form a solid basis for the decisions made when evaluating the risk.

ALARP means that the safety risk is managed to a level as low as reasonably practical whilst at all times staying below the maximum allowed risk. It also implies that the risk level should be monitored and ALARP considerations applied to any new identified treatment measures to contribute to a further reduction in the risk level. Increase in the risk level at any time should be considered unacceptable, even if the safety risk is below the maximum allowed. (An exception might be for very short periods when the reason for the risk increase is known and measures are immediately implemented to correct the situation.)

All identified treatment measures should be implemented unless it can be shown that the cost or disadvantages of the measure is grossly disproportionate to the safety risk reduction potential. It should be noted that ALARP is different from basic cost-benefit

considerations and may not be implemented using just these as ALARP in this context addresses safety risk.

Related responsibilities and decisions should be documented to justify why an identified risk reduction measure has not been implemented and that the retained risk is still ALARP without the implementation of such measures.

Another method for establishing risk acceptance criteria is to compare the risk with ongoing safe operations. The risk acceptance criteria would in such a case be to ensure that new operations are at least as safe as the operator's ongoing operations.

6 Risk Assessment

6.1 Planning

6.1.1 Establishment, description and purpose

The risk assessment should be initiated in time for the results to be available before the decisions regarding the operation have to be made. The person responsible for performing the risk assessment should be made aware of the background, objectives, conditions and the context for the assessment and of the risk acceptance criteria.

The following should be documented:

- Background;
- Purpose; and
- Stakeholders and their potential interest.

6.1.2 Organisation

A work plan should be established.

The risk assessment should be performed by a working group that includes suitable subject matter experts but may exceptionally be performed by one individual if the extent and complexity of the task allows. Particularly for 'one-off' assessments, personnel that will be involved in the operation should participate in the working group. Considerations should be given to the need for independence between the person(s) performing the risk assessment and the persons deciding if the risk is acceptable.

The working group should have participation to ensure availability of:

- knowledge of and experience with the use of relevant risk analysis methods;
- knowledge of the operation and associated hazards;
- knowledge of the relationship between the operation and relevant internal and external factors; and
- familiarity with all relevant disciplines associated with the operation.

It should be determined to what extent and how other stakeholders should be involved before the work starts. This should particularly consider the safety risk exposure of the stakeholder as well as practical considerations such as their availability. All working group meetings should be minuted.

6.1.3 Selection of methods and data basis

The method proposed here is a basic analysis to determine, record, analyse and treat safety risk. This method should be complemented by other methods when the analysis in hand so dictates. Methods to determine causes and likelihood (e.g. fault tree analysis; failure mode, effects, and criticality analysis (FMECA); influence diagrams) as well as consequences (e.g. event tree analysis) of hazards may be useful.

Data used should be described, such as:

- Regulatory requirements;
- Existing SOPs and risk assessments;
- Operator risk register;

- Operator analyses including occurrences and safety concerns raised within the organisation;
- AIB investigations;
- ESSI results;
- Authority inspection reports;
- Expert judgment;
- Simulations;
- Codes of Practice; and
- Industry standards.

Data sources should be assessed for suitability such as relevance, currency, representative amount of data, underestimation and accuracy.

An operator should ensure that its own experience is available in a collated and systematized form. This 'databank' should contain information from investigation of internal occurrences and accidents, reported deviations and proposals for improvement as well as experience collected from monitoring of normal operations. Whenever possible, it should be augmented with similar data exchanged with other operators. Analysis of relevant experience data should provide input to a risk assessment.

Every operator is expected to establish and maintain a register of significant hazards and their treatment as part of its safety management system. The risk register should be a valuable source of information on the various hazards that are immanent in a particular operation and how these have been addressed in the past and are currently treated in existing operations.

The risk register should reflect that different types of operations (e.g. commercial air transport and commercial operations other than commercial air transport) may be exposed to different hazards. It may also reflect that different treatment methods could be required and that different risk levels may be acceptable.

6.1.4 System description

The operation to be analysed should be described. The major part of the detailed description may be by reference to a procedure/SOP.

The risk assessment should contain a detailed description of what has been analysed and which factors have and have not been assessed such as:

- Type of the operation;
- Type(s) of aircraft;
- Phases of the operation;
- Environmental conditions (visibility, wind, turbulence, contrast, light, elevation, etc. unless evident from the SOP);
- Existing barriers and available emergency preparedness;
- Annual usage/exposure.

A risk assessment can build often upon parts of existing risk assessments. For example, for an assessment of a new type of operation conducted in a hostile environment, the operator might already have a risk assessment for flights over hostile environment in general. What would be required for a complete new risk assessment is the assessment of new aspects of the operation and the combination with the relevant existing one(s). In such cases particular attention should be paid to the intersecting or overlapping areas to ensure that no gaps exist or that the combination does not give rise to new hazards.

SOP

The procedure elements and sequence should be outlined and detailed as far as possible based on existing requirements and previous experience. Known controls, safety measures and precautions should be included in the procedure.

6.2 Risk analysis

6.2.1 Hazard identification

Hazards should be identified as part of the risk analysis. The purpose of hazard identification is to ensure that representative and relevant accidental events that might occur during the operation are described.

Hazard identification should:

- Establish a list of all hazards relevant to the operation and the causes/threats that could release them;
- Describe accidental events based on the hazard information and specify the place, time, extent, nature, etc. of the event as required; and
- Establish a systematic overview of possible accidental events for the operation.

Where information on accidental events for the type of operation is available directly from databases (e.g. from reported accidents and occurrences or from results of analyses already entered in the risk register), it may be included in the list directly. However, direct use of reported accidental events may lead to unintended gaps in the list of accidental events as hazards that are contributing factors to one accidental event may under other circumstances contribute to a different accidental event. It must also be noted that the absence of past accidents does not mean absence of risk. It is therefore important to identify the underlying hazard. One way of doing it is to group similar events to find the underlying hazards.

The level of detail in the specification of accidental events should be adequate for the SOP/procedure to be developed. In some cases, major groups of hazards/events may be adequate (e.g. flight over a hostile environment, forced landing, deviation from intended flight path, flight at low altitude), in other cases it may be necessary to be more specific (e.g. single engine failure, tail rotor drive failure, loss of visual references, altitude judgement error, turbulence, etc.).

The procedure/SOP should be systematically examined to determine hazards and potential accidental events that could occur during operations.

Aids to the identification of accidental events may be:

- Other risk assessments;
- Occurrence and accident reports;
- Audits/deviation reports;
- Internal reviews;
- Monitoring results including flight data monitoring information;
- Prognoses;
- Threat assessments; and
- Standard checklists (origin should be identified if used and the lists assessed and revised as required to suit the purpose).

Examples of methods that may be used for hazard and risk identification are Preliminary Hazard Analysis (PHA), Hazard Identification (HAZID) and brainstorming.

If a hazard or accidental event is identified but not analysed further for probability or consequence, the reason should be documented (e.g. too insignificant consequence, too unlikely, outside the operator's control, not relevant for the assessment, etc.).

In this context, it is not so much of importance, and sometimes not even possible, to distinguish exactly between hazards and accidental events. For the purpose of risk assessing procedures, accidental events are the tangible objects of the analysis. Hazards and threats are the sources in the background that could cause/trigger/escalate accidental events and that influence the likelihood of events.

SOP

No activity.

6.2.2 Analysis of causes/contributing factors and likelihood

The main purpose of this analysis is to establish the likelihood for each accidental event.

Each accidental event should be analysed to establish possible causes/contributing factors. Causes/contributing factors should then be analysed to determine likelihood.

The causal analysis should normally be of a descriptive (qualitative) nature but where relevant calculations (quantitative) should be applied. A qualitative analysis describes the potential hazards and threats and the chains of events that could lead to the accidental events. Quantitative analysis calculates the probability or frequency of the accidental events.

In the causal analysis of each accidental event, human and organisational factors should always be considered for their possible contributing effects. It is normally necessary to consider direct causes ("unsafe acts"), workplace factors and organisational factors ("error provoking or latent conditions").

The effects of existing likelihood-reducing factors and barriers that influence the chain of events should be considered and listed in the risk analysis sheet such as:

- Certification requirements;
- Maintenance procedures;
- Existing normal and abnormal procedures;
- Technical measures/equipment;
- Training; and
- Other human and organisational factors.

Likelihood may be expressed using terminology such as "very low, low, medium, high and very high". In such cases the terms should be explained to indicate their meaning. For example, the meaning of each term could be expressed in words and/or numbers/ranges.

Causal analysis should be done to the level of detail necessary to establish relevant likelihoods.

Examples of methods that may be used for causal and likelihood analysis are Fault tree analysis, FMECA, influence diagrams and brainstorming.

SOP

Existing likelihood-reducing factors and barriers that influence the chain of events are those that are already described in the SOP or other relevant documentation (OM, FM, etc.). As the risk assessment progresses it is possible that there will be an iterative process where new factors and barriers could be found during analysis. These should then be added to the procedure and included in the analysis.

6.2.3 Analysis of consequences

Consequences of all accidental events should be analysed. The analysis should consider immediate consequences and consequences that only become apparent afterwards such as effects on the natural and work environment (e.g. noise and vibration).

Consequences could be grouped such as loss or damage of life/health, environment, material values/assets, functions and reputation.

The consequence analysis should normally be of a descriptive (qualitative) nature but where relevant calculations (quantitative) should be applied. A qualitative analysis describes the chains of events that could follow from the accidental events and the possible consequences. Quantitative analysis could calculate the likelihood and extent of damage that could be caused by the accidental event.

In the consequence analysis of each accidental event, human and organisational factors should always be considered for their possible contributing effects.

The effects of existing consequence reducing factors/barriers that influences the consequence itself or the consequence chain should be considered such as:

- Certification requirements (e.g. fire protection);
- Existing abnormal and emergency procedures;
- Secondary safety measures (e.g. crashworthiness, personal protective equipment);
- Technical measures/equipment;
- Training;
- Human and organisational factors; and
- Emergency preparedness.

Existing in this context means that they are already part of the operator's management system or built into/part of the aircraft and equipment and included in the SOP description.

Consequences may be expressed using terminology like "very small, small, medium, large and very large". In such cases the terms should be explained to indicate their meaning. For example, the meaning of each term could be expressed in words and/or numbers/ranges.

Consequence analysis should be done to the level of detail necessary to establish relevant consequences.

Examples of methods that may be used for consequence analysis are event tree analysis, structured "what-if", checklists and brainstorming.

SOP

Existing consequence factors and barriers that influence the chain of events are those that are already described in the SOP or other relevant documentation (OM, FM, etc.). As the risk assessment progresses it is possible that there will be an iterative process where new factors and barriers could be found during analysis. These should then be added to the procedure and included in the analysis.

6.2.4 Risk description

The risk should be described based on the results of the causal and consequence analysis.

The risk should be expressed as a combination of the consequence and the associated likelihood. If an accidental event has more than one consequence, the risk may be expressed as a combination of the consequence and associated likelihood for each of the consequences.

The risk description should form a relevant basis for risk evaluation and treating risk.

Depending on the analysis method and the risk acceptance criteria, the description could be qualitative and/or quantitative. The level of detail will depend on the level of detail in the causal and consequence analysis.

Uncertainties in the risk description should be presented and reviewed. If the analysis is based on critical assumptions or other conditions that could affect the risk, it should be identified and presented (if necessary in the form of a sensitivity analysis).

Examples of a method that may be used for risk description is a risk matrix.

SOP

The SOP should contain general statements about the safety risk involved and the management of the risk.

6.3 Risk evaluation

6.3.1 Comparison with risk acceptance criteria

The results of the risk analysis should be compared to the criteria for acceptable risk.

The comparison description should be in such a format that it can be used by decision makers and stakeholders.

If the risk acceptance criteria require the optimisation, for example with the ALARP principle, the comparison (iterative process) should describe the optimisation process. If the risk is compared to criteria that are not absolute or may be exempted, it should be elaborated in the description.

SOP

No activity.

6.3.2 Identification of risk reduction measures and their effect

The risk evaluation forms the basis for deciding on new mitigating measures and to assess the risk reduction effects of these measures.

Risk reducing measures should be identified for accidental events with an unacceptable risk and for accidental events where further risk reduction measures are feasible and reasonable. Identification of possible controls should be based on the hazards, chain of events and consequences described in the analysis. Controls that could eliminate the accidental event, likelihood-reducing measures and consequence-reducing controls should be identified. The controls could be related to human factors (e.g. training and competence), equipment or organisational factors (e.g. procedures).

Identification of risk reducing measures should be performed in a systematic way and should involve the relevant parties.

Risk reducing measures should be implemented based on the following priorities with respect to accident development:

- a. eliminate hazards and accidental events (e.g. fly around the hostile environment);
- b. reduce the probability of accidental events (e.g. use multi-engine instead of single-engine aircraft); and
- c. reduce the consequence of accidental events (e.g. use personal protective equipment).

The controls should be implemented in the following priority with respect to reliability:

- a. passive technical controls (e.g. system redundancy, firewall);
- b. active technical controls (e.g. automatic fire extinguishing system); and
- c. controls by procedure (e.g. use of hand fire extinguisher).

The risk reducing effect of the controls should be assessed with respect to:

- Functionality (does the measure influence the ability to perform the operation);
- Robustness (will the measure be effective under varying conditions and over time); and

- Possible other effects such as introduction of new risks.

SOP

Any new risk reducing measures should be included in the SOP/procedure as appropriate.

6.3.3 Conclusions and documentation

The risk assessment should contain conclusions. The conclusion(s) should be unambiguous, precise and robust to enable decision makers to perform the risk treatment.

Conclusions should address issues such as:

- The operation could be performed with an acceptable risk (the risk of performing the operation according to the SOP is acceptable);
- The operation complies with regulatory requirements;
- The operation is within the operators privileges; and
- The operator's aircraft and equipment are adequate for the operation.

The risk assessment should be in a written format. Any references to other documents should be specified. Any need for further work should be pointed out.

The risk assessment documentation should include or reference, as required, descriptions of:

The purpose of the risk assessment;

- The operation analysed;
- Involvement of staff and stakeholders;
- Preconditions, assumptions and simplifications;
- Context/framework for the operation;
- The assessment of who is affected by the operation and how;
- Data used;
- The analysis method;
- The hazard(s);
- The risk(s);
- The risk reduction measures;
- The risk evaluation; and
- The conclusions.

SOP

If the task includes developing a new procedure, it should also include proposals for:

- The detailed procedure/SOP (OM Part B);
- Detailed training requirements (OM Part D);
- Changes in general procedures (OM Part A);
- Changes in aircraft/equipment;
- Applications for approvals (new AMC, if required); and
- Risk register update.

If the task is to re-assess a procedure, it should include proposals for change in any of the above mentioned issues based on the conclusions of the risk assessment.

The risk assessment and the SOP should be considered a matched pair and changes in either of them would require reassessment of the other and the totality to cater for the changes and ensure continued consistency.

7 Monitoring and review

Monitoring and review should be planned as part of the risk management process. Responsibilities for monitoring and review of risk assessments and SOP should be defined.

7.1 General

Monitoring should be conducted through the operator's normal monitoring programmes such as occurrence and deviation reporting, monitoring of normal operations, flight data monitoring, proposals for improvement, etc.

SOPs and risk assessments should be subject to monitoring for the purpose of:

- analysing and learning from events, changes and trends;
- detecting changes in the internal and external context including changes to the risk itself;
- ensuring that the risk control and treatment measures are effective; and
- identify emerging risks.

Monitoring and review should include periodic review, inspections and audits of the procedures, risk assessments and the risk management process.

7.2 Changes

Changes that could invalidate a risk assessment's conclusions (or require a reassessment) are:

- significant changes in the preconditions and context;
- new knowledge of risks involved (experience from accidents and occurrences, reporting of safety concerns, research, better risk analysis methods, internal inspections, audits and reviews, hazard reporting, risk register update);
- significant changes in the data basis;
- significant organisational changes that could affect the assessment; and
- several smaller changes that together might constitute a significant change.

7.3 Improvements

As any amount of risk is considered to be negative in the context of safety risk, operators should in managing risk, and regardless of the risk acceptance criteria chosen, always strive for a continuous reduction in the risk level through monitoring, analysis and improvements.

AMC OR.OPS.100.GEN(f) Operator responsibilities

DANGEROUS GOODS TRAINING

- 1 An operator should establish and maintain personnel training programmes as required by the ICAO Technical Instructions (ICAO Doc 9284 - Technical Instructions for the Safe Transport of Dangerous Goods by Air).
- 2 Training programmes should commensurate with the responsibilities of personnel and only address awareness training for those operators not approved in accordance with OPS.SPA.DG.

Section II – Manuals, Logs and Records

AMC1 OR.OPS.015.MLR Operations Manual

GENERAL

- 1 The operations manual (OM) may be an integral part of the organisation manual as required by OR.GEN.200(a)(6).
- 2 The OM may vary in detail in accordance with the complexity of the operation and of the type and number of aircraft operated.
- 3 The operator should ensure that information taken from approved documents, and any amendment of such approved documentation, is correctly reflected in the OM. This does not prevent an operator from using more conservative data and procedures.

- 4 Crew members should be provided with a personal copy of the relevant sections of the OM pertaining to their duties. The crew members should be responsible to keep their copies up to date.
- 5 The OM may be issued in separate parts.
- 6 The OM or parts thereof may be presented in any form, including electronic form. In all cases, the accessibility, usability and reliability should be assured.
- 7 The OM should be such that:
 - a. all parts of the manual are consistent and compatible in form and content;
 - b. the manual can be readily amended; and
 - c. the content and amendment status of the manual is controlled and clearly indicated.
- 8 The OM should include a description of its amendment and revision process specifying:
 - a. the person(s) who may approve amendments or revisions;
 - b. the conditions for temporary revisions and/or immediate amendments or revision required in the interest of safety; and
 - c. the method by which operator personnel are advised of the changes.
- 9 If the OM contains all the relevant information of the aircraft, the AFM may not be carried.
- 10 The OM may be compiled in accordance with an industry code of practice.

AMC2 OR.OPS.015.MLR Operations Manual

CONTENTS

- 1 When compiling an OM, an operator may take advantage of the contents of other relevant documents. Material produced by the operator for the type-related part of the OM may be supplemented with or substituted by applicable parts of the AFM or, where such a document exists, by an Aircraft Operating Manual produced by the manufacturer of the aircraft.
- 2 In the case of non-commercial operations or commercial operations with non-complex motor-powered aircraft, a "Pilot Operating Handbook" (POH) or equivalent document may be used as type-related part of the OM, provided that the POH covers the normal and abnormal/emergency operating procedures.
- 3 For the route and aerodrome part of the OM, material produced by the operator may be supplemented with or substituted by applicable Route Guide material produced by a specialised company.
- 4 If an operator chooses to use material from another source in his OM he should either copy the applicable material and include it directly in the relevant part of the OM or the OM should contain a reference to the appropriate section of that applicable material.
- 5 If an operator chooses to make use of material from another source (e.g. a Route Manual producer, an aeroplane manufacturer or a training organisation) as explained above, this does not absolve the operator from the responsibility of verifying the applicability and suitability of this material. Any material received from an external source should be given its status by a statement in the OM.

AMC3 OR.OPS.015.MLR Operations Manual

CONTENTS - NON-COMMERCIAL OPERATIONS WITH COMPLEX MOTOR-POWERED AIRCRAFT

The OM should contain at least the following information:

- 1 Table of contents;
- 2 Amendment control status and list of effective pages or paragraphs, unless the entire manual is re-issued and the manual has an effective date on it;
- 3 Duties, responsibilities and succession of management and operating personnel;

- 4 Description of the management system;
- 5 Operational control system;
- 6 Flight time limitations;
- 7 Standard operating procedures (SOPs);
- 8 Weather limitations;
- 9 Emergency procedures;
- 10 Accidents/incidents consideration;
- 11 Security procedures;
- 12 Minimum Equipment List (MEL);
- 14 Personnel qualifications and training; and
- 15 Record-keeping.

AMC4 OR.OPS.015.MLR Operations Manual

STRUCTURE – COMMERCIAL OPERATIONS

The OM should contain the following parts:

- 1 Part A: General/Basic, comprising all non type-related operational policies, instructions and procedures;
- 2 Part B: Aircraft operating matters, comprising all type-related instructions and procedures, taking into account differences between types/classes, variants or individual aircraft used by the operator;
- 3 Part C:
 - a. Commercial air transport, comprising route/role/area and aerodrome/operating site instructions and information;
 - b. Commercial operations other than commercial air transport, comprising tasks and operating area instructions and information;
- 4 Part D: Training, comprising all training instructions for personnel.

AMC5 OR.OPS.015.MLR Operations Manual

CONTENTS – COMMERCIAL AIR TRANSPORT

The OM should contain the following relevant to the area and type of operation:

- A GENERAL/BASIC
- 0 ADMINISTRATION AND CONTROL OF OPERATIONS MANUAL
- 0.1 Introduction
 - 0.1.1 A statement that the manual complies with all applicable regulations and with the terms and conditions of the applicable air operator certificate.
 - 0.1.2 A statement that the manual contains operational instructions that are to be complied with by the relevant personnel.
 - 0.1.3 A list and brief description of the various parts, their contents, applicability and use.
 - 0.1.4 Explanations and definitions of terms and words needed for the use of the manual.
- 0.2 System of amendment and revision
 - 0.2.1 Details of the person(s) responsible for the issuance and insertion of amendments and revisions.
 - 0.2.2 A record of amendments and revisions with insertion dates and effective dates.
 - 0.2.3 A statement that handwritten amendments and revisions are not permitted except in situations requiring immediate amendment or revision in the interest of safety.

- 0.2.4 A description of the system for the annotation of pages or paragraphs and their effective dates.
- 0.2.5 A list of effective pages or paragraphs.
- 0.2.6 Annotation of changes (in the text and, as far as practicable, on charts and diagrams).
- 0.2.7 Temporary revisions.
- 0.2.8 A description of the distribution system for the manuals, amendments and revisions.

1 ORGANISATION AND RESPONSIBILITIES

- 1.1 Organisational structure. A description of the organisational structure including the general organigram and operations department organigram. The organigram should depict the relationship between the Operations Department and the other Departments of the operator. In particular, the subordination and reporting lines of all Divisions, Departments etc, which pertain to the safety of flight operations, should be shown.
- 1.2 Nominated post holders. The name of each nominated post holder responsible for flight operations, crew training and ground operations, as prescribed in OR.OPS.210.AOC. A description of their function and responsibilities should be included.
- 1.3 Responsibilities and duties of operations management personnel. A description of the duties, responsibilities and authority of operations management personnel pertaining to the safety of flight operations and the compliance with the applicable regulations.
- 1.4 Authority, duties and responsibilities of the pilot-in-command. A statement defining the authority, duties and responsibilities of the pilot-in-command.
- 1.5 Duties and responsibilities of crew members other than the pilot-in-command.

2 OPERATIONAL CONTROL AND SUPERVISION

- 2.1 Supervision of the operation by the operator. A description of the system for supervision of the operation by the operator (see OR.OPS.100.GEN(b)). This should show how the safety of flight operations and the qualifications of personnel are supervised. In particular, the procedures related to the following items should be described:
 - 2.1.1 Licence and qualification validity;
 - 2.1.2 Competence of operations personnel; and
 - 2.1.3 Control, analysis and storage of the required records.
- 2.2 System and responsibility for promulgation of additional operational instructions and information. A description of any system for promulgating information which may be of an operational nature, but which is supplementary to that in the Operations Manual. The applicability of this information and the responsibilities for its promulgation should be included.
- 2.3 Operational control. A description of the procedures and responsibilities necessary to exercise operational control with respect to flight safety.
- 2.5 Powers of the authority. A description of the powers of the competent authority and guidance to staff on how to facilitate inspections by authority personnel.

3 MANAGEMENT SYSTEM

A description of the management system including at least:

- a. Safety policy;
- b. The process for identifying safety hazards and for evaluating and managing the associated risks;
- c. Compliance Monitoring System; and
- d. Allocation of duties and responsibilities.

4 CREW COMPOSITION

- 4.1 Crew Composition. An explanation of the method for determining crew compositions taking account of the following:
 - 4.1.1 The type of aircraft being used;
 - 4.1.2 The area and type of operation being undertaken;
 - 4.1.3 The phase of the flight;
 - 4.1.4 The minimum crew requirement and flight duty period planned;
 - 4.1.5 Experience (total and on type), recency and qualification of the crew members; and
 - 4.1.6 The designation of the pilot in command and, if necessitated by the duration of the flight, the procedures for the relief of the pilot in command or other members of the flight crew. (see OR.OPS.115.FC)
 - 4.1.7 The designation of the senior cabin crew member and, if necessitated by the duration of the flight, the procedures for the relief of the senior cabin crew member and any other member of the cabin crew.
- 4.2 Designation of the pilot in command. The rules applicable to the designation of the pilot in command.
- 4.3 Flight crew incapacitation. Instructions on the succession of the pilot in command in the event of flight crew incapacitation.
- 4.4 Operation on more than one type. A statement indicating which aircrafts are considered as one type for the purpose of:
 - 4.4.1 Flight crew scheduling; and
 - 4.4.2 Cabin crew scheduling.
- 5 QUALIFICATION REQUIREMENTS
 - 5.1 A description of the required licence, rating(s), qualification/competency (e.g. for routes and aerodromes), experience, training, checking and recency for operations personnel to conduct their duties. Consideration should be given to the aircraft type, kind of operation and composition of the crew.
 - 5.2 Flight crew
 - 5.2.1 Pilot-in-command
 - 5.2.2 Pilot relieving the pilot-in-command
 - 5.2.3 Co-pilot
 - 5.2.4 Pilot under supervision
 - 5.2.5 System panel operator
 - 5.2.6 Operation on more than one type or variant
 - 5.3 Cabin crew
 - 5.3.1 Senior cabin crew member
 - 5.3.2 Cabin crew member
 - a. Required cabin crew member
 - b. Additional cabin crew member and cabin crew member during familiarisation flights
 - 5.2.3 Operation on more than one type or variant
 - 5.4 Training, checking and supervision personnel
 - 5.4.1 For flight crew
 - 5.4.2 For cabin crew
 - 5.5 Other operations personnel (including crew members other than flight crew)
- 6 CREW HEALTH PRECAUTIONS
 - 6.1 Crew health precautions. The relevant regulations and guidance to crew members concerning health including:
 - 6.1.1 Alcohol and other intoxicating liquids;

- 6.1.2 Narcotics;
- 6.1.3 Drugs;
- 6.1.4 Sleeping tablets;
- 6.1.5 Anti depressants;
- 6.1.6 Pharmaceutical preparations;
- 6.1.7 Immunisation;
- 6.1.8 Deep diving;
- 6.1.9 Blood/bone marrow donation;
- 6.1.10 Meal precautions prior to and during flight;
- 6.1.11 Sleep and rest; and
- 6.1.12 Surgical operations.

7 FLIGHT TIME LIMITATIONS

- 7.1 Flight and Duty Time Limitations and rest requirements. The scheme developed by the operator in accordance with OR.OPS.230.FTL or OR.OPS.330.FTL and description of the corresponding Fatigue Risk Management System (FRMS).
- 7.2 Exceedances of flight and duty time limitations and/or reductions of rest periods. Conditions under which flight and duty time may be exceeded or rest periods may be reduced and the procedures used to report these modifications.

8 OPERATING PROCEDURES

- 8.1 Flight preparation instructions. As applicable to the operation:
 - 8.1.1 Minimum Flight Altitudes. A description of the method of determination and application of minimum altitudes including:
 - a. A procedure to establish the minimum altitudes/flight levels for VFR flights; and
 - b. A procedure to establish the minimum altitudes/flight levels for IFR flights.
 - 8.1.2 Criteria and responsibilities for determining the adequacy of aerodromes to be used.
 - 8.1.3 Methods and responsibilities for establishing aerodrome operating minima. Reference should be made to procedures for the determination of the visibility and/or runway visual range and for the applicability of the actual visibility observed by the pilots, the reported visibility and the reported runway visual range.
 - 8.1.4 En-route Operating Minima for VFR flights or VFR portions of a flight and, where single engine aircraft are used, instructions for route selection with respect to the availability of surfaces which permit a safe forced landing.
 - 8.1.5 Presentation and application of aerodrome and en-route operating minima.
 - 8.1.6 Interpretation of meteorological information. Explanatory material on the decoding of MET forecasts and MET reports relevant to the area of operations, including the interpretation of conditional expressions.
 - 8.1.7 Determination of the quantities of fuel, oil and water methanol carried. The methods by which the quantities of fuel, oil and water methanol to be carried are determined and monitored in flight. This section should also include instructions on the measurement and distribution of the fluid carried on board. Such instructions should take account of all circumstances likely to be encountered on the flight, including the possibility of in-flight re-planning and of failure of one or more of the aircraft's power plants. The system for maintaining fuel and oil records should also be described.
 - 8.1.8 Mass and Centre of Gravity. The general principles of mass and centre of gravity including:
 - a. Definitions;

- b. Methods, procedures and responsibilities for preparation and acceptance of mass and centre of gravity calculations;
 - c. The policy for using standard and/or actual masses;
 - d. The method for determining the applicable passenger, baggage and cargo mass;
 - e. The applicable passenger and baggage masses for various types of operations and aircraft type;
 - f. General instruction and information necessary for verification of the various types of mass and balance documentation in use;
 - g. Last minute changes procedures;
 - h. Specific gravity of fuel, oil and water methanol;
 - i. Seating policy/procedures; and
 - j. for helicopter operations, standard load plans.
- 8.1.9 ATS Flight Plan. Procedures and responsibilities for the preparation and submission of the air traffic services flight plan. Factors to be considered include the means of submission for both individual and repetitive flight plans.
- 8.1.10 Operational Flight Plan. Procedures and responsibilities for the preparation and acceptance of the operational flight plan. The use of the operational flight plan should be described including samples of the operational flight plan formats in use.
- 8.1.11 Operator's Aircraft Technical Log. The responsibilities and the use of the operator's Aircraft Technical Log should be described, including samples of the format used.
- 8.1.12 List of documents, forms and additional information to be carried.
- 8.2 Ground handling instructions. As applicable to the operation:
 - 8.2.1 Fuelling procedures. A description of fuelling procedures, including:
 - a. Safety precautions during refuelling and defuelling including rotors running, engine(s) running and the prop-brakes are on and when an APU is in operation;
 - b. Refuelling and defuelling when passengers are embarking, on board or disembarking; and
 - c. Precautions to be taken to avoid mixing fuels.
 - 8.2.2 Aircraft, passengers and cargo handling procedures related to safety. A description of the handling procedures to be used when allocating seats or passenger compartment in the case of balloons, and embarking and disembarking passengers and when loading and unloading the aircraft. Further procedures, aimed at achieving safety whilst the aircraft is on the ramp, should also be given. Handling procedures should include:
 - a. Special categories of passengers including children/infants, persons with reduced mobility, inadmissible passengers, deportees or persons in custody;
 - b. Permissible size and weight of hand baggage;
 - c. Loading and securing of items in the aircraft;
 - d. Positioning of ground equipment;
 - e. Operation of aircraft doors;
 - f. Safety on the aerodrome/operating site, including fire prevention, blast and suction areas;
 - g. Start-up, ramp departure and arrival procedures including, for aeroplanes push-back and towing operations;
 - h. Servicing of aircrafts;

- i. Documents and forms for aircraft handling; and
 - j. Special loads and classification of load compartments;
 - k. Multiple occupancy of helicopter seats.
- 8.2.3 Procedures for the refusal of embarkation. Procedures to ensure that persons who appear to be intoxicated or who demonstrate by manner or physical indications that they are under the influence of drugs, are refused embarkation. This does not apply to medical patients under proper care.
- 8.2.4 De-icing and anti-icing on the ground. A description of the de-icing and anti-icing policy and procedures for aircrafts on the ground. These should include descriptions of the types and effects of icing and other contaminants on aircrafts whilst stationary, during ground movements and during take-off. In addition, a description of the fluid types used should be given including:
 - a. Proprietary or commercial names;
 - b. Characteristics;
 - c. Effects on aircraft performance;
 - d. Hold-over times; and
 - e. Precautions during usage.
- 8.3 Flight Procedures
 - 8.3.1 VFR/IFR Policy. A description of the policy for allowing flights to be made under VFR, or of requiring flights to be made under IFR, or of changing from one to the other.
 - 8.3.2 Navigation Procedures. A description of all navigation procedures relevant to the type(s) and area(s) of operation. Special consideration should be given to:
 - a. Standard navigational procedures including policy for carrying out independent cross-checks of keyboard entries where these affect the flight path to be followed by the aircraft;
 - b. RNP, MNPS and POLAR navigation and navigation in other designated areas;
 - c. In-flight re-planning;
 - d. Procedures in the event of system degradation; and
 - e. RVSM for aeroplanes.
 - 8.3.3 Altimeter setting procedures including use, where appropriate, of
 - a. metric altimetry and conversion tables, and
 - b. QFE operating procedures.
 - 8.3.4 Altitude alerting system procedures for aeroplanes or audio voice alerting device for helicopters
 - 8.3.5 Ground Proximity Warning System/Terrain Avoidance Warning System (for aeroplanes). Procedures and instructions required for the avoidance of controlled flight into terrain, including limitations on high rate of descent near the surface (the related training requirements are covered in OM-D 2.1).
 - 8.3.6 Policy and procedures for the use of TCAS/ACAS for aeroplanes and when applicable for helicopters.
 - 8.3.7 Policy and procedures for in-flight fuel management
 - 8.3.8 Adverse and potentially hazardous atmospheric conditions. Procedures for operating in, and/or avoiding, adverse and potentially hazardous atmospheric conditions including:
 - a. Thunderstorms;
 - b. Icing conditions;
 - c. Turbulence;
 - d. Windshear;

- e. Jetstream;
 - f. Volcanic ash clouds;
 - g. Heavy precipitation;
 - h. Sand storms;
 - i. Mountain waves;
 - j. Significant temperature inversions, and
 - k. For balloons severe thermal activity.
- 8.3.9 Wake Turbulence. Wake turbulence separation criteria, taking into account aircraft types, wind conditions and runway/FATO location. For helicopters, consideration should also be given to rotor downwash.
- 8.3.10 Crew members at their stations. The requirements for crew members to occupy their assigned stations or seats during the different phases of flight or whenever deemed necessary in the interest of safety and, for aeroplane operations including procedures for controlled rest on the cockpit.
- 8.3.11 Use of restraining devices for crew and passengers. The requirements for crew members and passengers to use safety belts and/or harnesses or in the case of balloons the landing hand-holds during the different phases of flight or whenever deemed necessary in the interest of safety.
- 8.3.12 Admission to Cockpit/Pilot Compartment. The conditions for the admission to the cockpit/pilot compartment of persons other than the flight crew. The policy regarding the admission of inspectors from the competent authority should also be included.
- 8.3.13 Use of vacant crew seats. The conditions and procedures for the use of vacant crew seats.
- 8.3.14 Incapacitation of crew members. Procedures to be followed in the event of incapacitation of crew members in flight. Examples of the types of incapacitation and the means for recognising them should be included.
- 8.3.15 Cabin Safety Requirements. Procedures
- a. covering cabin preparation for flight, in-flight requirements and preparation for landing including procedures for securing the cabin and galleys;
 - b. ensuring that passengers are seated where, in the event that an emergency evacuation is required, they may best assist and not hinder evacuation from the aircraft;
 - c. being followed during passenger embarkation and disembarkation;
 - d. when refuelling/defuelling with passengers involving embarking, on board or disembarking;
 - e. including the carriage of special categories of passengers;
 - f. covering smoking on board; and
 - g. covering the handling of suspected infectious diseases.
- 8.3.16 Passenger briefing procedures. The contents, means and timing of passenger briefing in accordance with Part-OPS.
- 8.3.17 Procedures for aeroplanes operated whenever required cosmic or solar radiation detection equipment is carried.
- 8.3.18 For aeroplane operations, policy on the use of Autopilot and Autothrottle.
- 8.4 LVO. A description of the operational procedures associated with low visibility operations.
- 8.5 ETOPS for two-engine aeroplanes. A description of the ETOPS operational procedures. (Refer to EASA AMC 20-6)
- 8.6 Use of the Minimum Equipment and Configuration Deviation List(s)

- 8.7 Non revenue flights. Procedures and limitations for:
 - 8.7.1 Training flights;
 - 8.7.2 Test flights;
 - 8.7.3 Delivery flights;
 - 8.7.4 Ferry flights;
 - 8.7.5 Demonstration flights; and
 - 8.7.6 Positioning flights, including the kind of persons who may be carried on such flights.
- 8.8 Oxygen Requirements
 - 8.8.1 An explanation of the conditions under which oxygen should be provided and used.
 - 8.8.2 The oxygen requirements specified for:
 - a. Flight crew;
 - b. Cabin crew; and
 - c. Passengers.
- 9 DANGEROUS GOODS AND WEAPONS
 - 9.1 Information, instructions and general guidance on the transport of dangerous goods including:
 - 9.1.1 Operator's policy on the transport of dangerous goods;
 - 9.1.2. Guidance on the requirements for acceptance, labelling, handling, stowage and segregation of dangerous goods;
 - 9.1.3 Special notification requirements in the event of an accident or occurrence when dangerous goods are being carried;
 - 9.1.4 Procedures for responding to emergency situations involving dangerous goods;
 - 9.1.5 Duties of all personnel involved in accordance with OPS.SPA.DG; and
 - 9.1.6 Instructions on the carriage of the operator's personnel on cargo aircraft when dangerous goods are being carried.
 - 9.2 The conditions under which weapons, munitions of war and sporting weapons may be carried.
- 10 SECURITY
 - 10.1 Security instructions and guidance of a non-confidential nature which should include the competent authority and responsibilities of operations personnel. Policies and procedures for handling and reporting crime on board such as unlawful interference, sabotage, bomb threats, and hijacking should also be included.
 - 10.2 A description of preventative security measures and training. However, it should be considered that some parts of the security instructions and guidance may be kept confidential.
- 11 HANDLING, NOTIFYING AND REPORTING ACCIDENTS AND OCCURRENCES
 - Procedures for the handling, notifying and reporting accident and occurrences. This section should include:
 - 11.1 Definition of accident and occurrences and of the relevant responsibilities of all persons involved;
 - 11.2 Illustrations of forms used for reporting all types of accident and occurrences (or copies of the forms themselves), instructions on how they are to be completed, the addresses to which they should be sent and the time allowed for this to be done;
 - 11.3 In the event of an accident, descriptions of which departments, authorities and other organisations that have to be notified, how this will be done and in what sequence;
 - 11.4 Procedures for verbal notification to air traffic service units of incidents involving ACAS RAs, bird hazards and hazardous conditions;

- 11.5 Procedures for submitting written reports on air traffic incidents, ACAS RAs, bird strikes, dangerous goods incidents or accidents, and unlawful interference;
- 11.6 Reporting procedures. These procedures should include internal safety related reporting procedures to be followed by crew members, designed to ensure that the pilot-in-command is informed immediately of any incident that has endangered, or may have endangered, safety during flight and that he is provided with all relevant information.
- 11.7 Procedures for the preservation of recordings following a reportable event.
- 12 RULES OF THE AIR
 - 12.1 Visual and instrument flight rules;
 - 12.2 Territorial application of the Rules of the Air;
 - 12.3 Communication procedures including communication-failure procedures;
 - 12.4 Information and instructions relating to the interception of civil aircrafts;
 - 12.5 The circumstances in which a radio listening watch is to be maintained;
 - 12.6 Signals;
 - 12.7 Time system used in operation;
 - 12.8 ATC clearances, adherence to flight plan and position reports;
 - 12.9 Visual signals used to warn an unauthorised aircraft flying in or about to enter a restricted, prohibited or danger area;
 - 12.10 Procedures for flight crew observing an accident or receiving a distress transmission;
 - 12.11 The ground/air visual codes for use by survivors, description and use of signal aids; and
 - 12.12 Distress and urgency signals.
- 13 LEASING

A description of the operational arrangements for leasing, associated procedures and management responsibilities.

B AIRCRAFT OPERATING MATTERS – TYPE RELATED

Taking account of the differences between types/classes, and variants of types, under the following headings:

0 GENERAL INFORMATION AND UNITS OF MEASUREMENT

- 0.1 General Information (e.g. aircraft dimensions), including a description of the units of measurement used for the operation of the aircraft type concerned and conversion tables.

1 LIMITATIONS

- 1.1 A description of the certified limitations and the applicable operational limitations should include:
 - a. Certification status (e.g. EASA (Supplemental) type certificate, environmental certification, etc.);
 - b. Passenger seating configuration for each aircraft type including a pictorial presentation;
 - c. Types of operation that are approved (e.g. VFR/IFR, CAT II/III, RNP, flights in known icing conditions etc.);
 - d. Crew composition;
 - e. Mass and centre of gravity and for balloons lifting capacity;
 - f. Speed limitations;
 - g. Flight envelope(s);
 - h. Wind limits including operations on contaminated runways;
 - i. Performance limitations for applicable configurations;
 - j. (Runway) slope;

- k. For aeroplanes, limitations on wet or contaminated runways;
- l. Airframe contamination; and
- m. System limitations.

2 ABNORMAL AND/OR EMERGENCY PROCEDURES

2.1 The abnormal and/or emergency procedures and duties assigned to the crew, the appropriate checklists, the system for their use and a statement covering the necessary co-ordination procedures between flight and cabin/other crew members (the design and utilisation of which shall observe Human Factors and CRM principles). The following abnormal and/or emergency procedures and duties should include:

- a. Crew Incapacitation;
- b. Fire and Smoke Drills;
- c. For aeroplanes, unpressurised and partially pressurised flight;
- d. For aeroplanes, exceeding structural limits such as overweight landing;
- e. Lightning Strikes;
- f. Distress communications and alerting ATC to emergencies;
- g. Engine/burner failure;
- h. System failures;
- i. Guidance for diversion in case of serious technical failure;
- j. Ground Proximity Warning;
- k. TCAS Warning for aeroplanes/Audio Voice Alerting Device (AVAD) warning for helicopters;
- l. Windshear;
- m. Emergency landing/ditching; and
- n. For aeroplanes, departure contingency procedures.

3 NORMAL PROCEDURES

3.1 The normal procedures and duties assigned to the crew, the appropriate checklists, the system for their use and a statement covering the necessary coordination procedures between flight and cabin/other crew members. The following normal procedures and duties should include:

- a. Pre-flight;
- b. Pre-departure;
- c. Altimeter setting and checking;
- d. Taxi, Take-Off and Climb;
- e. Noise abatement;
- f. Cruise and descent;
- g. Approach, Landing preparation and briefing;
- h. VFR approach;
- i. IFR approach;
- j. Visual approach and circling;
- k. Missed approach;
- l. Normal Landing;
- m. Post Landing; and
- n. For aeroplanes, operation on wet and contaminated runways.

4 PERFORMANCE

Performance data should be provided in a form in which it can be used without difficulty.

- 4.1 Performance data. Performance material which provides the necessary data for compliance with the performance requirements prescribed in Part-OPS. For aeroplanes, this performance data should be included to allow the determination of:
- a. Take-off climb limits – Mass, Altitude, Temperature;
 - b. Take-off field length (for dry, wet and contaminated runway conditions);
 - c. Net flight path data for obstacle clearance calculation or, where applicable, take-off flight path;
 - d. The gradient losses for banked climb outs;
 - e. En-route climb limits;
 - f. Approach climb limits;
 - g. Landing climb limits;
 - h. Landing field length (for dry, wet and contaminated runway conditions) including the effects of an in-flight failure of a system or device, if it affects the landing distance;
 - i. Brake energy limits; and
 - j. Speeds applicable for the various flight stages (also considering dry, wet and contaminated runway conditions).
- 4.1.1. Supplementary data covering flights in icing conditions. Any certificated performance related to an allowable configuration, or configuration deviation, such as anti-skid inoperative.
- 4.1.2. The OM may contain cross-reference to the approved data contained in the AFM where such data is not likely to be used often or in an emergency.
- 4.2 Additional performance data for aeroplanes. Additional performance data where applicable including:
- a. All engine climb gradients;
 - b. Drift-down data;
 - c. Effect of de-icing/anti-icing fluids;
 - d. Flight with landing gear down;
 - e. For aircrafts with 3 or more engines, one engine inoperative ferry flights; and
 - f. Flights conducted under the provisions of the CDL.
- 5 MASS AND BALANCE
- Instructions and data for the calculation of the mass and balance including:
- 5.1 Calculation system (e.g. Index system);
 - 5.2 Information and instructions for completion of mass and balance documentation, including manual and computer generated types;
 - 5.3 Limiting masses, lifting capacity for balloons and centre of gravity for the types, variants or individual aircrafts used by the operator; and
 - 5.4 Dry operating mass and corresponding centre of gravity or index.
- 6 LOADING
- Procedures and provisions for loading and unloading, and securing the load in the aircraft.
- 7 FLIGHT PLANNING
- 7.1 Data and instructions necessary for pre-flight and in-flight planning including, for aeroplanes, factors such as speed schedules and power settings. Where applicable, procedures for engine(s)-out operations, ETOPS for aeroplanes (particularly the one-engine-inoperative cruise speed and maximum distance to an adequate aerodrome determined in accordance with Part-OPS) and flights to isolated aerodromes should be included.
 - 7.2 The method for calculating fuel needed for the various stages of flight.

- 7.3 When applicable, for aeroplanes, performance data for ETOPS critical fuel reserve and area of operation including sufficient data to support the critical fuel reserve and area of operation calculation based on approved aircraft performance data. The following data should be included:
- a. Detailed engine(s) inoperative performance data including fuel flow for standard and non-standard atmospheric conditions and as a function of airspeed and power setting, where appropriate, covering:
 - i. Drift down (includes net performance), where applicable;
 - ii. Cruise altitude coverage including 10 000 feet;
 - iii. Holding;
 - iv. Altitude capability (includes net performance); and
 - v. Missed approach.
 - b. Detailed all-engine-operating performance data, including nominal fuel flow data, for standard and non-standard atmospheric conditions and as a function of airspeed and power setting, where appropriate, covering:
 - i. Cruise (altitude coverage including 10 000 feet); and
 - ii. Holding.
 - c. Details of any other conditions relevant to ETOPS operations which can cause significant deterioration of performance, such as ice accumulation on the unprotected surfaces of the aircraft, Ram Air Turbine (RAT) deployment, thrust-reverser deployment, etc.

The altitudes, airspeeds, thrust settings, and fuel flow used in establishing the ETOPS area of operations for each airframe-engine combination should be used in showing the corresponding terrain and obstruction clearances in accordance with Part-OPS.

8 CONFIGURATION DEVIATION LIST

The Configuration Deviation List(s) (CDL), if provided by the manufacturer, taking account of the aircraft types and variants operated including procedures to be followed when an aircraft is being dispatched under the terms of its CDL.

9 MINIMUM EQUIPMENT LIST (MEL)

The MEL for each aircraft type or variant operated and the type(s)/area(s) of operation. The MEL should also include the dispatch conditions associated to operations required for a specific approval (e.g. RNAV, RNA, RVSM, ETOPS). Consideration should be given to use the ATA number system when allocating chapters and numbers.

10 SURVIVAL AND EMERGENCY EQUIPMENT INCLUDING OXYGEN

- 10.1 A list of the survival equipment to be carried for the routes to be flown and the procedures for checking the serviceability of this equipment prior to take-off. Instructions regarding the location, accessibility and use of survival and emergency equipment and its associated check list(s) should also be included.
- 10.2 The procedure for determining the amount of oxygen required and the quantity that is available. The flight profile, number of occupants and possible cabin decompression should be considered.

11 EMERGENCY EVACUATION PROCEDURES

- 11.1 Instructions for preparation for emergency evacuation including crew co-ordination and emergency station assignment.
- 11.2 Emergency evacuation procedures. A description of the duties of all members of the crew for the rapid evacuation of an aircraft and the handling of the passengers in the event of a forced landing, ditching or other emergency.

12 AIRCRAFT SYSTEMS

A description of the aircraft systems, related controls and indications and operating instructions. Consideration should be given to use the ATA number system when allocating chapters and numbers.

C ROUTE/ROLE/AREA AND AERODROME/OPERATING SITE INSTRUCTIONS AND INFORMATION

- 1 Instructions and information relating to communications, navigation and aerodromes/operating sites including minimum flight levels and altitudes for each route to be flown and operating minima for each aerodrome/operating site planned to be used, including:
 - a. Minimum flight level/altitude;
 - b. Operating minima for departure, destination and alternate aerodromes;
 - c. Communication facilities and navigation aids;
 - d. Runway/FATO data and aerodrome/operating site facilities;
 - e. Approach, missed approach and departure procedures including noise abatement procedures;
 - f. Communication-failure procedures;
 - g. Search and rescue facilities in the area over which the aircraft is to be flown;
 - h. A 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;
 - i. Availability of aeronautical information and MET services;
 - j. En-route communication/navigation procedures;
 - k. For aeroplane operations, aerodrome categorisation for flight crew competence qualification; and
 - l. Special aerodrome/operating site limitations (performance limitations and operating procedures etc.).

D. TRAINING

- 1 Training syllabi and checking programmes for all operations personnel assigned to operational duties in connection with the preparation and/or conduct of a flight.
- 2 Training syllabi and checking programmes should include:
 - 2.1 For flight crew. All relevant items prescribed in Part-OPS and OR.OPS.FC;
 - 2.2 For cabin crew. All relevant items prescribed in Part-OPS and OR.OPS.CC;
 - 2.3 For operations personnel concerned, including crew members:
 - a. All relevant items prescribed in OPS.SPA.DG; and
 - b. All relevant items prescribed in Part-OPS and OR.OPS.SEC.
 - 2.4 For operations personnel other than crew members (e.g. dispatcher, handling personnel etc.). All other relevant items prescribed in Part-OPS and in this Part pertaining to their duties.
- 3 Procedures
 - 3.1 Procedures for training and checking.
 - 3.2 Procedures to be applied in the event that personnel do not achieve or maintain the required standards.
 - 3.3 Procedures to ensure that abnormal or emergency situations requiring the application of part or all of abnormal or emergency procedures and simulation of IMC by artificial means are not simulated during commercial air transportation flights.
- 4 Description of documentation to be stored and storage periods.

If there are sections which, because of the nature of the operation, do not apply, it is recommended that operators maintain the numbering system described above and insert 'Not applicable' or 'Intentionally blank' where appropriate.

OM compiled in accordance with Annex III of Regulation 3922/91 are considered to be acceptable.

AMC6 OR.OPS.015.MLR Operations Manual**CONTENTS – COMMERCIAL OPERATIONS OTHER THAN COMMERCIAL AIR TRANSPORT**

The operations manual should contain the following relevant to the area and type of operation:

A. GENERAL/BASIC

For chapters 0-7 refer to AMC5 OR.OPS.015.MLR.

In addition:

6.2 The relevant regulations and guidance to crew members concerning dangerous goods used for specialised purposes (pesticides and chemicals, etc.).

8 OPERATING PROCEDURES

8.1 Flight preparation instructions. As applicable to the operation:

8.1.1 General procedures;

8.1.2 Minimum Flight Altitudes. A description of the method of determination and application of minimum altitudes, including a procedure to establish the minimum altitudes/flight levels.

8.1.3 Criteria and responsibilities for determining the adequacy of aerodromes/operating sites to be used.

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

8.1.5 Determination of the quantities of fuel, oil and water methanol carried. The methods by which the quantities of fuel, oil and water methanol to be carried are determined and monitored in flight. The system for maintaining fuel and oil records should also be described.

8.1.6 Procedure for the determination of the mass of loads, the calculation of performance margins and the centre of gravity.

8.1.7 Emergency procedures, e.g. load, fuel or chemical jettison (to include the actions of all personnel).

8.1.8 System for supply of NOTAMS, meteorological and other safety critical information both at base and in field locations.

8.1.9 Mandatory equipment for specific tasks (mirror, cargo sling, load cell, special radio equipment, radar altimeters, etc.).

8.1.10 Guidance on the Configuration Deviation List (CDL) and Minimum Equipment List (MEL).

8.1.11 Policy on completion and carriage of documents including operator's aircraft Technical Log and Journey Log.

8.1.12 Any task specific standard operating procedures not covered above.

8.2 Ground handling instructions. As applicable to the operation:

8.2.1 Briefing requirements for operational personnel, including ground specialists.

8.2.2 Decontamination procedures.

8.2.3 Fuelling procedures, including safety precautions during refuelling and defuelling including quality checks required in the field location, precautions against spillage and environmental damage.

8.2.4. De-icing and Anti-icing on the ground. A description of the de-icing and anti-icing policy and procedures for aircrafts on the ground.

8.3 Flight Procedures. As applicable to the operation:

8.3.1 Procedures relevant to the aircraft type, specific task and area.

8.3.2 Altimeter setting procedures.

8.3.3 Actions following alerts from audio warning devices.

- 8.3.4 Policy and procedures for in-flight fuel management.
- 8.3.5 Procedures for operating in adverse and potentially hazardous atmospheric conditions.
- 8.3.6 Wake turbulence and rotor downwash for helicopters.
- 8.3.7 Use of restraining devices.
- 8.3.8 Policy on use of vacant seats.
- 8.3.9 Cabin safety requirements including smoking.
- 8.4 Task specific weather limitations.
- 8.5 Use of the Minimum Equipment and Configuration Deviation List(s).
- 8.6 Oxygen Requirements. An explanation of the conditions under which oxygen should be provided and used (altitude, exposure times, night etc.).
- 9 DANGEROUS GOODS AND WEAPONS
 - 9.1 Information, instruction and general guidance on the transport of dangerous goods as internal or external loads including:
 - 9.1.1 The operator's policy on the transport of dangerous goods including measures to ensure security of hazardous material (chemicals, pesticides, fuel, etc.) in field locations;
 - 9.1.2 Guidance on the requirements for acceptance, labelling, handling, stowage, and segregation of dangerous goods;
 - 9.1.3 Procedures for responding to emergency situations involving dangerous goods;
 - 9.1.4 Duties of all personnel involved; and
 - 9.1.5 Instructions on carriage of the operator's personnel on cargo aircraft when dangerous goods are being carried.
 - 9.2 The conditions under which weapons, munitions of war and sporting weapons may be carried.
- 10 SECURITY
 - 10.1 Security instructions and guidance of a non-confidential nature which should include the competent authority and responsibilities of operations personnel. Policies and procedures for handling and reporting crime on board such as unlawful interference, sabotage, bomb threats, and hijacking should also be included.
 - 10.2 A description of preventative security measures and training. However, it should be considered that some parts of the security instructions and guidance may be kept confidential.
- 11 HANDLING, NOTIFYING AND REPORTING ACCIDENTS AND OCCURRENCES
 - Procedures for the handling, notifying and reporting of accidents and occurrences. This section should include:
 - 11.1 Definitions of accidents and occurrences and responsibilities of all persons involved;
 - 11.2 Reporting procedures (including any mandatory forms); and
 - 11.3 Special notification when dangerous goods are carried.
- 12 RULES OF THE AIR
 - 12.1 In addition to the items referred to in AMC5 OR.OPS.MLR.001, territorial procedures for obtaining permissions and exemptions, e.g. for under slung loads and low flying clearances.
- 13 LEASING
 - Refer to AMC5 OR.OPS.015.MLR.
- B. AIRCRAFT OPERATING MATTERS – TYPE RELATED
 - For chapters 0-1 refer to AMC5 OR.OPS.015.MLR.
- 2 ABNORMAL AND/OR EMERGENCY PROCEDURES

- 2.1 The abnormal and/or emergency procedures and duties assigned to the crew, the appropriate checklists and the system for their use including any task or specific role equipment emergency procedures not contained in the AFM.
- 3 NORMAL PROCEDURES
- 3.1 The normal procedures and duties assigned to the crew, the appropriate checklists, and the system for their use including any task or specific role equipment procedures not contained in the AFM.
- 4 PERFORMANCE
Performance data should be provided in a form in which it can be used without difficulty.
- 4.1 Performance data. Performance material which provides the necessary data for compliance with the performance requirements prescribed in Part-OPS.
- 5 MASS AND BALANCE
Instructions and data for the calculation of the mass and balance including:
- 5.1 Calculation system (e.g. Index system);
- 5.2 Information and instructions for completion of mass and balance documentation; and
- 5.3 Limitations.
- 6 LOADING
Refer to AMC5 OR.OPS.015.MLR.
- 7 FLIGHT PLANNING
- 7.1 Data and instructions necessary for pre-flight and in-flight planning.
- 7.2 Procedures for specific tasks.
- 8 CONFIGURATION DEVIATION LIST (CDL)
Refer to AMC5 OR.OPS.015.MLR.
- 9 MINIMUM EQUIPMENT LIST (MEL)
The MEL for each aircraft type or variant operated and the type(s)/area(s) of operation. It should also contain information on the tasks to be performed prior or with the item inoperative.
- 10 SURVIVAL AND EMERGENCY EQUIPMENT INCLUDING OXYGEN
- 10.1 A list of the survival equipment to be carried taking into account the nature of the area of operation, such as hostile or non-hostile environment.
- 10.2 A checklist for assessing the serviceability of the equipment and instructions for its use prior to take-off.
- 10.3 The procedure for determining the amount of oxygen required and the quantity that is available.
- 11 EMERGENCY EVACUATION PROCEDURES
- 11.1 Emergency evacuation procedures, crew co-ordination and occupant handling in the event of a forced landing, ditching or other emergency.
- 12 AIRCRAFT SYSTEMS
A description of the aircraft systems and all equipment specific to the tasks. Additional equipment, systems or fitting, related special procedures including any supplements to the AFM or equivalent document.
- C TASKS AND OPERATING AREAS INSTRUCTIONS AND INFORMATION
Specific instructions related to the specialised tasks and operating areas in accordance with AMC5 OR.OPS.015.MLR.
- D TRAINING
- 1 Training syllabi and checking programmes for all operations personnel assigned to operational duties in connection with the preparation and/or conduct of a flight.

- 2 Training syllabi and checking programmes should include:
 - 2.1 For flight crew. All relevant items prescribed in Part-OPS and OR.OPS.FC.
 - 2.2 For other crew members. All relevant items prescribed in Part-OPS and this Part, as applicable.
 - 2.3 For operations personnel concerned, including crew members:
 - a. All relevant items prescribed in OPS.SPA.DG; and
 - b. All relevant items prescribed in Part-OPS and OR.OPS.SEC.
 - 2.4 For operations personnel other than crew members. All other relevant items prescribed in Part-OPS and in this Part pertaining to their duties.
- 3 Procedures
 - 3.1 Procedures for training and checking.
 - 3.2 Procedures to be applied in the event that personnel do not achieve or maintain the required standards.
 - 3.3 A system for tracking expiry dates for qualifications, checks, tests, recency and licences.
- 4 Description of documentation to be stored and storage periods.

GM OR.OPS.001.MLR(f) Operations Manual

HUMAN FACTOR PRINCIPLES

Guidance material on the application of human factors principles can be found in the ICAO Human Factors Training Manual (Doc 9683).

AMC OR.OPS.015.MLR(g) Operations Manual

AUTHORITY APPROVAL

The operator should supply the competent authority with intended amendments and revisions in advance of the effective date. When immediate amendments or revisions are required in the interest of safety, they may be published and applied immediately, provided that the operator also applied for approval at the competent authority.

AMC OR.OPS.015.MLR(h) Operations Manual

MINOR/MAJOR CHANGES

- 1 The procedure for minor amendments should be included in the operations manual.
- 2 Changes affecting the terms of the certificate as defined in the Operations Specification including the following items should be considered as major changes and not be subject to the minor amendment procedure:
 - a. Method of exercising operational control;
 - b. Method of determination of minimum flight attitudes;
 - c. Descent below specified minimum altitudes;
 - d. Different departure and approach procedures than published (State approval);
 - e. Helicopter operations: selection of off-shore alternates;
 - f. Performance criteria;
 - g. Mass and balance:
 - i. Standard mass values other than those specified in Part-OPS and relevant AMCs;
 - ii. Special standard masses for traffic load;
 - iii. Weighing survey plan;
 - iv. Mass control programmes;
 - v. Use of on-board mass and balance systems;

- h. ETOPS operations;
- i. MEL and procedures to use the MEL;
- j. Maximum passenger seating configuration;
- k. Operational change of the maximum landing mass;
- l. Training/checking programmes for crew members;
- m. Procedures for crew members to operate on more than one type or variant;
- n. Procedures/restrictions for the operation of helicopters and aeroplanes;
- o. Dangerous Goods awareness training programmes.

AMC1 OR.OPS.020.MLR(c) Minimum Equipment List

AMENDMENTS TO THE MEL FOLLOWING CHANGES TO THE MMEL – ACCEPTABLE TIME SCALES

- 1 An acceptable time scale for amending the MEL after the (Supplemental) Operational Suitability Certificate (S)OSC holder has changed the MMEL is 90 days from the date of applicability specified in the approved change to the MMEL.
- 2 Reduced time scales for the implementation of safety related revisions may be required if the Agency and/or competent authority consider it necessary.

AMC2 OR.OPS.020.MLR(c) Minimum Equipment List

AMENDMENT TO THE MEL FOLLOWING CHANGES TO THE MMEL – APPLICABLE CHANGES

The following are applicable changes to the MMEL which require the amendment of the MEL within the applicable time scales:

- 1 a reduction of the Rectification Interval;
- 2 change of a new item, only when the change is more restrictive and when the modified item is applicable to the aircraft or type of operations; and
- 3 changes to the MMEL as a result of an airworthiness directive and/or safety directive issued by the Agency.
- 4 Significant changes to the operational and maintenance procedures.

AMC OR.OPS.020.MLR(d) Minimum Equipment List

FORMAT OF THE MEL

- 1 A five column format should be used. Other format may also be used if (e.g. message-oriented MEL) or if it is a message oriented MEL. An example of five column format can be found in Appendix 1 to AMC OR.OPS.MLR.020(d) [tbd].
- 2 A model for the Preamble can be found in Appendix 2 to AMC OR.OPS.MLR.020(d) [tbd].
- 3 The ATA 100/2200 Specification numbering system should be used for the item numbering system.

GM OR.OPS.020.MLR(e) Minimum Equipment List

DEFINITIONS RECTIFICATION INTERVAL (RI)

The definition of Rectification Intervals categories are provided in Book 1 of CS-MMEL.

AMC1 OR.OPS.020.MLR(f) Minimum Equipment List

OPERATOR PROCEDURES FOR THE APPROVAL BY THE COMPETENT AUTHORITY

- 1 The operator's procedures to address the extension of rectification intervals (RIE) and ongoing surveillance to ensure compliance should provide the competent authority with details of the name and position of the nominated person responsible for the control of

the operator's RIE procedures and details of the specific duties and responsibilities established to control the use of RIEs.

- 2 Personnel authorising RIE's should be adequately trained in technical and/or operational disciplines to accomplish his/her duties. They should have necessary operational knowledge in terms of operational use of the MEL as alleviating documents by flight crew and maintenance personnel and engineering competence in terms of aircraft design (e.g. knowledge of the safety levels criteria for type design and those applicable for the design of the MMEL). The authorising personnel should be listed by appointment and name.

AMC2 OR.OPS.020.MLR(f) Minimum Equipment List

NOTIFICATION TO THE COMPETENT AUTHORITY

- 1 The Operator should notify to the competent authority within one month of the extension of the applicable Rectification Interval or within the appropriated time scales specified by the approved procedure for the Rectification Interval Extension (RIE).
- 2 The notification should be made in form determined by the competent authority and should specify the original defect, all such uses, the reason for the RIE and the reasons why rectification was not carried out within the original Rectification Interval.

GM OR.OPS.020.MLR(f) Minimum Equipment List

RECTIFICATION INTERVAL EXTENSION (RIE)

Procedures for the extension of RI should only be applied under certain conditions, such as a shortage of parts from manufacturers or other unforeseen situations (e.g. inability to obtain equipment necessary for proper troubleshooting and repair), in which case the operator may be unable to comply with specified rectification intervals.

GM OR.OPS.020.MLR(g) Minimum Equipment List

OPERATIONAL AND MAINTENANCE PROCEDURES

- 1 Operational and maintenance procedures are an integral part of the compensating conditions needed to maintain an acceptable level of safety, enabling the competent authority to approve the MEL. The competent authority may request presentation of fully developed (O) and/or (M) procedures in the course of the MEL approval process.
- 2 Any item in the MEL which, when inoperative could require an operational or maintenance procedure to ensure an acceptable level of safety, should be so identified in the "remarks" or "exceptions" column/part/section of the MEL. This will normally be "(O)" for an operational procedure, or "(M)" for a maintenance procedure. "(O)(M)" means both operational and maintenance procedures are required.
- 3 Normally operational procedures are accomplished by the flight crew; however, other personnel may be qualified and authorised to perform certain functions.
- 4 Normally maintenance procedures are accomplished by the maintenance personnel; however, other personnel may be qualified and authorised to perform certain functions.
- 5 Operator's manuals may include the Operations Manual, the Continued Airworthiness Management Organisation Manual, Maintenance Manual or other documents.

AMC OR.OPS.020.MLR(g)(3) Minimum Equipment List

ACCOMPLISHMENT OF MAINTENANCE PROCEDURES.

Maintenance tasks should be accomplished whenever requested by the MMEL (e.g. maintenance task should be done again if the rectification interval is extended).

AMC OR.OPS.025.MLR Operational flight plan - commercial air transport

OPERATIONAL FLIGHT PLAN

- 1 In addition to AMC OPS.GEN.610 1., the operational flight plan should contain the following items as relevant for the type of operation.
 - a. Aircraft type and variant;
 - b. Flight identification;
 - c. Route and route segments with checkpoints/waypoints, distances, time and tracks;
 - d. Planned cruising speed and flying times between check-points/waypoints. Estimated and actual times overhead;
 - e. Safe altitudes and minimum levels;
 - f. Planned altitudes and flight levels;
 - g. Fuel calculations (records of in-flight fuel checks);
 - h. Fuel on board when starting engines;
 - i. Alternate(s) for destination and, where applicable, take-off and en-route, including information required in subparagraphs c., d., e. and f. above;
 - j. Initial ATS flight plan clearance and subsequent re-clearance;
 - k. In-flight re-planning calculations;
 - l. Relevant meteorological information;If any of these items is readily available in other documentation or from another acceptable source, there is no need for this information to be duplicated.
- 2 The operational flight plan and its use should be described in the operations manual.
- 3 The information recorded should be made concurrently and permanently.

AMC OR.OPS.030.MLR Information retained on the ground - commercial air transport

- 1 The information should be retained until it has been duplicated at the place at which it will be stored in accordance with OR.OPS.220.MLR.
- 2 If this is impracticable, the information should be carried in a fireproof container in the aircraft.
- 3 This information includes:
 - a. a copy of the operational flight plan, where appropriate;
 - b. copies of the relevant part(s) of the aircraft technical log;
 - c. route specific NOTAM documentation if specifically edited by the operator;
 - d. mass and balance documentation; and
 - e. notification of special categories of passenger and special loads including dangerous goods, if applicable.

AMC OR.OPS.220.MLR Record-keeping

- 1 When a crew member changes an operator, the crew member record should be made available to the new operator.
- 2 A summary of training should be maintained by the operator to show a flight crew member's completion of each stage of training and checking.

Section IV – Air operator certification

AMC OR.OPS.015.AOC Application for an Air Operator Certificate

APPLICATION TIME FRAMES

The application for an initial issue of an air operator certificate should be submitted at least 90 days before the date of intended operation. The Operations Manual may be submitted later, but in any case not later than 60 days before the date of intended operation.

AMC OR.OPS.030.AOC Leasing

GENERAL

An operator intending to lease-in an aircraft registered in a third country should provide the competent authority with the following information:

- 1 The aircraft type, registration markings and serial number;
- 2 The name and address of the registered owner;
- 3 A copy of the valid Certificate of airworthiness;
- 4 Name, address and signature of lessee or person responsible for operational control of the aircraft under the lease agreement, including a statement that such individual and the parties to the lease agreement fully understand their respective responsibilities under the applicable regulations;
- 5 Copy of the lease agreement, except financial arrangements;
- 6 Duration of the lease;
- 7 Areas of operation; and
- 8 In the case of wet lease-in and when not applying the acceptable means of compliance or flight time certification schemes established by the Agency, a full description of the flight time scheme(s), operating procedures and safety assessment demonstrating compliance with the safety objectives set out in the essential requirements and applicable implementing rules.

AMC OR.OPS.035.AOC Code share arrangements

REGULAR AUDITS

Regular audits may be performed by

- 1 A third party provider, using an internationally recognised evaluation system, designed to assess the operational, management and control systems of the operator. Independence of the third party provider as well as the evaluation system used should be ensured;
- 2 Using an audit pooling system; Audits conducted under such pooling system may be credited provided the Community operator conducts an audit of the code share third country operator itself at least once every 24 months.

AMC1 OR.OPS.201.AOC Flight data monitoring - aeroplanes

FLIGHT DATA MONITORING PROGRAMME

- 1 The safety manager, should be accountable for the discovery of issues and the transmission of hereof to the manager(s) responsible for the process(es) concerned. The latter should be accountable for taking appropriate and practicable safety action within a reasonable period of time that reflects the severity of the issue.
- 2 An FDM programme should allow an operator to:
 - a. Identify areas of operational risk and quantify current safety margins;
 - b. Identify and quantify operational risks by highlighting when non-standard, unusual or unsafe circumstances occur;

- c. Use the FDM information on the frequency of occurrence, combined with an estimation of the level of severity, to assess the safety risks and to determine which may become unacceptable if the discovered trend continues;
 - d. Put in place appropriate procedures for remedial action once an unacceptable risk, either actually present or predicted by trending, has been identified;
 - e. Confirm the effectiveness of any remedial action by continued monitoring.
- 3 Flight Data Monitoring Analysis Techniques should comprise:
- a. Exceedence Detection: This technique should searches for deviations from flight manual limits, and standard operating procedures. A set of core events should be selected to cover the main areas of interest to the operator. A sample list is provided in AMC2 OR.OPS.201.AOC. The event detection limits should be continuously reviewed to reflect the operator's current operating procedures.
 - b. All Flights Measurement: A system that should define what is normal practice. This may be accomplished by retaining various snapshots of information from each flight.
 - c. Statistics - A series of data collected to support the analysis process: This technique should include the numbers of flights flown per aircraft and sector details sufficient to generate rate and trend information.
- 4 Flight Data Monitoring Analysis, Assessment and Process Control Tools: The effective assessment of information obtained from digital flight data should be dependant on the provision of appropriate information technology tool sets. A program suite may include: Annotated data trace displays, engineering unit listings, visualisation for the most significant incidents, access to interpretative material, links to other safety information, and statistical presentations.
- 5 Education and Publication: Sharing safety information should be a fundamental principle of aviation safety in helping to reduce accident rates. The operator should pass on the lessons learnt to all relevant personnel and, where appropriate, industry. Similar media to air safety systems may be used. These may include: Newsletters, flight safety magazines, highlighting examples in training and simulator exercises, periodic reports to industry and the regulatory authority.
- 6 Accident and incident data requirements specified in OPS.GEN.505 should take precedence over the requirements of an FDM programme. In these cases the FDR data should be retained as part of the investigation data and may fall outside the de-identification agreements.
- 7 Every crew member should be responsible to report events. Significant risk-bearing incidents detected by FDM should therefore normally be the subject of mandatory occurrence reporting by the crew. If this is not the case then they should submit a retrospective report that should be included under the normal process for reporting and analysing hazards, incidents and accidents.
- 8 The data recovery strategy should ensure a sufficiently representative capture of flight information to maintain an overview of operations. Data analysis should be performed sufficiently frequently to enable action to be taken on significant safety issues.
- 9 The data retention strategy should aim to provide the greatest safety benefits practicable from the available data. A full data set should be retained until the action and review processes are complete; thereafter, a reduced data set relating to closed issues should be maintained for longer term trend analysis. Programme managers may wish to retain samples of de-identified full-flight data for various safety purposes (detailed analysis, training, benchmarking etc.).
- 10 The Data Access and Security policy should restrict information access to authorised persons. When data access is required for airworthiness and maintenance purposes, a procedure should be in place to prevent disclosure of crew identity.

- 11 The Procedure Document, which should be signed by all parties (airline management, flight crew member representatives nominated either by the union or the flight crew themselves) should, as a minimum, define:
- The aim of the FDM programme;
 - A data access and security policy that should restrict access to information to specifically authorised persons identified by their position;
 - The method to obtain de-identified crew feedback on those occasions that require specific flight follow-up for contextual information; where such crew contact is required the authorised person(s) need not necessarily be the programme manager, or safety manager, but could be a third party (broker) mutually acceptable to unions or staff and management;
 - The data retention policy and accountability including the measures taken to ensure the security of the data;
 - The conditions under which, on rare occasions, advisory briefing or remedial training should take place; this should always be carried out in a constructive and non-punitive manner;
 - The conditions under which the confidentiality may be withdrawn for reasons of gross negligence or significant continuing safety concern;
 - The participation of flight crew member representative(s) in the assessment of the data, the action and review process and the consideration of recommendations;
 - The policy for publishing the findings resulting from FDM.
- 12 Airborne systems and equipment used to obtain FDM data should range from an already installed full Quick Access Recorder, in a modern aircraft with digital systems, to a basic crash protected recorder in an older or less sophisticated aircraft. The analysis potential of the reduced data set available in the latter case may reduce the safety benefits obtainable. The operator should ensure that FDM use does not adversely affect the serviceability of equipment required for accident investigation.

AMC2 OR.OPS.201.AOC Flight data monitoring - aeroplanes

TABLE OF FDM EVENTS

The following table should provide examples of FDM events that may be further developed using operator and aeroplane specific limits. The table is considered illustrative and not exhaustive.

Event Group	Description
Rejected take-Off	High Speed Rejected take-off
Take-off Pitch	Pitch rate high on take-off
	Pitch attitude high during take-off
Unstick Speeds	Unstick speed high
	Unstick speed low
Height Loss in Climb-out	Initial climb height loss 20 ft AGL to 400 ft AAL
	Initial climb height loss 400 ft to 1 500 ft AAL
Slow Climb-out	Excessive time to 1 000 ft AAL after take-off
Climb-out Speeds	Climb out speed high below 400 ft AAL
	Climb out speed high 400 ft AAL to 1 000 ft AAL
	Climb out speed low 35 ft AGL to 400 ft AAL
	Climb out speed low 400 ft AAL to 1 500 ft AAL
High Rate of Descent	High rate of descent below 2 000 ft AGL

Event Group	Description
Go-around	Go-around below 1 000 ft AAL
	Go-around above 1 000 ft AAL
Low Approach	Low on approach
Glideslope	Deviation under glideslope
	Deviation above glideslope (below 600 ft AGL)
Approach Power	Low power on approach
Approach Speeds	Approach speed high within 90 sec of touchdown
	Approach speed high below 500 ft AAL
	Approach speed high below 50 ft AGL
	Approach speed low within 2 minutes of touchdown
Landing Flap	Late land flap (not in position below 500 ft AAL)
	Reduced flap landing
	Flap load relief system operation
Landing Pitch	Pitch attitude high on landing
	Pitch attitude low on landing]
Bank Angles	Excessive bank below 100 ft AGL
	Excessive bank 100 ft AGL to 500 ft AAL
	Excessive bank above 500 ft AGL
	Excessive bank near ground (below 20 ft AGL)
Normal Acceleration	High normal acceleration on ground
	High normal acceleration in flight flaps up (+/- increment)
	High normal acceleration in flight flaps down(+/- increment)
	High normal acceleration at landing
Abnormal Configuration	Take-off configuration warning
	Early configuration change after take-off (flap)
	Speed brake with flap
	Speedbrake on approach below 800 ft AAL
	Speedbrake not armed below 800 ft AAL
Ground Proximity Warning	GPWS operation - hard warning
	GPWS operation - soft warning
	GPWS operation - windshear warning
	GPWS operation - false warning
TCAS Warning	TCAS operation – Resolution Advisory
Margin to Stall/Buffer	Stickshake
	False stickshake
	Reduced lift margin except near ground
	Reduced lift margin at take-off
	Low buffet margin (above 20 000 ft)
Flight Manual Limitations	Vmo exceedence
	Mmo exceedence
	Flap placard speed exceedence
	Gear down speed exceedence
	Gear selection up/down speed exceedence

Event Group	Description
	Flap/ Slat altitude exceedence
	Maximum operating altitude exceedence

GM OR.OPS.201.AOC Flight data monitoring - aeroplanes

FLIGHT SAFETY PROGRAMME

- 1 Guidance material for the establishment of a safety programme and Flight Data Monitoring can be found in:
 - a. ICAO Doc 9422 (Accident Prevention Manual); and
 - b. ICAO Doc 9376 (Preparation of an Operational Manual).
 - c. CAP 739.

AMC1 OR.OPS.210.AOC(a) Personnel requirements

NOMINATED POST HOLDERS

- 1 A person may hold more than one of the nominated posts if it considered suitable and properly matched to the scale and scope of the operation.
- 2 A description of the functions and the responsibilities of the nominated post holders, including their names, should be contained in the operations manual.
- 3 The holder of an air operator certificate should make arrangements to ensure continuity of supervision in the absence of nominated post holders.
- 4 A person nominated as a post holder by the holder of an air operator certificate should not be nominated as a post holder by another holder of an air operator certificate, unless agreed with the competent authorities concerned.
- 5 Persons nominated as post holders should be contracted to work sufficient hours to fulfil the management functions associated with the scale and scope of the operation.
- 6 Whenever the posts of the Accountable Manager and the Compliance Monitoring Manager are combined, compliance monitoring audits should be conducted by independent personnel.

AMC2 OR.OPS.210.AOC(a) Personnel requirements

COMBINATION OF NOMINATED POST HOLDERS RESPONSIBILITIES

- 1 The acceptability of a single person holding several posts, possibly in combination with being the accountable manager, should depend upon the nature and scale of the operation. The two main areas of concern should be competence and an individual's capacity to meet his/her responsibilities.
- 2 As regards competence in different areas of responsibility, there should not be any difference from the requirements applicable to persons holding only one post.
- 3 The capacity of an individual to meet his/her responsibilities should primarily be dependent upon the scale of the operation. However the complexity of the organisation or of the operation may prevent, or limit, combinations of posts which may be acceptable in other circumstances.
- 4 In most circumstances, the responsibilities of a nominated post holder should rest with a single individual. However, in the area of ground operations, it may be acceptable for responsibilities to be split, provided that the responsibilities of each individual concerned are clearly defined.

GM1 OR.OPS.210.AOC(a) Personnel requirements

NOMINATED POST HOLDERS

The smallest organisation that can be considered is the one-man organisation where all of the nominated posts are filled by the accountable manager, and audits are conducted by an independent person.

GM2 OR.OPS.210.AOC(a) Personnel requirements**NOMINATED POST HOLDERS COMPETENCE**

- 1 Nominated post holders should be expected to possess the experience and licensing provisions which are listed in paragraphs 2 to 7 below. In particular cases, and exceptionally, the competent authority may accept a nomination which does not meet these provisions in full. In that circumstance, the nominee should have comparable experience and also the ability to perform effectively the functions associated with the post and with the scale of the operation.
- 2 Nominated post holders should have:
 - a. Practical experience and expertise in the application of aviation safety standards and safe operating practices;
 - b. Comprehensive knowledge of:
 - i. Community regulations and any associated requirements and procedures;
 - ii. The operator certificate holder's operations specifications;
 - iii. The need for, and content of, the relevant parts of the operator certificate holder's operations manual;
 - c. Familiarity with management systems;
 - d. Appropriate management experience in a comparable organisation; and
 - e. Five years of relevant work experience of which at least two years should be from the aeronautical industry in an appropriate position.
- 3 Flight Operations. The nominated post holder or his deputy should hold a valid Flight Crew Licence appropriate to the type of operation conducted under the Operator Certificate.
- 4 Crew Training. The nominated post holder or his deputy should be a current Type Rating Instructor on a type/class operated under the Operator Certificate. The nominated post holder should have a thorough knowledge of the Operator Certificate holder's crew training concept for flight, cabin and other crew when relevant.
- 5 Ground Operations. The nominated post holder should have a thorough knowledge of the operator certificate holder's ground operations concept.
- 6 Compliance monitoring. The nominated post holder should possess knowledge of the following:
 - a. The Air Operator Certificate holder's safety policy;
 - b. The concept of the compliance monitoring system;
 - c. Management systems;
 - d. Organisation manuals;
 - e. Audit techniques; and
 - f. Reporting and recording techniques.

AMC OR.OPS.210.AOC(c) Personnel requirements**SUPERVISION OF STAFF**

The supervision of personnel may be undertaken by the appropriate nominated postholder(s) subject to time available.

Section V – Flight Crew

Chapter 1

General

AMC OR.OPS.015.FC (d) Composition of flight crew

IN-FLIGHT RELIEF OF FLIGHT CREW MEMBERS - AEROPLANES

A flight crew member should be considered suitably qualified to relieve another flight crew member of his duties at the controls in flight in the following cases:

- 1 The pilot-in-command may delegate the conduct of the flight to another qualified pilot provided the relieving pilot-in-command:
 - a. holds the appropriate type or class rating;
 - b. meets the applicable recent experience requirements for pilots-in-command as specified in FCL.060;
 - c. meets the relevant qualifications prescribed in OR.OPS.020.FC, such as minimum level of experience, command course, competence regarding area, route, aerodrome, facilities and procedures; and
 - d. meets any other requirements which the operator may have established for that purpose.
- 2 The co-pilot may be relieved for the conduct of the flight by another qualified pilot provided that the relieving pilot:
 - a. holds the appropriate type or class rating;
 - b. meets the applicable recent experience requirements for co-pilots as specified in FCL.060; and
 - c. meets any other requirements which the operator may have established for that purpose.
- 3 For operations in the cruise phase of flight when operating above FL200 the recent experience requirements of 2.b above may be substituted by the recent experience requirements for cruise relief co-pilots as specified in FCL.060(b)(3).
- 3.1 For commercial air transport operations in the cruise phase of flight when operating above FL200 the minimum requirements for a cruise relief co-pilot include:
 - a. holding a valid commercial pilot licence with an instrument rating and the appropriate type or class rating; and
 - b. having undergone conversion and recurrent training and checking in accordance with the applicable requirements.
- 4 A system panel operator may be relieved in flight by a crew member suitably qualified in accordance with applicable national rules.

GM OR.OPS.015.FC Composition of flight crew

- 1 When engaging the services of flight crew members who are self-employed and/or working on a freelance or part-time basis, the operator should pay special attention to the requirements of this section and the relevant elements of Part FCL, such as recent experience requirements.
- 2 Particular attention should be paid to the total number of aircraft types or variants that a flight crew member may fly for the purposes of commercial air transportation, which should not exceed the requirements prescribed in OR.OPS.055.FC, and in OR.OPS.155.FC in the case of commercial air transport operations, including when his/her services are engaged by another operator.

AMC OR.OPS.020.FC (b)(2) Nomination as pilot-in-command**ROUTE AND AERODROME EXPERIENCE FOR COMMERCIAL OPERATIONS**

For commercial operations, the experience of the route or area to be flown and of the aerodrome facilities and procedures to be used should include the following:

- 1 Area and route competence
 - 1.1 Area and route competence training should include knowledge of:
 - a. Terrain and minimum safe altitudes;
 - b. Seasonal meteorological conditions;
 - c. Meteorological, communication and air traffic facilities, services and procedures;
 - d. Search and rescue procedures where available; and
 - e. Navigational facilities associated with the area or route along which the flight is to take place.
 - 1.2 Depending on the complexity of the area or route, as assessed by the operator, the following methods of familiarisation should be used:
 - a. For the less complex areas or routes, familiarisation by self-briefing with route documentation, or by means of programmed instruction; and
 - b. For the more complex areas or routes, in addition to sub-paragraph 1.2.a above, in flight familiarisation as a pilot-in-command or co-pilot under supervision, observer, or familiarisation in an FSTD using a database appropriate to the route concerned.
- 2 Aerodrome competence
 - 2.1 Aerodrome competence training should include knowledge of obstructions, physical layout, lighting, approach aids and arrival, departure, holding and instrument approach procedures and applicable operating minima.
 - 2.2 The Operations Manual should describe the method of categorisation of aerodromes and in the case of commercial air transport operations, provide a list of those aerodrome categorised as B or C.
 - 2.3 All aerodromes to which an operator operates should be categorised in one of these three categories.
 - 2.3.1 Category A. An aerodrome which meets all of the following requirements:
 - a. An approved instrument approach procedure;
 - b. At least one runway with no performance limited procedure for take-off and/or landing;
 - c. Published circling minima not higher than 1000 feet above aerodrome level; and
 - d. Night operations capability.
 - 2.3.2 Category B. An aerodrome which does not meet the Category A requirements or which requires extra considerations such as:
 - a. Non-standard approach aids and/or approach patterns;
 - b. Unusual local weather conditions;
 - c. Unusual characteristics or performance limitations; or
 - d. Any other relevant considerations including obstructions, physical layout, lighting etc.
 - 2.3.3. Category C. An aerodrome which requires additional considerations to a Category B aerodrome.
3. Prior to operating to:
 - a. a Category B aerodrome, the pilot-in-command should be briefed, or self-briefed by means of programmed instruction, on the Category B aerodrome(s) concerned. The completion of the briefing should be recorded.

- b. a Category C aerodrome, the pilot-in-command should be briefed and visit the aerodrome as an observer and/or undertake instruction in a Flight Simulator. The completion of the briefing, visit and/or instruction should be recorded.

GM OR.OPS.040.FC Differences and familiarisation training

- 1 Differences training requires additional knowledge and training on the aircraft or an appropriate training device. It should be carried out:
 - a. When introducing a significant change of equipment and/or procedures on types or variants currently operated; and
 - b. In the case of aeroplanes, when operating another variant of an aeroplane of the same type or another type of the same class currently operated; or
 - c. In the case of helicopters, when operating a variant of a helicopter currently operated.
- 2 Familiarisation training requires only the acquisition of additional knowledge. It should be carried out when:
 - a. operating another helicopter or aeroplane of the same type; or
 - b. When introducing a significant change of equipment and/or procedures on types or variants currently operated.

AMC OR.OPS.050.FC Pilot qualification to operate in either pilot's seat

COMMERCIAL AIR TRANSPORT

- 1 Pilots-in-command whose duties require them to operate in either seat and carry out the duties of co-pilot, or pilots-in-command required to conduct training or checking duties, should complete additional training and checking as specified in the Operations Manual, concurrent with the operator proficiency checks prescribed in OR.OPS.145.FC(b). This additional training should include at least the following:
 - a. An engine failure during take-off;
 - b. A one engine inoperative approach and go-around; and
 - c. A one engine inoperative landing.
- 1.1 In the case of helicopters, these pilots should also complete their proficiency checks respectively from left and right hand seats, on alternate proficiency checks, provided that when the type rating proficiency check is combined with the operator proficiency check the pilot-in-command completes his/her training or checking from the normally occupied seat.
- 2 When engine-out manoeuvres are carried out in an aircraft, the engine failure should be simulated.
- 2.1 In the case of single engine helicopters, the auto-rotative landing should be carried out respectively from left and right hand seats on alternate proficiency checks.
- 3 When operating in the co-pilot's seat, the checks required by OR.OPS.145.FC for operating in the pilot-in-command seat should, in addition, be valid and current.
- 4 A pilot relieving the pilot-in-command should have demonstrated, concurrent with the operator proficiency checks prescribed in OR.OPS.145.FC (b), practice of drills and procedures which would not, normally, be the relieving pilot's responsibility. Where the differences between left and right seats are not significant (for example because of use of autopilot) then practice may be conducted in either seat.
- 5 A pilot other than the pilot-in-command occupying the pilot-in-command seat should demonstrate practice of drills and procedures, concurrent with the operator proficiency checks prescribed in OR.OPS.145.FC (b), which would otherwise have been the pilot-in-command's responsibility acting as pilot non-flying. Where the

differences between both seats are not significant (for example because of use of autopilot) then practice may be conducted in either seat.

Chapter 2

Additional requirements for commercial air transport

AMC OR.OPS.115.FC (a) Composition of flight crew

CREWING OF INEXPERIENCED FLIGHT CREW MEMBERS

A Aeroplanes

- 1 An operator should consider that a flight crew member is inexperienced, following completion of a Type Rating or command course, and the associated line flying under supervision, until he has achieved on the type either:
 - a. 100 flying hours and flown 10 sectors within a consolidation period of 120 consecutive days; or
 - b. 150 flying hours and flown 20 sectors (no time limit).
- 2 A lesser number of flying hours or sectors, subject to any other conditions which the competent authority may impose, may be acceptable to the competent authority when:
 - a. A new operator is commencing operations;
 - b. An operator introduces a new aeroplane type;
 - c. Flight crew members have previously completed a type conversion course with the same operator; or
 - d. The aeroplane has a Maximum Take-off Mass below 10 tonnes or a Maximum Approved Passenger Seating Configuration of less than 20.

B Helicopters

- 1 An operator should consider that when two flight crew members are required, a flight crew member, following completion of a Type Rating or command course, and the associated line flying under supervision, is inexperienced until either:
 - a. He has achieved 50 flight hours on the type and/or in the role within a period of 60 days; or
 - b. He has achieved 100 flight hours on the type and/or in the role (no time limit).
- 2 A lesser number of flight hours, on the type and/or in the role, may be considered if:
 - a. A new operator is commencing operations; or
 - b. An operator introduces a new helicopter type; or
 - c. Flight crew members have previously completed a type conversion course with the same operator (re-conversion).

AMC OR.OPS.030.FC and OR.OPS.130.FC Crew Resource Management (CRM)

1 General

- 1.1 Crew Resource Management (CRM) is the effective utilisation of all available resources (e.g. crew members, aircraft systems, supporting facilities and persons) to achieve safe and efficient operation.
- 1.2 The objective of CRM is to enhance the communication and management skills of the flight crew member concerned. The emphasis is placed on the non-technical aspects of flight crew performance.
- 1.3 CRM training should reflect the culture of the operator and be conducted by means of both classroom training and practical exercises including group discussions and

accident and serious incident reviews to analyse communication problems and instances or examples of a lack of information or crew management.

- 1.4 Whenever it is practicable to do so, consideration should be given to conducting relevant parts of CRM training in synthetic training devices which reproduce, in an acceptable way, a realistic operational environment and permit interaction. This includes, but is not limited to, appropriate LOFT scenarios conducted in simulators.
- 1.5 It is recommended that, whenever possible, initial CRM training be conducted in a group session outside the operator premises so that the opportunity is provided for flight crew members to interact and communicate away from the pressures of their usual working environment.
- 2 Initial CRM Training
 - 2.1 Initial CRM training programmes are designed to provide knowledge of, and familiarity with, human factors relevant to flight operations. The course duration should be a minimum of one day for single pilot operations and two days for all other types of operations. It should cover all the elements indicated in paragraph 6 below.
 - 2.2 A CRM trainer should:
 - a. possess group facilitation skills;
 - b. have and maintain adequate knowledge of the operation and the aircraft type, preferably through current commercial air transport experience as a flight crew member;
 - c. have successfully passed the Human Performance and Limitations (HPL) examination whilst recently obtaining the ATPL in accordance with Part FCL; or followed a theoretical HPL course covering the whole syllabus of the HPL examination;
 - d. have completed initial CRM training;
 - e. have received additional education in the fields of group management, group dynamics and personal awareness;
 - f. be supervised by suitably qualified CRM training personnel when conducting their first initial CRM training session.
 - 2.3 An operator should ensure that initial CRM training addresses the nature of the operations of the operator concerned, as well as the associated procedures and the culture of the operator. This will include areas of operations which produce particular difficulties or involve adverse climatic conditions and any unusual hazards.
 - 2.4 If the operator does not have sufficient means to establish initial CRM training, use may be made of a course provided by another operator, or a third party or training organisation. In this event the operator should ensure that the content of the course meets his operational requirements. When crew members from several companies follow the same course, CRM core elements should be specific to the nature of operations of the companies and the trainees concerned.
 - 2.5 A flight crew member's CRM skills should not be assessed during initial CRM training.
- 3 Operator conversion Course - CRM 3.1. If the flight crew member undergoes a conversion course with a change of aircraft type, elements of CRM should be integrated into all appropriate phases of the operator's conversion course, in accordance with 6 below.
- 3.2 If the flight crew member undergoes a conversion course with a change of operator, elements of CRM should be integrated into all appropriate phases of the operator's conversion course, in accordance with 6 below.
- 3.3 A flight crew member should not be assessed when completing elements of CRM training which are included in the operator conversion course.

- 4 Command course - CRM training
 - 4.1 An operator should ensure that elements of CRM are integrated into the command course in accordance with paragraph 6 below.
 - 4.2 A flight crew member should not be assessed when completing elements of CRM training which are included in the command course, although feedback should be given.
- 5 Recurrent CRM training
 - 5.1 An operator should ensure that:
 - a. Elements of CRM are integrated into all appropriate phases of recurrent training every year, in accordance with paragraph 6 below; and that modular CRM training covers the same areas over a maximum period of 3 years.
 - b. Relevant modular CRM training is conducted by CRM trainers qualified according to paragraph 2.2.
 - 5.2 A flight crew member should not be assessed when completing elements of CRM training which are included in the recurrent training.
- 6 Implementation of CRM
 - 6.1 The following table indicates which elements of CRM should be included in each type of training:

Core Elements	Initial CRM Training	Operator conversion course when changing type	Operator conversion course when changing operator	Command course	Recurrent training
Human error and reliability, error chain, error prevention and detection	In-depth	In-depth	Overview	Overview	Overview
Operator safety culture, SOPs, organisational factors		Not required	In-depth	In-depth	
Stress, stress management, fatigue & vigilance					
Information acquisition and processing situation awareness, workload management		Overview	Not required		
Decision making					
Communication and co-ordination inside and outside the cockpit			Overview		
Leadership and team behaviour synergy					
Automation, philosophy of the use of automation (if relevant to the type)		As required	In-depth	In-depth	
Specific type-related differences	Not required				
Case based studies	In-depth	In-depth	In-depth	In-depth	As appropriate

7 Co-ordination between flight crew and cabin/technical crew training

7.1 Operators should, as far as is practicable, provide combined training for flight crew and cabin/technical crew including briefing and debriefing.

- 7.2 There should be an effective liaison between flight crew and cabin/technical crew training departments. Provision should be made for flight and cabin/technical crew instructors to observe and comment on each others training.
- 8 Assessment of CRM Skills
- 8.1 Assessment of CRM skills is the process of observing, recording, interpreting and debriefing crews' and crew member's performance and knowledge using an acceptable methodology in the context of overall performance. It includes the concept of self-critique, and feedback which can be given continuously during training or in summary following a check. In order to enhance the effectiveness of the programme this methodology should, where possible, be agreed with flight crew representatives.
- 8.2 NOTECHS or other acceptable methods of assessment should be used. The selection criteria and training requirements of the assessors and their relevant qualifications, knowledge and skills should be established.
- 8.3 Assessment of CRM skills should:
- provide feedback to the crew and the individual and serve to identify retraining where needed; and
 - be used to improve the CRM training system.
- 8.4 Prior to the introduction of CRM skills assessment, a detailed description of the CRM methodology including terminology used should be published in the Operations Manual.
- 8.5 Methodology of CRM skills assessment:
- An operator should establish the CRM training programme including an agreed terminology. This should be evaluated with regard to methods, length of training, depth of subjects and effectiveness.
 - A training and standardisation programme for training personnel should then be established.
 - The assessment should be based on the following principles:
 - only observable, repetitive behaviours are assessed;
 - the assessment should positively reflect any CRM skills that result in enhanced safety;
 - assessments should include behaviour which contributes to a technical failure, such technical failure being errors leading to an event which requires debriefing by the person conducting the line check;
 - the crew and, where needed, the individual are verbally debriefed.
- 8.6 De-identified summaries of all CRM assessments by the operator should be used to provide feedback to update and improve the operator's CRM training.
- 8.7 Operators should establish procedures, including retraining, to be applied in the event that personnel do not achieve or maintain the required standards.
- 8.9 If the operator proficiency check is combined with the Type Rating revalidation/renewal check, the assessment of CRM skills will satisfy the Multi Crew Co-operation requirements of the Type Rating revalidation/renewal. This assessment will not affect the validity of the Type Rating.
- 9 Levels of Training.
- Overview. When Overview training is required it will normally be instructional in style. Such training should refresh knowledge gained in earlier training.
 - In Depth. When In Depth Training is required it will normally be interactive in style and should include, as appropriate, case studies, group discussions, role play and consolidation of knowledge and skills. Core elements should be tailored to the specific needs of the training phase being undertaken.
- 10 Use of automation.

- 10.1 The operator conversion course should include training in the use and knowledge of automation and in the recognition of systems and human limitations associated with the use of automation. An operator should therefore ensure that a flight crew member receives training on:
 - a. The application of the operations policy concerning the use of automation as stated in the Operations Manual; and
 - b. System and human limitations associated with the use of automation.
- 10.2 The objective of this training should be to provide appropriate knowledge, skills and behavioural patterns for managing and operating automated systems. Special attention should be given to how automation increases the need for crews to have a common understanding of the way in which the system performs, and any features of automation which make this understanding difficult.

AMC1 OR.OPS.135.FC Operator conversion training and checking

OPERATOR CONVERSION TRAINING SYLLABUS - PILOTS

- 1 General
 - 1.1 The operator conversion training should include, in the following order:
 - a. Ground training and checking, including aircraft systems, and normal, abnormal and emergency procedures;
 - b. Emergency and safety equipment training and checking, (completed before flying training commences);
 - c. Flying training and checking (aircraft and/or flight simulator);
 - d. Line flying under supervision and line check; and
 - e. When a flight crew member has not previously completed an operator's conversion course, general first aid training and, if applicable, ditching procedures training using the equipment in water.
 - 1.2 The operator's conversion may be combined with the type rating training as required by Part FCL.
- 2 Ground training
 - 2.1 Ground training should comprise a properly organised programme of ground instruction by training staff with adequate facilities, including any necessary audio, mechanical and visual aids. However, if the aircraft concerned is relatively simple, private study may be adequate if the operator provides suitable manuals and/or study notes.
 - 2.2. The course of ground instruction should incorporate formal tests on such matters as aircraft systems, performance and flight planning, where applicable.
- 3 Emergency and safety equipment training and checking.
 - 3.1 Emergency and safety equipment training should take place in conjunction with cabin crew doing similar training with emphasis on co-ordinated procedures and two-way communications.
 - 3.2 On the initial conversion course and on subsequent conversion courses as applicable, the following should be addressed:
 - a. Instruction on first aid in general (initial conversion course only); Instruction on first aid as relevant to the aircraft type of operation and crew complement including those situations where no cabin crew is required to be carried (initial and subsequent);
 - b. Aeromedical topics including:
 - i. Hypoxia;
 - ii. Hyperventilation;
 - iii. Contamination of the skin/eyes by aviation fuel or hydraulic or other fluids;

- iv. Hygiene and food poisoning; and
- v. Malaria.
- c. The effect of smoke in an enclosed area and actual use of all relevant equipment in a simulated smoke-filled environment;
- d. Actual fire fighting, using equipment representative of that carried in the aircraft;
- e. The operational procedures of security, rescue and emergency services;
- f. Survival information appropriate to their areas of operation (e.g. polar, desert, jungle or sea) and training in the use of any survival equipment required to be carried;
- g. A comprehensive drill to cover all ditching procedures should be practised where flotation equipment is carried. This should include practice of the actual donning and inflation of a lifejacket, together with a demonstration or film of the inflation of life-rafts and/or slide-rafts and associated equipment. This practice should, on an initial conversion course, be conducted using the equipment in water, although previous certificated training with another operator or the use of similar equipment will be accepted in lieu of further wet-drill training;
- h. Instruction on the location of emergency and safety equipment, correct use of all appropriate drills, and procedures that could be required of flight crew in different emergency situations. Evacuation of the aircraft (or a representative training device) by use of a slide where fitted should be included when the Operations Manual procedure requires the early evacuation of flight crew to assist on the ground.

4 Flying training

- 4.1 Flying training should be conducted to familiarise the flight crew member thoroughly with all aspects of limitations and normal, abnormal and emergency procedures associated with the aircraft and should be carried out by suitably qualified type rating instructors and/or examiners. For specialised operations such as steep approaches, ETOPS, or operations based on QFE, additional training should be carried out, based on any additional elements of training established for the aircraft type in accordance with Part-21, where they exist.
- 4.2 In planning flying training on aircraft with a flight crew of two or more, particular emphasis should be placed on the practice of Line Orientated Flying Training (LOFT) with emphasis on Crew Resource Management (CRM), and the use of crew coordination procedures, including coping with incapacitation.
- 4.3 Normally, the same training and practice in the flying of the aircraft should be given to co-pilots as well as pilots-in-command. The 'flight handling' sections of the syllabus for pilots-in-command and co-pilots alike should include all the requirements of the operator proficiency check required by OR.OPS.145.FC.
- 4.4 Unless the type rating training programme has been carried out in a Flight Simulator usable for zero flight-time training (ZFTT), the training should include at least 3 takeoffs and landings in the aircraft.

5 Line flying under supervision

- 5.1 Following completion of flying training and checking as part of the operator's conversion course, each flight crew member should operate a minimum number of sectors and/or flying hours under the supervision of a flight crew member nominated by the operator.
- 5.2 The minimum sectors/hours should be specified in the Operations Manual and should be determined by the following:
 - a. Previous experience of the flight crew member;
 - b. Complexity of the aircraft; and

- c. The type and area of operation.
- 6 Passenger handling. Other than general training on dealing with people, emphasis should be placed on the following:
 - a. Advice on the recognition and management of passengers who appear or become intoxicated with alcohol, under the influence of drugs or aggressive;
 - b. Methods used to motivate passengers and the crowd control necessary to expedite an aircraft evacuation;
 - c. Awareness of the types of dangerous goods which may, and may not, be carried in a passenger cabin, including the completion of a dangerous goods training programme; and
 - d. The importance of correct seat allocation with reference to aircraft mass and balance. Particular emphasis should also be given on the seating of special categories of passengers.
- 7 Discipline and responsibilities. Amongst other subjects, emphasis should be placed on discipline and an individual's responsibilities in relation to:
 - a. His ongoing competence and fitness to operate as a crew member with special regard to flight time limitation requirements; and
 - b. Security procedures.
- 8 Passenger briefing/safety demonstrations. Training should be given in the preparation of passengers for normal and emergency situations.

AMC2 OR.OPS.135.FC**Operator conversion training and checking****COURSE SYLLABUS – SYSTEM PANEL OPERATORS**

- 1 Operator conversion training for system panel operators should approximate to that of pilots.
- 2 If the flight crew includes a pilot with the duties of a systems panel operator, he should, after training and the initial check in these duties, operate a minimum number of sectors under the supervision of a nominated additional flight crew member. The minimum figures should be specified in the Operations Manual and should be selected after due note has been taken of the complexity of the aircraft and the experience of the flight crew member.

GM OR.OPS.135.FC (a)(2)**Operator conversion training and checking****COMPLETION OF AN OPERATOR'S CONVERSION COURSE**

- 1 An operator conversion course is deemed to have started when the flying training has begun. The theoretical element of the course may be undertaken ahead of the practical element.
- 2 Under certain circumstances the course may have started and reached a stage where, for unforeseen reasons, it is not possible to complete it without a delay. In these circumstances the operator may allow the pilot to revert to the original type.
- 3 Before the resumption of the operator conversion course, the operator should evaluate how much of the course needs to be re-covered before continuing with the remainder of the course.

GM OR.OPS.135.FC (c)**Operator conversion training and checking****LINE FLYING UNDER SUPERVISION**

- 1 Line flying under supervision provides the opportunity for a flight crew member to carry into practice the procedures and techniques he has been made familiar with during the ground and flying training of an operator conversion course. This is accomplished under the supervision of a flight crew member specifically nominated and trained for the task. At the end of line flying under supervision the respective

crew member should be able to perform a safe and efficient flight conducted within the tasks of his crew member station.

- 2 A variety of reasonable combinations may exist with respect to:
 - a. A flight crew member's previous experience;
 - b. The complexity of the aircraft concerned; and
 - c. The type of route/role/area operations.
- 2.1 The following minimum figures for details to be flown under supervision are guidelines for operators to use when establishing their individual requirements:
 - 2.1.1 Turbo jet aircraft
 - a. Co-pilot undertaking first operator conversion course:
 - i. Total accumulated 100 hours or minimum 40 sectors;
 - b. Co-pilot upgrading to pilot-in-command:
 - i. Minimum 20 sectors when converting to a new type;
 - ii. Minimum 10 sectors when already qualified on the aeroplane type.

AMC1 OR.OPS.145.FC Recurrent training and checking

PILOTS

- 1 Recurrent training.

Recurrent training should comprise:
- 1.1 Ground training.
 - 1.1.1 The ground training programme should include:
 - a. Aircraft systems;
 - b. Operational procedures and requirements including ground de-icing/anti-icing and pilot incapacitation; and
 - c. Accident/Incident and occurrence review.
 - 1.1.2 Knowledge of the ground training should be verified by a questionnaire or other suitable methods.
 - 1.1.3 When the ground training is conducted within 3 calendar months prior to the expiry of the 12 calendar months period, the next ground and refresher training should be completed within 12 calendar months of the original expiry date of the previous training.
- 1.2 Emergency and Safety Equipment Training
 - 1.2.1 Emergency and safety equipment training may be combined with emergency and safety equipment checking and should be conducted in an aircraft or a suitable alternative training device.
 - 1.2.2 Every year the emergency and safety equipment training programme should include the following:
 - a. Actual donning of a lifejacket, where fitted;
 - b. Actual donning of protective breathing equipment, where fitted;
 - c. Actual handling of fire extinguishers of the type used;
 - d. Instruction on the location and use of all emergency and safety equipment carried on the aircraft;
 - e. Instruction on the location and use of all types of exits; and
 - f. Security procedures.
 - 1.2.3 Every 3 years the programme of training should include the following:
 - a. Actual operation of all types of exits;
 - b. Demonstration of the method used to operate a slide where fitted;

- c. Actual fire-fighting using equipment representative of that carried in the aircraft on an actual or simulated fire;
 - d. The effects of smoke in an enclosed area and actual use of all relevant equipment in a simulated smoke-filled environment;
 - e. Actual handling of pyrotechnics, real or simulated, where applicable;
 - f. Demonstration in the use of the life-rafts where fitted. In the case of helicopters involved in extended over water operations, demonstration and use of the life-rafts; and
 - g. First aid, appropriate to the aircraft type, the kind of operation and crew complement.
- 1.2.4 The successful resolution of aircraft emergencies requires interaction between flight crew and cabin/technical crew and emphasis should be placed on the importance of effective co-ordination and two-way communication between all crew members in various emergency situations.
- 1.2.5 Emergency and Safety Equipment training should include joint practice in aircraft evacuations so that all who are involved are aware of the duties other crew members should perform. When such practice is not possible, combined flight crew and cabin/technical crew training should include joint discussion of emergency scenarios.
- 1.2.6 Emergency and safety equipment training should, as far as is practicable, take place in conjunction with cabin/technical crew undergoing similar training with emphasis on co-ordinated procedures and two-way communication between the cockpit and the cabin.
- 1.3 Crew Resource Management (CRM)
 - 1.3.1 Elements of CRM should be integrated into all appropriate phases of recurrent training; and
 - 1.3.2 A specific modular CRM training programme should be established such that all major topics of CRM training are covered over a period not exceeding 3 years, as follows:
 - a. Human error and reliability, error chain, error prevention and detection;
 - b. Operator safety culture, SOPs, organisational factors;
 - c. Stress, stress management, fatigue and vigilance;
 - d. Information acquisition and processing, situation awareness, workload management;
 - e. Decision making;
 - f. Communication and co-ordination inside and outside the cockpit;
 - g. Leadership and team behaviour, synergy;
 - h. Automation and philosophy of the use of Automation (if relevant to the type);
 - i. Specific type-related differences;
 - j. Case based studies;
 - k. Additional areas which warrant extra attention, as identified by the management system.
 - 1.3.3 Operators should establish procedures to update their CRM recurrent training programme. Revision of the Programme should be conducted over a period not exceeding 3 years. The revision of the programme should take into account the de-identified results of the CRM assessments of crews, and information identified by the management system.
- 1.4 Aircraft/FSTD training.

- 1.4.1 The aircraft/FSTD training programme should be established in a way that all major failures of aircraft systems and associated procedures will have been covered in the preceding 3 year period.
- 1.4.2 When engine out manoeuvres are carried out in an aircraft, the engine failure should be simulated.
- 1.4.3 Aircraft/FSTD training may be combined with the operator proficiency check.
- 1.4.4 When the aircraft/FSTD training is conducted within 3 calendar months prior to the expiry of the 12 calendar months period, the next aircraft/FSTD training should be completed within 12 calendar months of the original expiry date of the previous training.

2 Recurrent checking.

Recurrent checking should comprise:

2.1 Operator proficiency checks.

2.1.1 Aeroplanes.

2.1.1.1 Where applicable, operator proficiency checks should include the following manoeuvres:

- a. Rejected take-off when a Flight Simulator is available to represent that specific aeroplane, otherwise touch drills only;
- b. Take-off with engine failure between V_1 and V_2 or as soon as safety considerations permit;
- c. Precision instrument approach to minima with, in the case of multi-engine aeroplanes, one engine inoperative;
- d. Non-precision approach to minima;
- e. Missed approach on instruments from minima with, in the case of multi-engine aeroplanes, one engine inoperative; and
- f. Landing with one engine inoperative. For single-engine aeroplanes a practice forced landing is required.

2.1.1.2 When engine out manoeuvres are carried out in an aeroplane, the engine failure should be simulated.

2.1.1.3 Once every 12 months, the checks prescribed in sub-paragraph 2.1.1.1 above may be combined with the proficiency check for the revalidation or renewal of the aircraft class or type rating.

2.1.1.4 For a pilot operating VFR only, the checks prescribed in sub-paragraphs 2.1.1.1.c. to e. above may be omitted except for an approach and go-around in a multi-engine aeroplane with one engine inoperative.

2.1.1.5 Operator proficiency checks should be conducted by a type rating examiner (TRE), a class rating examiner (CRE) or a synthetic flight examiner (SFE), as applicable.

2.1.2 Helicopters.

2.1.2.1 Where applicable, proficiency checks should include the following abnormal/emergency procedures:

- a. Engine fire;
- b. Fuselage fire;
- c. Emergency operation of under carriage;
- d. Fuel dumping;
- e. Engine Failure and relight;
- f. Hydraulic failure;
- g. Electrical failure;
- h. Engine failure during take-off before decision point;
- i. Engine failure during take-off after decision point;

- j. Engine failure during landing before decision point;
- k. Engine failure during landing after decision point;
- l. Flight and engine control system malfunctions;
- m. Recovery from unusual attitudes;
- n. Landing with one or more engine(s) inoperative;
- o. IMC auto-rotation techniques;
- p. Auto-rotation to a designated area;
- q. Pilot incapacitation;
- r. Directional control failures and malfunctions;
- s. Settling with power; and
- t. Loss of tail rotor effectiveness.

2.1.2.2 For pilots required to engage in IFR operations proficiency checks include the following additional abnormal/emergency procedures:

- a. Precision instrument approach to minima with, in the case of multi-engine helicopters, a simulated failure of one engine;
- b. Go-around on instruments from minima with, in the case of multi-engine helicopters, a simulated failure of one engine;
- c. Non precision approach to minima;
- d. Landing with a simulated failure of one or more engines; and
- e. Where appropriate to the helicopter type, approach with flight control system/flight director system malfunctions, flight instrument and navigation equipment failures.

2.1.2.3 Before a flight crew member without a valid instrument rating is allowed to operate VMC at night, he should be required to undergo a proficiency check at night. Thereafter, each second proficiency check should be conducted at night.

2.2 Emergency and safety equipment checks. The items to be checked should be those for which training has been carried out in accordance with sub-paragraph 1.2 above.

2.3 Line checks.

2.3.1 Line checks should establish the ability to perform satisfactorily a complete line operation including pre-flight and post-flight procedures and use of the equipment provided, as specified in the Operations Manual.

2.3.2 The flight crew should be assessed on their CRM skills in accordance with a methodology published in the Operations Manual. The purpose of such assessment is to:

- a. Provide feedback to the crew collectively and individually and serve to identify retraining; and
- b. Be used to improve the CRM training system.

2.3.3 CRM assessment alone should not be used as a reason for a failure of the line check.

2.3.4 When pilots are assigned duties as pilot flying and pilot non-flying they should be checked in both functions.

2.3.5 Line checks should be completed in an aircraft.

2.3.6 Line checks should be conducted by a pilot-in-command nominated by the operator. The person conducting the line check, who is described in 4.5.2 below, should occupy an observer's seat where installed. His CRM assessments should solely be based on observations made during the initial briefing, cabin briefing, cockpit briefing and those phases where he occupies the observer's seat.

- 2.3.6.1 For aeroplanes, in the case of long haul operations where additional operating flight crew are carried, the person may fulfil the function of a cruise relief pilot and should not occupy either pilot's seat during take-off, departure, initial cruise, descent, approach and landing.
- 2.3.7 Where a pilot is required to operate as pilot flying and pilot non-flying, he should be checked on one sector as pilot flying and on another sector as pilot non-flying. However, where an operator's procedures require integrated flight preparation, integrated cockpit initialisation and that each pilot performs both flying and non-flying duties on the same sector, then the line check may be performed on a single sector.
- 2.4 When the operator proficiency check, line check or emergency and safety equipment check are undertaken within the final 3 calendar months of validity of a previous check, the period of validity of the subsequent check should be counted from the expiry date of the previous check.
- 2.5 In the case of single pilot operations with helicopters, the recurrent checks referred to in paragraphs 2.1, 2.2 and 2.3 above should be performed in the single pilot role on a particular helicopter type in an environment representative of the operation.
- 3 Pilot incapacitation training
 - 3.1 Procedures should be established to train flight crew to recognise and handle pilot incapacitation. This training should be conducted every year and can form part of other recurrent training. It should take the form of classroom instruction, discussion or video or other similar means.
 - 3.2 If a Flight Simulator is available for the type of aircraft operated, practical training on pilot incapacitation should be carried out at intervals not exceeding 3 years.
- 4 Personnel providing training and checking.
Training and checking should be provided by the following personnel:
 - 4.1 Ground and refresher training – by suitably qualified personnel;
 - 4.2 Flying training - by a Flight Instructor (FI), Type Rating Instructor (TRI) or Class Rating Instructor (CRI) or, in the case of the FSTD content, a Synthetic Flight Instructor (SFI), providing that the FI, TRI, CRI or SFI satisfies the operator's experience and knowledge requirements sufficient to instruct on the items specified in paragraphs 1.1.1. a. and b. above;
 - 4.3. Emergency and safety equipment training – by suitably qualified personnel; and
 - 4.4 Crew Resource Management (CRM):
 - 4.4.1 Integration of CRM elements into all the phases of the recurrent training - by all the personnel conducting recurrent training. The operator should ensure that all personnel conducting recurrent training are suitably qualified to integrate elements of CRM into this training;
 - 4.4.2 Modular CRM training – by at least one CRM trainer who may be assisted by experts in order to address specific areas.
- 4.5 Recurrent checking should be conducted by the following personnel:
 - 4.5.1 Operator proficiency check – by a Type Rating Examiner (TRE), Class Rating Examiner (CRE) or, if the check is conducted in a FSTD, a TRE, CRE or a Synthetic Flight Examiner (SFE), trained in CRM concepts and the assessment of CRM skills;
 - 4.5.2 Line checks – by suitably qualified pilots-in-command nominated by the operator, trained in CRM concepts and the assessment of CRM skills;
 - 4.5.3 Emergency and safety equipment checking – by suitably qualified personnel.

AMC2 OR.OPS.145.FC Recurrent training and checking**WATER SURVIVAL TRAINING - HELICOPTERS**

- 1 Where life-rafts are fitted for extended over water operations (such as Sea Pilot transfer; offshore operation; regular, or scheduled, coast to coast over water operations), a comprehensive wet drill to cover all ditching procedures should be practised by aircraft crews. This wet drill is to include, as appropriate, practice of the actual donning and inflation of a life-jacket, together with a demonstration or film of the inflation of life-rafts. Crews should board the same (or similar) life-rafts from the water whilst wearing a life-jacket. Training should include the use of all survival equipment carried on board life-rafts and any additional survival equipment carried separately on board the aircraft.
- 2 Consideration should be given to the provision of further specialist training such as underwater escape training.

Note: Wet practice drill should always be given in initial training unless the crew member concerned has received similar training provided by another operator.

AMC3 OR.OPS.145.FC Recurrent training and checking**SYSTEM PANEL OPERATORS**

- 1 The recurrent training and checking for System Panel Operators should meet the requirements for pilots and any additional specific duties, omitting those items that do not apply to System Panel Operators.
- 2 Recurrent training and checking for System Panel Operators should, whenever possible, take place concurrently with a pilot undergoing recurrent training and checking.
- 3 A line check should be conducted by a pilot-in-command or by a system panel operator nominated by the operator, in accordance with national rules, if applicable.

GM OR.OPS.145.FC Recurrent training and checking

- 1 Line checks, route and aerodrome competency and recent experience requirements are intended to ensure the crew member's ability to operate efficiently under normal conditions, whereas other checks and emergency and safety equipment training are primarily intended to prepare the crew member for abnormal/emergency procedures.
- 2 The line check is performed in the aircraft. All other training and checking should be performed in the aircraft of the same type, an FSTD, an approved flight simulator, or in the case of emergency and safety equipment training, in a representative training device. The type of equipment used for training and checking should be representative of the instrumentation, equipment and layout of the aircraft type operated by the flight crew member.
- 3 Line Checks
 - 3.1 The line check is considered a particularly important factor in the development, maintenance and refinement of high operating standards, and can provide the operator with a valuable indication of the usefulness of his training policy and methods. Line checks are a test of a flight crew member's ability to perform a complete line operation, including pre flight and post flight procedures and use of the equipment provided, and an opportunity for an overall assessment of his ability to perform the duties required as specified in the Operations Manual. The route chosen should be such as to give adequate representation of the scope of a pilot's normal operations. When weather conditions preclude a manual landing, an automatic landing is acceptable. The line check is not intended to determine competence on any particular route. The pilot-in-command, or any pilot who may be required to relieve the pilot-in-command, should also demonstrate his ability to 'manage' the operation and take appropriate command decisions.

- 4 Proficiency Training and Checking
 - 4.1 When an FSTD is used, the opportunity should be taken, where possible, to use Line Oriented Flying Training (LOFT).
 - 4.2 Proficiency training and checking for System Panel Operators should, where practicable, take place at the same time a pilot is undergoing proficiency training and checking.
- 5 Use of Flight Simulation Training Devices (FSTD) training.
 - 5.1 Training and checking provides an opportunity for the practice of abnormal/emergency procedures which rarely arise in normal operations and is a part of a structured programme of recurrent training. This should be carried out in an FSTD whenever possible.
 - 5.2 Helicopters.
 - 5.2.1 Where there is a Flight Manual limitation on the use of certain emergency power ratings, procedures to permit realistic engine-failure training and demonstration of competence, without actual use of the emergency power ratings, should be developed in conjunction with the aircraft manufacturer and included in the aircraft flight manual.
 - 5.2.2 Where the emergency drills require action by the non-handling pilot, the check should additionally cover knowledge of these drills.
 - 5.2.3 Because of the unacceptable risk when simulating emergencies such as rotor failure, icing problems, certain types of engine(s) (e.g. during continued take-off or go-around, total hydraulic failure etc.), or because of environmental considerations associated with some emergencies (e.g. fuel dumping) these emergencies should preferably be covered in an FSTD. If no FSTD is available these emergencies may be covered in the helicopter using a safe airborne simulation, bearing in mind the effect of any subsequent failure, and discussion on the ground.
- 6 The operator proficiency check may be combined with the annual type or class rating or instrument rating proficiency checks in accordance with Part FCL. In this case a combined check report may be used, details of which should be contained in the Operations Manual.

AMC1 OR.OPS.155.FC Operation on more than one type or variant

- 1 Aeroplanes.
 - 1.1 When a flight crew member operates more than one aeroplane class, type or variant, the operator should ensure that the flight crew member does not operate more than:
 - a. Three piston engine aeroplane types or variants; or
 - b. Three turbo-propeller aeroplane types or variants; or
 - c. One turbo-propeller aeroplane type or variant and one piston engine aeroplane type or variant; or
 - d. One turbo-propeller aeroplane type or variant and any aeroplane within a particular class.
 - 1.2 When a flight crew member operates more than one aeroplane type or variant within one or more licence endorsement as defined by Part-FCL and associated procedures for type – multi pilot, an operator should ensure that:
 - a. The minimum flight crew complement specified in the Operations Manual is the same for each type or variant to be operated;
 - b. A flight crew member does not operate more than two aeroplane types or variants for which a separate licence endorsement is required; and

- c. Only aeroplanes within one licence endorsement are flown in any one flight duty period unless the operator has established procedures to ensure adequate time for preparation.
- 1.3 When a flight crew member operates more than one aeroplane type or variant listed in Part-FCL and associated procedures for type-single pilot and type-multi pilot, but not within a single licence endorsement, an operator should comply with:
 - a. Subparagraph 1.2 above; and
 - b. Subparagraph 1.4 below.
- 1.4 When a flight crew member operates more than one aeroplane type or variant and associated procedures for type-multi pilot, but not within a single licence endorsement, the operator should comply with the following:
 - a. Subparagraph 1.2 above;
 - b. Before exercising the privileges of 2 licence endorsements:
 - i. Flight crew members should have completed two consecutive operator proficiency checks and should have 500 hours in the relevant crew position in commercial air transport operations with the same operator.
 - ii. In the case of a pilot having experience with an operator and exercising the privileges of 2 licence endorsements, and then being promoted to command with the same operator on one of those types, the required minimum experience as pilot-in-command is 6 months and 300 hours, and the pilot should have completed 2 consecutive operator proficiency checks before again being eligible to exercise 2 licence endorsements.
 - c. Before commencing training for and operation of another type or variant, flight crew members should have completed 3 months and 150 hours flying on the base aeroplane which should include at least one proficiency check.
 - d. After completion of the initial line check on the new type, 50 hours flying or 20 sectors should be achieved solely on aeroplanes of the new type rating.
 - e. Recent experience requirements established in Part FCL and approved in accordance with Part-21, if applicable, for each type operated.
 - f. The period within which line flying experience is required on each type should be specified in the Operations Manual.
 - g. When credits are established and approved in accordance with Part-21 for the relevant type or variant, this should be reflected in the training required in OR.OPS.145.FC and:
 - i. OR.OPS.145(b) requires two operator proficiency checks every year. When credit is approved in accordance with Part-21 for operator proficiency checks to alternate between the two types, each operator proficiency check revalidates the operator proficiency check for the other type. The operator proficiency check may be combined with the proficiency checks for revalidation or renewal of the aeroplane type rating or the instrument rating in accordance with Part FCL.
 - ii. OR.OPS.145 (c) requires one line check every year. When credit is approved in accordance for Part-21 for line checks to alternate between types or variants, each line check revalidates the line check for the other type or variant.
 - h. Annual emergency and safety equipment training and checking should cover all requirements for each type.

2 Helicopters.

- 2.1 If a flight crew member operates more than one type or variant the following provisions should be met:
 - a. The recency requirements and the requirements for recurrent training and checking should be met and confirmed prior to commercial air transport operations on any type, and the minimum number of flights on each type within a three month period specified in the Operations Manual;
 - b. OR.OPS.145 requirements with regard to recurrent training;
 - c. When approved in accordance with Part-21, the requirements of OR.OPS.145 with regard to proficiency checks may be met by a 6 monthly check on any one type or variant operated. However, a proficiency check on each type or variant operated should be completed every 12 months;
 - d. For helicopters with a maximum certificated take-off mass (MCTOM) exceeding 5.700 kg, or with a maximum approved passenger seating configuration (MAPSC) of more than 19:
 - i. The flight crew member should not fly more than two helicopter types;
 - ii. A minimum of 3 months and 150 hours experience on the type or variant should be achieved before the flight crew member should commence the conversion course onto the new type or variant;
 - iii. 28 days and/or 50 hours flying should then be achieved exclusively on the new type or variant; and
 - iv. A flight crew member should not be rostered to fly more than one type or significantly different variant of a type during a single duty period.
 - e. In the case of all other helicopters, a flight crew member should not operate more than three helicopter types or significantly different variants.
- 3 For a combination of helicopter and aeroplane.
- 3.1 A flight crew member may fly one helicopter type or variant and one aeroplane type irrespective of their maximum certificated take-off mass (MCTOM) or the maximum passenger seating configuration (MPSC).
- 3.3 If the helicopter type is covered by paragraph 2.d. then paragraphs 2.d.ii., 2.d.iii. and 2.d.iv should also apply in this case.

AMC2 OR.OPS.155.FC Operation on more than one type or variant

METHODOLOGY - USE OF OPERATOR DIFFERENCE REQUIREMENT (ODR) TABLES - AEROPLANES

- 1 Before assigning flight crew members to operate more than one type or variant of aircraft, the operator should conduct a detailed evaluation of the differences and/or similarities of the aircraft concerned in order to establish appropriate procedures and/or operational restrictions. This evaluation should be based on the evaluation conducted and approved in accordance with Part-21 and should be adapted to the operator's specific aircraft configurations. This evaluation should take into account of the following:
 - a. The level of technology;
 - b. Operational procedures;
 - c. Handling characteristics.
- 1.1 The methodology described below should be used as a means of evaluating aeroplane differences and similarities to justify the operation of more than one type or variant, and when credit is sought.
- 2 ODR Tables
- 2.1 Before requiring flight crew members to operate more than one type or variant, operators should first nominate one aeroplane as the Base Aeroplane from which to show differences with the second aeroplane type or variant, the 'difference

aeroplane', in terms of technology (systems), procedures, pilot handling and aeroplane management. These differences, known as Operator Difference Requirements (ODR), preferably presented in tabular format, constitute part of the justification for operating more than one type or variant and also the basis for the associated differences/familiarisation training for the flight crew.

3 The ODR Tables should be presented as follows:

3.1 Table 1 - ODR 1 – General

BASE AEROPLANE: DIFFERENCE AEROPLANE:				COMPLIANCE METHOD		
GENERAL	DIFFERENCES	FLT CHAR	PROC CHNG	Training	Checking	Recent Experience
General description of aircraft (dimensions, weight, limitations, etc.)	Identification of the relevant differences between the base aeroplane and the difference aeroplane.	Impact on flight characteristics (performance and/or handling)	Impact on procedures (Yes or No)	Assessment of the difference levels according to Table 4		

3.2. Table 2 - ODR 2 - systems

BASE AEROPLANE: DIFFERENCE AEROPLANE:				COMPLIANCE METHOD		
SYSTEM	DIFFERENCES	FLT CHAR	PROC CHNG	Training	Checking	Recent Experience
Brief description of systems and subsystems classified according to the ATA 100 index.	list of differences for each relevant subsystem between the base aeroplane and the difference aeroplane.	Impact on flight characteristics (performance and/or handling)	Impact on procedures (Yes or No)	Assessment of the difference levels according to Table 4		

3.3. Table 3 - ODR 3 - manoeuvres

BASE AEROPLANE: DIFFERENCE AEROPLANE:				COMPLIANCE METHOD		
MANOEUVRES	DIFFERENCES	FLT CHAR	PROC CHNG	Training	Checking	Recent Experience
Described according to phase of flight (gate, taxi, flight, taxi, gate)	List of relevant differences for each manoeuvre between the base aeroplane and the difference aeroplane.	Impact on flight characteristics (performance and/or handling)	Impact on procedures (Yes or No)	Assessment of the difference levels according to Table 4		

4 Compilation of ODR Tables

4.1 ODR 1 - Aeroplane general

- a. The general characteristics of the difference aeroplane should be compared with the base aeroplane with regard to:
 - i. General dimensions and aeroplane design;
 - ii. Cockpit general design;
 - iii. Cabin layout;
 - iv. Engines (number, type and position);
 - v. Limitations (flight envelope).

4.2 ODR 2 - Aeroplane systems

- a. Consideration should be given to differences in design between the difference aeroplane and the base aeroplane. This comparison should be completed using the ATA 100 index to establish system and subsystem classification and then an analysis performed for each index item with respect to main architectural, functional and/or operations elements, including controls and indications on the systems control panel.

4.3 ODR 3 - Aeroplane manoeuvres (operational differences)

- a. Operational differences encompass normal, abnormal and emergency situations and include any change in aeroplane handling and flight management. It is necessary to establish a list of operational items for consideration on which an analysis of differences can be made. The operational analysis should take the following into account:
 - i. Cockpit dimensions (e.g. size, cut-off angle and pilot eye height);
 - ii. Differences in controls (e.g. design, shape, location, function);
 - iii. Additional or altered function (flight controls) in normal or abnormal conditions;
 - iv. Procedures;
 - v. Handling qualities (including inertia) in normal and abnormal configurations;
 - vi. Performance in manoeuvres;
 - vii. Aeroplane status following failure;
 - viii. Management (e.g. ECAM, EICAS, navaid selection, automatic checklists).

- 4.4 Once the differences for ODR 1, ODR 2 and ODR 3 have been established, the consequences of differences evaluated in terms of Flight Characteristics (FLT CHAR) and Change of Procedures (PROC CHNG) should be entered into the appropriate columns.
- 4.5 Difference Levels - crew training, checking and currency
- 4.5.1 The final stage of an operator's proposal to operate more than one type or variant is to establish crew training, checking and currency requirements. This may be established by applying the coded difference levels from Table 4 to the Compliance Method column of the ODR Tables.
- 5 Differences items identified in the ODR systems as impacting flight characteristics, and/or procedures, should be analysed in the corresponding ATA section of the ODR manoeuvres. Normal, abnormal and emergency situations should be addressed accordingly.
- 6 Table 4 - Difference Levels versus training

Difference Level	Method/Minimum Specification for Training Device
A: Represents knowledge requirement.	Self Instruction through operating bulletins or differences handouts
B: Aided instruction is required to ensure crew understanding, emphasise issues, aid retention of information, or : aided instruction with partial application of procedures	Aided instruction e.g. computer based training (CBT), class room instruction or video tapes. Interactive CBT
C: For variants having part task differences affecting skills or abilities as well as knowledge. Training device required to ensure attainment and retention of crew skills	FSTD (FTD(A), Level 1)
D: Full task differences affecting knowledge, skills and/or abilities using FSTDs capable of performing flight manoeuvres.	FSTD (FTD(A), Level 2)
E: Full tasks differences requiring high fidelity environment to attain and maintain knowledge skills and abilities.	FSTD (FFS, Level C)

Note: Levels A and B require familiarisation training, levels C, D and E require differences training. For Level E, the nature and extent of the differences may be such that it is not possible to fly both types or variants with a credit in accordance with AMC1 OR.OPS.155.FC sub-paragraph 1.4(g).

GM OR.OPS.155.FC Operation on more than one type or variant

AEROPLANES

- 1 Terminology
- 1.1 The terms used in the context of the operation of more than one type or variant have the following meaning:
- a. Base aeroplane. An aeroplane, or a group of aeroplanes, designated by an operator and used as a reference to compare differences with other aeroplane types/variants within an operator's fleet.

- b. Aeroplane variant. An aeroplane, or a group of aeroplanes, with the same characteristics but which have differences from a base aeroplane which require additional flight crew knowledge, skills, and or abilities that affect flight safety.
- c. Credit. The recognition of training, checking or recent experience on one type or variant as being valid for another type or variant because of sufficient similarities between the two types or variants.
- d. Differences training. See AMC to FCL.710.
- e. Familiarisation training. See AMC to FCL.710.
- f. Operator Difference Requirements (ODRs). A formal description of differences between types or variants flown by a particular operator.

1.2 Training and checking difference levels

- a. Level A
 - i. Training. Level A training can be adequately addressed through self-instruction by a crew member through page revisions, bulletins or differences handouts. Level A introduces a different version of a system or component which the crew member has already shown the ability to use and understand. The differences result in no, or only minor, changes in procedures.
 - ii. Checking. A check related to differences is not required at the time of training. However, the crew member is responsible for acquiring the knowledge and may be checked during proficiency checking.
- b. Level B
 - i. Training. Level B training can be adequately addressed through aided instruction such as slide/tape presentation, computer based instruction which may be interactive, video or classroom instruction. Such training is typically used for part-task systems requiring knowledge and training with, possibly, partial application of procedures (e.g. fuel or hydraulic systems etc.).
 - ii. Checking. A written or oral check is required for initial and recurrent differences training.
- c. Level C
 - i. Training. Level C training should be accomplished by use of "hands on" Flight Training Device (FTD) Level 1 or higher. The differences affect skills, abilities as well as knowledge but do not require the use of "real time" devices. Such training covers both normal and non-normal procedures (for example for flight management systems).
 - ii. Checking. An FSTD used for training level C or higher is used for a check of conversion and recurrent training. The check should utilise a "real time" flight environment such as the demonstration of the use of a flight management system. Manoeuvres not related to the specific task do not need to be tested.
- d. Level D
 - i. Training. Level D training addresses differences that affect knowledge, skills and abilities for which training will be given in a simulated flight environment involving "real time" flight manoeuvres for which the use of a Flight Training Device (FTD) Level 1 would not suffice, but for which motion and visual clues are not required. Such training would typically involve a Flight Training Device (FTD) Level 2.
 - ii. Checking. A proficiency check for each type or variant should be conducted following both initial and recurrent training. However, credit may be given for manoeuvres common to each type or variant and need not be repeated. Items trained to level D differences may be

checked in Flight Training Device (FTD) Level 2. Level D checks will therefore comprise at least a full proficiency check on one type or variant and a partial check at this level on the other.

e. Level E

- i. Training. Level E provides a realistic and operationally oriented flight environment achieved only by the use of Level C or D Full Flight Simulators or the aeroplane itself. Level E training should be conducted for types and variants which are significantly different from the base aeroplane and/or for which there are significant differences in handling qualities.
- ii. Checking. A proficiency check on each type or variant should be conducted in a level C or D Full Flight Simulator or the aeroplane itself. Either training or checking on each Level E type or variant should be conducted every 6 months. If training and checking are alternated, a check on one type or variant should be followed by training on the other so that a crew member receives at least one check every 6 months and at least one check on each type or variant every 12 months.

2 Philosophy

- 2.1 The concept of operating more than one type or variant depends upon the experience, knowledge and ability of the operator and the flight crew concerned.
- 2.2 The first consideration is whether or not the two aeroplane types or variants are sufficiently similar to allow the safe operation of both.
- 2.3 The second consideration is whether or not the types or variants are sufficiently similar for the training, checking and recent experience items completed on one type or variant to replace those required on the similar type or variant. If these aeroplanes are similar in these respects, then it is possible to have credit for training, checking and recent experience. Otherwise, all training, checking and recent experience requirements prescribed in this Section should be completed for each type or variant within the relevant period without any credit.

3 Differences between aeroplane types or variants

- 3.1 The first stage in any operator's submission for crew multi-type or variant operations is to consider the differences between the types or variants. The principal differences are in the following three areas:
 - a. Level of technology. The level of technology of each aircraft type or variant under consideration encompasses at least the following design aspects:
 - i. Cockpit layout (e.g. design philosophy chosen by a manufacturer);
 - ii. Mechanical versus electronic instrumentation;
 - iii. Presence or absence of Flight Management System (FMS);
 - iv. Conventional flight controls (hydraulic, electric or manual controls) versus fly-by-wire;
 - v. Side-stick versus conventional control column;
 - vi. Pitch trim systems;
 - vii. Engine type and technology level (e.g. jet/turboprop/piston, with or without automatic protection systems).
 - b. Operational differences. Consideration of operational differences involves mainly the pilot machine interface, and the compatibility of the following:
 - i. Paper checklist versus automated display of checklists or messages (e.g. ECAM, EICAS) during all procedures;
 - ii. Manual versus automatic selection of nav-aids;
 - iii. Navigation equipment;

- iv. Aircraft weight and performance.
- c. Handling characteristics. Consideration of handling characteristics includes control response, crew perspective and handling techniques in all stages of operation. This encompasses flight and ground characteristics as well as performance influences (e.g. number of engines). The capabilities of the autopilot and auto-thrust systems may affect handling characteristics as well as operational procedures.
- 4 Training, checking and crew management. Alternating training and proficiency checking may be permitted if the submission to operate more than one type or variant shows clearly that there are sufficient similarities in technology, operational procedures and handling characteristics.
- 5 An example of completed ODR tables for an operator's proposal for flight crews to operate more than one type or variant may appear as follows:

Table 1 - ODR 1 - AEROPLANE GENERAL

BASE AEROPLANE: 'X' DIFFERENCE AEROPLANE: 'Y'				COMPLIANCE METHOD		
GENERAL	DIFFERENCES	FLT CHAR	PROC CHNG	Training	Checking	Recent Experience
Cockpit	Same cockpit arrangement, 2 observers seats on 'Y'	NO	NO	A	/	/
Cabin	'Y' max certificated passenger capacity: 335, 'X': 179	NO	NO	A	/	/

Table 2 - ODR 2 - SYSTEMS

BASE AEROPLANE: 'X' DIFFERENCE AEROPLANE: 'Y'				COMPLIANCE METHOD		
SYSTEMS	DIFFERENCES	FLT CHAR	PROC CHNG	Training	Checking	Recent Experience
21 Air Conditioning	- Trim air system - packs - cabin temperature	NO NO NO	YES NO YES	B	B	B
22 Auto flight	- FMGS architecture - FMGES functions - reversion modes	NO NO NO	NO YES YES	B C D	B C D	B B D
23 Communica-tions						

Table 3 - ODR 3 - MANOEUVRES

BASIC AEROPLANE: 'X' DIFFERENCE AEROPLANE: 'Y'				COMPLIANCE METHOD		
MANOEUVRES	DIFFERENCES	FLT CHAR	PROC CHNG	Training	Checking	Recent Experience
Taxi	- Pilot eye height, turn radius,	YES	NO	D	D	/
	- two engine taxi (1&4)	NO	NO	A	/	/
Take-off	Flight Characteristics in ground law	YES	NO	E	E	E
Rejected take-off	Reverser actuation logic	YES	NO	D	D	D
Take-off engine failure	- V ₁ /V _r split	YES(P) *	NO	B	B	B
	- Pitch attitude/lateral control	YES(H) *	NO	E	E	

*P = Performance, H = Handling

Section VI – Cabin Crew

Chapter 1 - Common Requirements

GM OR.OPS.110.CC Conditions for assignment of cabin crew to duties

SELF-EMPLOYED, FREELANCE OR PART-TIME CABIN CREW

Before assigning to duties a cabin crew member who is self-employed and/or working on a freelance or part-time basis, the operator should give particular attention to all applicable requirements of this Section with special regard to the number of aircraft types and variants operated and to flight and duty time limitations and rest requirements.

AMC1 OR.OPS.115.CC Training courses and associated checking

INITIAL TRAINING COURSE

- 1 For non-commercial operations, cabin crew members holding a valid cabin crew attestation in accordance with Part-CC and proficient on the aircraft type to be operated need not be provided by the operator with all the training required in Part-CC but should be trained in accordance with the applicable requirements of Part-OR.
- 2 The initial training may be combined with the first aircraft type training courses when all such training courses are provided to the cabin crew member by the same operator and the respective training subjects are properly covered and recorded.

AMC2 OR.OPS.115.CC Training courses and associated checking

CREW RESSOURCE MANAGEMENT- CRM INSTRUCTORS AND TRAINING PROGRAMMES

1. CRM Instructor qualifications
 - 1.1 All personnel conducting training should be suitably qualified to integrate elements of CRM into all appropriate training programmes.
 - 1.2 A training and standardisation programme for CRM instructors should be established.

- 1.3 Cabin crew CRM instructors should:
- a. have suitable experience of commercial air transport as a cabin crew member;
 - b. have received instruction on Human Factors Performance Limitations (HPL);
 - c. have completed an Introductory CRM course and the cabin crew CRM training courses applicable by operators;
 - d. have received instructions in training skills in order to conduct CRM courses; and
 - e. be supervised by suitably qualified CRM instructors when conducting their first CRM training course.
- 1.4 An experienced non-cabin crew CRM instructor may continue to be a cabin crew CRM instructor, provided that the provisions of paragraph 1.3 b) to e) are satisfied and that a satisfactory knowledge has been demonstrated of the nature of the operation and the relevant specific aircraft types showing a suitable knowledge of the cabin crew working environment.
- 1.5 Instructors integrating elements of CRM into aircraft type training, recurrent training, or senior cabin crew training should have acquired relevant knowledge of human factors and have completed appropriate CRM training.
- 2 CRM training programmes
- 2.1 There should be an effective liaison between flight crew and cabin crew training departments. Provision should be made for flight and cabin crew instructors to observe and comment on each others training. Consideration should be given to creating flight deck scenarios on video for playback to all cabin crew during recurrent training, and to providing the opportunity for cabin crew, particularly senior cabin crew, to participate in Flight Crew LOFT exercises.
- 2.2 The programme of each CRM training course, their contents and the level to be achieved, should comply with the relevant elements specified in CRM training Table 1 as applicable to the appropriate training course to be completed.

CRM Training - Table 1 Training Elements	Operator's CRM Training	Operator's Aircraft Type Training CRM	Operator's Annual Recurrent CRM Training	Senior Cabin Crew Course
General Principles				
Human factors in aviation General instructions on CRM principles and objectives Human performance and limitations	Not required	Not required	Not required	Overview
Relevant to the individual cabin crew member				
Personality awareness, human error and reliability, attitudes and behaviours, self-assessment Stress and stress management Fatigue and vigilance Assertiveness, situation awareness, information acquisition and processing	Not required	Not required	Overview (3 year cycle)	Not required
Relevant to the whole aeroplane crew				
Error prevention and detection	In-depth	Relevant to the type(s)	Overview (3 year cycle)	Rein- forcement (relevant to the senior cabin crew duties)
Shared situation awareness, information acquisition and processing				
Workload management				
Effective communication and co-ordination between all crew members including the flight crew as well as inexperienced cabin crew members, cultural differences				
Leadership, cooperation, synergy, decision-making, delegation				
Individual and team responsibilities, decision making, and actions				
Identification and management of the passenger human factors: crowd control, passenger stress, conflict management, medical factors				
Specifics related to aeroplane types (narrow/wide bodies, single/multi deck), flight crew and cabin crew composition and number of passengers	Not required	In-depth		
Relevant to the operator and the organisation				
Company safety culture, SOPs, organisational factors, factors linked to the type of operations Effective communication and co-ordination with other operational personnel and ground services Participation in cabin safety incident and accident reporting	In- depth	Relevant to the type(s)	Overview (3 year cycle)	Rein- forcement (relevant to the Senior cabin crew duties)
Case-based studies	Required		Required	

GM OR.OPS.115.CC Training courses and associated checking**CREW RESSOURCE MANAGEMENT (CRM)**

- 1 Introduction to CRM
 - 1.1 Crew Resource Management should be the effective utilisation of all available resources (e.g. crew members, aeroplane systems, and supporting facilities) to achieve safe and efficient operation.
 - 1.2 The objective of CRM should be to enhance the communication and management skills of the crew member, as well as the importance of effective co-ordination and two-way communication between all crew members.
 - 1.3 Operator's CRM training should reflect the culture of the operator, the scale and scope of the operation together with associated operating procedures and areas of operation which produce particular difficulties.
- 2 General principles for CRM training for cabin crew
 - 2.1 Cabin crew CRM training should focus on issues related to cabin crew duties, and therefore, should be different from flight crew CRM training. However, the co-ordination of the tasks and functions of flight crew and cabin crew should be addressed.
 - 2.2 Whenever it is practicable to do so, combined training should be provided to flight crew and cabin crew, particularly senior cabin crew members, including feedback.
 - 2.3 Where appropriate, CRM principles should be integrated into relevant parts of cabin crew training.
 - 2.4 CRM training should include group discussions and the review of accidents and incidents (case-based studies).
 - 2.5 Whenever it is practicable to do so, relevant parts of CRM training should form part of the training conducted in cabin mock-ups or aircraft.
 - 2.6 CRM training courses should be conducted in a structured and realistic manner.
 - 2.7 There should be no assessment of CRM skills. Feedback from instructors or members of the group on individual performance should be given during training to the individuals concerned.
- 3 CRM Training for senior cabin crew
 - 3.1 CRM training for senior cabin crew Members should be the application of knowledge gained in previous CRM training and operational experience relevant to the specific duties and responsibilities of a senior cabin crew member.
 - 3.2 The senior cabin crew member should demonstrate ability to manage the operation and take appropriate leadership/management decisions.

AMC OR.OPS.125.CC Operator's aircraft type training and differences training**TRAINING PROGRAMME****1 Description of the cabin configuration**

The description should cover all elements specific to the operator's cabin configuration and any differences with those previously covered in accordance with CC.TRA.125, including:

- 1.1 cabin crew seats (including direct view) location/restraint systems/control panels;
- 1.2 passenger seats-presentation;
- 1.3 flight deck security door-components/use;
- 1.4 designated stowage areas;
- 1.5 lavatories location/lavatory doors and lavatory systems/emergency equipments in the lavatory/calls and signs;
- 1.6 galley-location/appliances/water and waste system, including shut off, sinks, drains/stowage/control panels/calls; and where applicable:
- 1.7 crew rest areas- location/systems/controls/safety equipment;
- 1.8 class dividers/curtains/partitions;
- 1.9 lift location/use/controls;
- 1.10 stowage for the containment of waste; and
- 1.11 passenger hand rail system or alternative means.

2 Safety equipment

Each cabin crew member should receive realistic training on and demonstration of the location and use of all safety equipment carried including:

- 2.1 lifejackets, infant lifejackets and flotation cots;
- 2.2 first-aid oxygen;
- 2.3 fire extinguishers and protective breathing equipment (PBE);
- 2.4 fire axe or crow-bar;
- 2.5 emergency lights including torches;
- 2.6 communication equipment, including megaphones;
- 2.7 survival packs and their contents;
- 2.8 pyrotechnics (actual or representative devices);
- 2.9 first-aid kits, emergency medical kits and their contents; and
- 2.10 other portable safety equipment where applicable.

3 Passenger briefing and safety demonstrations

Training should be given in the preparation of passengers for normal and emergency situations.

3 Normal and emergency procedures

Each cabin crew member should be trained to the operator's normal and emergency procedures as applicable with particular emphasis to the following:

- 3.1 passenger briefing, safety demonstration and cabin surveillance;
- 3.2 severe air turbulence;
- 3.3 sudden decompression, including the donning of portable oxygen equipment by each cabin crew member; and
- 3.4 other in-flight emergencies.

4 Passenger handling and crowd control

Training should be provided on the practical aspects of passenger handling and crowd control in various emergency situations as applicable to the operator's aircraft configuration, and should cover the following:

- 4.1 communications between flight crew and cabin crew and use of all communications equipment, including the difficulties of co-ordination in a smoke-filled environment;
- 4.2 verbal commands;
- 4.3 the physical contact that may be needed to encourage people out of an exit and onto a slide;
- 4.4 the re-direction of passengers away from unusable exits;
- 4.5 the marshalling of passengers away from the aeroplane;
- 4.6 the evacuation of special categories of passengers with emphasis on passengers with disabilities or reduced mobility; and
- 4.7 authority and leadership.
- 5 *Fire and smoke training*
- 5.1 Each cabin crew member should receive realistic and practical training in the use of all fire-fighting equipment including protective clothing representative of that carried in the aircraft;
- 5.2 Each cabin crew member should be trained in extinguishing an actual fire characteristic of an aircraft interior fire except that, in the case of Halon extinguishers, an alternative extinguishing agent may be used and in the donning and use of protective breathing equipment in an enclosed simulated smoke-filled environment.
- 6 *Operator's evacuation procedures*
Training should include all operator's procedures applicable to planned or unplanned evacuations on land or water including when relevant the additional actions required from cabin crew members responsible for a pair of exits.
- 7 *Pilot incapacitation*
Unless the minimum flight crew is more than 2, each cabin crew member should be trained in the procedure for flight crew member incapacitation and should operate the seat and harness mechanisms. Training in the use of flight crew members' oxygen system and use of the flight crew members' checklists, where required by the operator's standard operating procedures (SOP's), should be conducted by a practical demonstration.
- 8 *Crew resource management (CRM)*
- 9.1 Each cabin crew member should complete the operator's CRM training covering the applicable training elements specified in CRM Training Table 1
- 9.2 When a cabin crew member undertakes a type training course on another aircraft type, the applicable training elements specified in CRM Training Table 1 should be covered.
- 9.3 The operator's CRM training and aircraft type CRM training should be conducted by at least one cabin crew CRM instructor.

GM OR.OPS.125.CC Operator's aircraft type training and differences training

TRAINING PROGRAMME

The programme of aircraft type training and of differences training may be developed taking account of the cabin crew member's previous training as described in the training records of the cabin crew member concerned.

AMC OR.OPS.130.CC Familiarisation

FAMILIARISATION FLIGHTS AND AIRCRAFT VISITS

- 1 For non-commercial operations, the cabin crew member should be assigned to operate at least 2 flight sectors under supervision on the aircraft type to be operated or comply with one of the following provisions.

- 2 For commercial air transport operations, familiarisation of cabin crew to a new aircraft type or variant should be completed in accordance with the following as relevant:
 - 2.1 New entrant cabin crew

Each new entrant cabin crew member having no previous comparable operating experience should:

 - a. Participate in a visit as described in paragraph 4 to the aircraft to be operated; and
 - b. Participate in familiarisation flights as described in paragraph 3.
 - 2.2 Cabin crew operating on a subsequent aircraft type

A cabin crew member assigned to operate on a subsequent aircraft type with the same operator should participate either:

 - a. in a familiarisation flight as described in paragraph 3 below; or
 - b. in a visit as described in paragraph 4 to the aircraft type to be operated.
- 3 Familiarisation flights
 - 3.1 During familiarisation flights, the cabin crew member should be additional to the minimum number of cabin crew required by OR.OPS.105.CC and OR.OPS.205.CC as applicable.
 - 3.2 Familiarisation flights should:
 - a. be conducted under the supervision of the senior cabin crew member;
 - b. be structured and involve the cabin crew member in the participation of safety related pre-flight, in-flight and post-flight duties;
 - c. be operated with the cabin crew member wearing the operator's cabin crew uniform; and
 - d. form part of the training record of each cabin crew member.
- 4 Aircraft visits
 - 4.1 The purpose of aircraft visits is to familiarise the cabin crew member with the aircraft environment and its equipment. Accordingly, aircraft visits should be conducted by suitably qualified persons. The aircraft visit should provide an overview of the aircraft's exterior, interior and systems including the following:
 - a. interphone and public address systems;
 - b. evacuation alarm systems;
 - c. emergency lighting;
 - d. smoke detection systems;
 - e. safety/emergency equipment;
 - f. flight deck;
 - g. cabin crew stations;
 - h. toilet compartments;
 - i. galleys, galley security and water shut-off;
 - j. cargo areas if accessible from the passenger compartment during flight;
 - k. circuit breaker panels located in the passenger compartment;
 - l. crew rest areas; and
 - m. exit location and its environment.
 - 4.2 An aircraft familiarisation visit may be combined with the operator's aircraft type training required by OR.OPS.125.CC.

AMC OR.OPS.135.CC Operator's recurrent training and associated checking**TRAINING PROGRAMME AND VALIDITY**

- 1 Training programme
 - 1.1 Training on the location and handling of emergency equipment should include oxygen systems, and the donning by each cabin crew member of lifejackets, portable oxygen and protective breathing equipment (PBE);
 - 1.2 Training on emergency situations should cover pilot incapacitation procedures and crowd control techniques;
 - 1.3 Crew resource management training should satisfy the following:
 - a. The applicable training elements in CRM Training Table 1 should be covered within a three year cycle to the level required by Column Annual Recurrent CRM Training.
 - b. The definition and implementation of the programme should be managed by a cabin crew CRM instructor.
 - c. When CRM training is provided by stand-alone modules, it should be conducted by at least one cabin crew CRM instructor.
 - 1.4 Training on operation of normal and emergency exits should be conducted in an aeroplane or representative training device; and cover failure of power assist systems where fitted. This is to include the action and forces required to operate and deploy evacuation slides, and additional training when relevant for cabin crew members responsible for a pair of exits.
 - 1.5 Training in the use of all fire-fighting equipment, including protective clothing, representative of that carried in the aircraft should include:
 - a. extinguishing a fire characteristic of an aircraft interior fire except that, in the case of Halon extinguishers, an alternative extinguishing agent may be used; and
 - b. the donning and use of protective breathing equipment by each cabin crew member in an enclosed, simulated smoke-filled environment.
- 2 Validity period
 - 2.1. The remainder of the month of completion of the annual recurrent training and associated checking may be added to the 12 calendar months period of validity.
 - 2.2. If issued within the final 3 calendar months of validity of a previous check, the period of validity should extend from the date of issue until 12 calendar months from the expiry date of that previous check.

AMC OR.OPS.140.CC Operator's refresher training and checking**TRAINING PROGRAMME**

- 1 Training on procedures should include pilot incapacitation and crowd control as applicable to the type;
- 2 Operation of doors and exits by each cabin crew member should include failure of power assist systems where fitted as well as the action and forces required to operate and deploy evacuation slides; and
- 3 Demonstration of the operation of all other exits should include flight deck windows.

GM OR.OPS.140.CC Operator's refresher training and checking**FREQUENCY OF REFRESHER TRAINING**

For aircraft with complex equipment or procedures, the operator should consider the need for refresher training to be completed by cabin crew members who have been absent of flying duties for less than 6 months.

Chapter 2 - Additional requirements for commercial air transport

AMC OR.OPS.205.CC number and composition of cabin crew

DETERMINATION OF THE NUMBER AND COMPOSITION OF CABIN CREW

- 1 Factors to be taken into account when determining the minimum number of cabin crew should include:
 - 1.1 the number of exits;
 - 1.2 the type of exits and their associated slides;
 - 1.3 the location of exits in relation to cabin crew seats and the cabin layout;
 - 1.4 the location of cabin crew seats taking into account cabin crew duties in an emergency evacuation including:
 - a. opening floor level exits and initiating stair or slide deployment;
 - b. assisting passengers to pass through exits; and
 - c. directing passengers away from inoperative exits, crowd control and passenger flow management;
 - 1.5 actions required to be performed by cabin crew in ditchings, including the deployment of slide-rafts and the launching of life-rafts;
 - 1.6 additional actions required to be performed by cabin crew members when responsible for a pair of exits; and
 - 1.7 the type and duration of the flight to be operated.
- 2 When the number of cabin crew is reduced below the minimum required by OR.OPS.105.CC or OR.OPS.205.CC (a) as applicable,, for example in the event of incapacitation of cabin crew, consideration should be given at least to the following:
 - 2.1 Reduction of passenger numbers;
 - 2.2 Re-seating of passengers with due regard to exits and other applicable aeroplane limitations; and
 - 2.3 Relocation of cabin crew and any change of procedures.
- 3 When scheduling cabin crew for a flight, an operator should establish procedures which take account of the experience of each cabin crew member such that the required cabin crew includes some cabin crew members who have at least 3 months operating experience as a cabin crew member.

AMC OR.OPS.205.CC (e) Number and composition of cabin crew

REDUCED MINIMUM CABIN CREW DURING GROUND OPERATIONS

During ground operations if reducing the minimum required number of cabin crew members, the operator should ensure that the procedures required by OR.OPS.205.CC (e) (iii) include at least a specific procedure for the evacuation of passengers with the reduced number of cabin crew and specify that:

- 1 the senior cabin crew member should have performed the pre-boarding safety briefing to the cabin crew;
- 2 the pre-boarding cabin checks should have been completed; and
- 3 the senior cabin crew member should be present in the passenger cabin.

GM OR.OPS.205.CC (e) Number and composition of cabin crew

MINIMUM CABIN CREW DURING GROUND OPERATIONS

During ground operations, if reducing the minimum required number of cabin crew members, the operator should have established operational procedures to ensure that:

- 1 electrical power is available on the aeroplane;
- 2 a means of initiating an evacuation is available to the senior cabin crew member or at

- least one member of the flight crew is on the flight deck;
- 3 cabin crew stations and associated duties are specified in the operations manual; and
- 4 cabin crew remain aware of the position of servicing and loading vehicles at and near the exits.

AMC OR.OPS.250 CC Operations on more than one type or variant

DETERMINATION OF SIMILARITIES FOR TYPES AND VARIANTS RELATED TO OPERATOR'S SPECIFICS

- 1 When determining similarity of location and type of portable safety equipment the following factors should be assessed to justify the finding of similarity:
 - 1.1 all portable safety equipment is stowed in the same, or in exceptional circumstances, in substantially the same location;
 - 1.2 all portable safety equipment requires the same method of operation;
 - 1.3 portable safety equipment includes:
 - a. fire fighting equipment;
 - b. protective breathing equipment (PBE);
 - c. oxygen equipment;
 - d. crew lifejackets;
 - e. torches;
 - f. megaphones;
 - g. first aid equipment;
 - h. survival equipment and signalling equipment; and
 - i. other safety equipment where applicable.
- 2 The emergency procedures include, but are not limited, to the following:
 - 2.1 land and water evacuation;
 - 2.2 in-flight fire;
 - 2.3 decompression; and
 - 2.4 pilot incapacitation.

GM OR.OPS.250.CC Operations on more than one type or variant

SAFETY BRIEFING FOR CABIN CREW

When changing aeroplane type or variant during a series of flights, the cabin crew safety briefing should include a representative sample of type specific normal and emergency procedures and safety equipment applicable to the actual aircraft type to be operated.

AMC OR.OPS.260.CC (b) Senior cabin crew member

TRAINING PROGRAMME

The senior cabin crew member training course should at least cover all the following subjects:

- 1 Pre-flight briefing:
 - 1.1 operating as a crew;
 - 1.2 allocation of cabin crew stations and responsibilities; and
 - 1.3 consideration of the particular flight, including aeroplane type, equipment, area and type of operation including ETOPS, and special categories of passengers with particular

attention to disabled persons, persons with reduced mobility, infants and stretcher cases.

- 2 Cooperation within the crew:
 - 2.1 discipline, responsibilities and chain of command;
 - 2.2 importance of co-ordination and communication; and
 - 2.3 pilot incapacitation.
- 3 Review of operator's requirements and legal requirements:
 - 3.1 passenger safety briefing, safety cards;
 - 3.2 securing of galleys;
 - 3.3 stowage of cabin baggage;
 - 3.4 electronic equipment;
 - 3.5 procedures when fuelling with passengers on board;
 - 3.6 turbulence, and
 - 3.7 documentation.

4 Accident and incident reporting

5 Human factors and Crew Resource Management

The operator should ensure that all applicable elements of CRM Training Table 1 are integrated into the training and covered to the level required by Column Senior Cabin Crew Course.

6 Flight and duty time limitations and rest requirements.

GM OR.OPS.260.CC (b)(5) Senior cabin crew member

CRM TRAINING

Whenever practicable, the CRM training should include the participation of senior cabin crew members in flight simulator Line Oriented Flying Training exercises.

AMC OR.OPS.260.CC (c) Senior cabin crew member

RESPONSIBILITY TO THE PILOT_IN_COMMAND

During turbulence, in the absence of any instructions from the flight crew, the senior cabin crew member should for safety or security purposes discontinue non-safety-related duties and advise the flight crew of the level of turbulence being experienced and the need for the fasten seat belt signs to be switched on. This should be followed by the cabin crew securing the passenger cabin and other applicable areas.

Section VII – Technical crew member in HEMS, HHO and NVIS operations

AMC OR.OPS.015.TC Conditions for assignment of technical crew to duties

GENERAL

- 1 A technical crew member in HEMS, HHO and NVIS operations should undergo an initial medical examination and assessment and, if applicable, a re-assessment before undertaking duties.
- 2 Any medical assessment or re-assessment should be carried out by a general medical practitioner who has sufficient detailed knowledge of best aero-medical practice and the applicant's medical background.
- 3 An operator should maintain a record of medical fitness for each technical crew member.
- 4 Technical crew members should:
 - a. be in good health;

- b. be free from any physical or mental illness which might lead to incapacitation or inability to perform crew duties;
 - c. have normal cardiorespiratory function;
 - d. have normal central nervous system;
 - e. have adequate visual acuity 6/9 with or without glasses;
 - f. have adequate hearing; and
 - g. have normal function of ear, nose and throat.
- 5 Before assigning to duties those technical crew members, who are self-employed and/or working on a freelance or part-time basis, the operator shall ensure that they comply with all applicable requirements of this Section with special regard to the maximum number of aircraft types and variants operated by that technical crew member.

AMC1 OR.OPS.20.TC Initial and type-related training

INITIAL TRAINING

- 1 Initial training should include:
- a. Fire and Smoke Training, including:
 - i. reactions to emergencies involving fire and smoke and identification of the fire sources;
 - ii. The classification of fires and the appropriate type and techniques of application of extinguishing agents, the consequences of misapplication, and of use in a confined space; and
 - iii. The general procedures of ground-based emergency services at aerodromes.
 - b. When conducting extended overwater operations, Water Survival Training, including the use of personal flotation equipment.
 - c. Before first operating on an aircraft fitted with life-rafts or other similar equipment, training on the use of this equipment, including practice in water.
 - d. Survival Training appropriate to the areas of operation, (e.g. polar, desert, jungle, sea or mountain).
 - e. Medical aspects and First Aid, including:
 - i. Instruction on first aid and the use of first-aid kits; and
 - ii. The physiological effects of flying.
 - f. Effective communication between technical crew members and flight crew members including common language and terminology.
 - g. Task-specific training when involved in operations other than commercial air transport; and
 - h. Relevant CRM elements.

AMC2 OR.OPS.20.TC Initial and type-related training

TYPE-RELATED TRAINING

- 1 Type-related training should include:
- a. Fire and smoke training, including practical training in the use of all fire fighting equipment as well as protective clothing representative of that carried in the aircraft. Each technical crew member should:
 - i. extinguish a fire characteristic of an aircraft interior fire except that, in the case of Halon extinguishers, an alternative extinguishing agent may be used; and
 - ii. practice the donning and use of protective breathing equipment (when fitted) in an enclosed, simulated smoke-filled environment.

- b. Practical training on operating and opening all normal and emergency exits for passenger evacuation in an aircraft or representative training device and demonstration of the operation of all other exits.
- c. Evacuation procedures and other emergency situations, including:
 - i. Recognition of planned or unplanned evacuations on land or water. This training should include recognition of unusable exits or unserviceable evacuation equipment;
 - ii. In-flight fire and identification of fire source; and
 - iii. Other in-flight emergencies.
- d. Training on assisting if a pilot becomes incapacitated, including a demonstration of:
 - i. The pilot's seat mechanism;
 - ii. Fastening and unfastening the pilot's seat harness;
 - iii. Use of the pilot's oxygen equipment, when applicable; and
 - iv. Use of pilots' checklists.
- e. Training on, and demonstration of, the location and use of safety equipment including the following:
 - i. Life-rafts, including the equipment attached to, and/or carried in, the raft, where applicable;
 - ii. Lifejackets, infant lifejackets and flotation cots, where applicable;
 - iii. Fire extinguishers;
 - iv. Fire axe or crow-bar;
 - v. Emergency lights including portable lights;
 - vi. Communication equipment, including megaphones;
 - vii. Survival packs, including their contents;
 - viii. Pyrotechnics (actual or representative devices);
 - ix. First-aid kits, their contents and emergency medical equipment; and
 - x. Other safety equipment or systems, where applicable.
- f. Training on passenger briefing/safety demonstrations and preparation of passengers for normal and emergency situations.
- g. Training on the use of dangerous goods, if applicable.
- h. Task-specific training.

AMC OR.OPS.025.TC Aircraft type and differences training

GENERAL

- 1 An operator should determine the content of the aircraft type or differences training taking account of the technical crew member's previous training as recorded in the technical crew member's training records.
- 2 Aircraft type training should be conducted according to a syllabus and include the use of relevant equipment and emergency procedures and practice on a representative training device or on the actual aircraft.

AMC OR.OPS.035.TC Recurrent training

GENERAL

- 1 The training should be undertaken within the final 3 calendar months of validity of the previous training.
- 2 The annual practical training should include:
 - a. Emergency procedures including pilot incapacitation;

- b. Evacuation procedures;
 - c. Touch-drills by each technical crew member for opening normal and emergency exits for (passenger) evacuation;
 - d. The location and handling of emergency equipment and the donning by each technical crew member of lifejackets and protective breathing equipment (PBE), when applicable;
 - e. First aid and the contents of the first-aid kit(s);
 - f. Stowage of articles in the cabin;
 - g. Use of dangerous goods, if applicable;
 - h. Crew Resource Management.
- 3 Recurrent training should include every 3 years:
- a. practical training on operating and opening all normal and emergency exits for passenger evacuation in an aircraft or representative training device and demonstration of the operation of all other exits;
 - b. practical training in the use of all fire fighting equipment as well as protective clothing representative of that carried in the aircraft. Each technical crew member should:
 - i. extinguish a fire characteristic of an aircraft interior fire except that, in the case of Halon extinguishers, an alternative extinguishing agent may be used; and
 - ii. practice the donning and use of protective breathing equipment (when fitted) in an enclosed, simulated smoke-filled environment.
 - c. Use of pyrotechnics (Actual or representative devices); and
 - d. Demonstration of the use of the life-raft, where fitted.

AMC OR.OPS.040.TC Refresher training

GENERAL

- 1 Refresher training may include re-familiarisation flights.
- 2 Refresher training should include at least the following:
 - a. Emergency procedures including pilot incapacitation;
 - b. Evacuation procedures;
 - c. Practical training on operating and opening all normal and emergency exits for passenger evacuation in an aircraft or representative training device and demonstration of the operation of all other exits; and
 - d. The location and handling of emergency equipment, and the donning of lifejackets, and protective breathing equipment, when applicable.

AMC OR.OPS.045.TC Checking

GENERAL

- 1 Elements of training which require individual practice may be combined with practical checks.
- 2 The checks should be accomplished by the method appropriate to the type of training including:
 - a. Practical demonstration;
 - b. Computer-based assessment;
 - c. In-flight checks; and/or
 - d. Oral or written tests.

Section VIII – Flight and duty time limitations and rest requirements

AMC OR.OPS.015.FTL(b) Operator responsibilities

NOMINATION OF HOME BASE

The home base nominated by the operator should not be changed for the purpose of extending the FDP or reducing the rest period. If operational necessities require the change of home base, it should not be changed more than 4 times in any given period of 12 calendar months.

AMC OR.OPS.015.FTL(I) Operator responsibilities

The operator should take action to change a schedule or crewing arrangements where the actual operation exceeds the maximum flight duty period, during a scheduled seasonal period, by more than:

- 1 33 % for commercial air transport operations (aeroplanes); or
- 2 15% for commercial charter and taxi operators; or
- 3 10 % in all other cases.

GM OR.OPS.025.FTL Fatigue Risk Management System (FRMS) and

GM OR.OPS.325.FTL Fatigue Risk Management System (FRMS)

When considering this guidance material, operators should bear in mind that only those elements which are proportionate to the type, size and complexity of their operation and corresponding flight time specification schemes need to be taken into consideration.

The following terms are used in the context of FRMS:

- 1 Fatigue.
A physiological state of reduced mental or physical performance capability resulting from sleep loss or extended wakefulness and/or physical activity that can impair a crew member's alertness and ability to safely operate an aircraft or perform safety related duties.
- 2 Fatigue Countermeasures Training.
A competency based training programme designed to develop the awareness of all stakeholders about how the interaction of operational, rest, sleep, circadian and lifestyle factors impacts on the potential fatigue and resulting crew alertness and performance during flight operations.
- 3 Fatigue Risk Management.
The management of fatigue in a manner appropriate to the level of risk exposure and the nature of the operation, in order to minimise the adverse effects of fatigue on the safety of operations.
- 4 Fatigue Risk Management System (FRMS).
A scientifically-based, data-driven flexible approach to fatigue management that forms part of an operator's management system and involves a continuous process of monitoring and managing fatigue risk.
- 5 Safety Assessment.
Safety Assessment requires the identification of hazards and the assessment of those associated risks against an acceptable level of risk.
- 6 Ultra long range operations (ULR).
Augmented long range flights having a planned flight duration greater than 16 hours or a flight duty period that exceeds 18 hours.

A well-developed and managed FRMS integrates operational and scientific data such as physiological and behavioural measures in the rostering of crew members. This is accomplished by providing a balance between duty types, crew rest and recovery that enables crew members to be adequately rested immediately prior to their flight duties. In the case of

extended flight duty periods with augmented crews, such as ultra long range operations, the planning of in-flight rest periods can be optimised.

The successful implementation of the FRMS relies on the concept that all relevant aspects addressed in this Guidance Material is being implemented rather than selective elements only.

1. Purpose and scope
 - 1.1 The purpose of a Fatigue Risk Management System (FRMS) is to ensure that crew members are sufficiently alert so that they can operate to a satisfactory level of performance and safety.
 - 1.2 In order to accomplish this, two types of fatigue should be taken into account, namely, transient fatigue and cumulative fatigue. Transient fatigue may be described as fatigue that is dispelled by a single sufficient period of sleep. Cumulative fatigue occurs after incomplete recovery from transient fatigue over multiple days and nights and recovery only occurs after more extensive time off including multiple periods of sleep.
 - 1.3 An FRMS should be used in conjunction with certification specifications or individual flight time specification schemes to meet flight and duty time limitations and rest requirements. An FRMS employs a multi-layered defence as part of an effective management system and uses scientific knowledge and methods of data collection and analysis specific to the risk. An FRMS provides a comprehensive range of safeguards in order to control the risk associated with both transient and cumulative fatigue.
 - 1.4 Given that fatigue results from an interaction between sleep loss, circadian phase (or 24-hour physiological cycle), and workload, the risk management components and processes based upon this guidance material are intended to provide safeguards against both kinds of fatigue by recognizing:
 - a. the necessity to manage crew member workload, flight duty periods, duty periods, and rest periods with the aim of mitigating both kinds of fatigue;
 - b. the necessity to manage the duty period in which additional tasks are performed immediately prior to a flight or at intermediate points during a series of flights in such a way as to prevent transient fatigue;
 - c. the necessity to limit total duty time and flight time over specified periods for crew members, in order to prevent cumulative fatigue;
 - d. the necessity to provide crew members with adequate sleep opportunity to recover from fatigue before commencement of the next flight duty period; and
 - e. the necessity of taking into account other related tasks the crew member may be required to perform in order to guard particularly against cumulative fatigue.
- 2 Fatigue Risk Management Concepts
 - 2.1 In accordance with management system concepts, an FRMS is a scientifically based, data-driven ongoing adaptive process that can identify fatigue risks and develop and evaluate mitigation strategies to manage any emerging operational risks. Because it is based upon scientific principles and knowledge combined with sound methods of data collection and analysis, an FRMS will maintain a required level of safety whilst allowing operational flexibility.
 - 2.2 An FRMS is an integral part of an operator's established management system. An FRMS applies suitable methodologies within management system principles and processes to proactively and continuously manage fatigue risk through a process requiring shared responsibility between management and crew members. Since crew feedback and non-punitive reporting are essential elements of an FRMS, a "just culture" is integral to any FRMS programme. An FRMS should therefore be based on a partnership approach for which there is agreement between the operator, competent authority and crew member representatives.
 - 2.3 The implementation of an individual flight time specification scheme requires an FRMS that is adequate to manage the operational risk of that scheme.
- 3 Roles and Responsibilities
 - 3.1 The operator's responsibilities:

- a. Develop, document and implement a comprehensive FRMS based on appropriate scientific principles knowledge and methods, in order to adequately manage fatigue-related safety risk;
- b. Include in the FRMS a comprehensive system of policies, training, methods, processes, and data, which are monitored by internal audits within the framework of the operator's management system;
The operator should provide FRMS education and awareness training to all stakeholder personnel (e.g., flight crew, cabin crew, flight operations/cabin crew management personnel, rostering personnel/schedulers, etc).
- c. Provide adequate resources for the continuing effectiveness of the FRMS;
- d. Establish mechanisms for ongoing consultation with its stakeholders, the competent authority and crew representatives;
FRMS requires a joint effort between management and staff, and operators should encourage participation within the FRMS through open and effective communication. The operator should provide adequate resources to maintain and improve the FRMS as knowledge is gained and data is collected. Operators should ensure that sufficient personnel, including personnel with the appropriate scientific expertise where available, are used to advise the Fatigue Management Steering Group (FMSG) which should be established by the operator, responsible for coordinating all fatigue management activities.
- e. A commercial operator should work cooperatively with the competent authority to address any issues that may need to be modified in order to obtain initial and continuing approval. Any reports or data, including notifiable events that suggest any negative safety issues, should be provided to the competent authority, and the operator should propose satisfactory processes to mitigate any safety issues. Operators should reflect in their operations manuals those elements of their operations under the FRMS.

3.2 The crew member's responsibilities:

- a. Crew members should have a comprehensive understanding of the operator's FRMS, adhere to all applicable aspects of the FRMS, and be a full partner in the development and implementation of the FRMS;
- b. Crew members should make best use of the facilities and opportunities that are provided for rest, sleep, and for the consumption of meals, and should plan and use rest periods to ensure that sufficient sleep is obtained to be adequately rested before beginning their next duty period.
- c. Crew members should not perform flight related duties on an aircraft when they know that they are fatigued or feel unfit to the extent that the safety of flight may be adversely affected. Crew members should report any instance when they believe that they are fatigued and that safety may be affected.

4 Essential components of an FRMS

An FRMS comprises several essential components. These are intended to provide structure and guidance to assure that fatigue risk management is implemented effectively and that regulatory oversight is performed in a reliable and verifiable documented manner. While these components are considered essential, they are not exclusive of others that may provide additional operational and safety benefits. The following are the minimum components that are required for an FRMS.

4.1 A fatigue risk management policy

The operator's fatigue risk management policy is an integral part of its safety policy as prescribed by the management system. It describes the operator's commitment, responsibility and governance.

4.2 Education and awareness training programmes

These provide management, crew members and employees associated with the safety of flight with knowledge of the science related to fatigue and understanding of the FRM concept inclusive of:

- a. raising awareness of the FRMS and associated responsibilities with regard to fatigue;
 - b. training how to assess personal fatigue risk and to identify the early warning signs of fatigue in others;
 - c. providing information on the operational procedures that are to be followed when fatigue risk is identified;
 - d. providing personal strategies that can be employed to manage individual fatigue risk; and
 - e. improving understanding of sleep, circadian rhythms (or 24-hour physiological cycle) and fatigue.
- 4.3 Processes for the detection, reporting, and investigation of fatigue risk including the analysis of information sources on fatigue. These processes should be based upon objective operational data and should enable the operator to develop and evaluate the effectiveness of reactive and proactive measures (e.g., trip scheduling, crew rostering, rest periods, etc.) designed to reduce and manage fatigue risk.
- 4.4 Processes for monitoring fatigue in flight crew including self-generated reports. These are intended to enable timely feedback to an operator.
- 4.5 Processes for reporting, investigating and recording incidents that may be attributable wholly or partially to fatigue, and a feedback mechanism within the operators' management system.

AMC OR.OPS.025.FTL(b) Fatigue Risk Management System (FRMS)

The FRMS should be appropriate to manage the risks in relation to the provisions used by the operator to meet the flight and duty time limitations and rest requirements.

GM OR.OPS.325.FTL Fatigue Risk Management System (FRMS)

COMMERCIAL OPERATORS

Depending on the type, size and complexity of the organisation and activities in accordance with OR.GEN.200(b), as well as the provisions used by the operator to meet the flight and duty time limitations and rest requirements, the FRMS should be adapted to address the following elements, as appropriate:

- 1 Basic requirements for a fatigue risk management system are:
 - a. a fatigue risk management policy;
A transparent statement that establishes the commitment of senior management to the general philosophy and goals of the operator's FRMS. It should define the responsibilities of the management and employees at all levels for the elements of the FRMS, including direct accountability on the part of senior management.
 - b. an education and awareness training programme including fatigue countermeasures training;
 - c. a fatigue management steering group (FMSG);
 - d. documented operator procedures and processes for the management and implementation of the FRMS, including a confidentiality agreement for any collected data;
 - e. a crew fatigue reporting process with associated feedback;
 - f. a process for fatigue risk assessment;
 - g. investigative processes for monitoring alertness levels through data collection and analysis;

Note: these processes could include the collection and analysis of individual crew member flight and duty times and rest periods, depending on the type, size and complexity of the operation and the corresponding flight time specification scheme.

- h. safety and task risk assessment methodology where potential areas of high operational risk are identified;
- i. procedures for reporting, investigating, and recording incidents that are attributable wholly or in part to fatigue;
- j. processes for evaluating information on fatigue levels and fatigue-related incidents, undertaking appropriate proactive measures to mitigate the effects of fatigue, and evaluating the effects of those measures;
- k. an operator internal audit programme of key performance indicators;
- l. a validation programme for FRMS changes when and if they occur;
- m. communication channels allowing the reporting and feedback of key performance indicators to both crew members and the competent authority;
- n. safety performance measurement;
- o. a commitment to a positive safety culture including a non-punitive working environment, sometimes referred to as a "just culture";
- p. the extent to which prescriptive regulations may be deviated from, and the mitigation factors used to justify the deviation; and
- q. a policy that encourages open and honest communications.

2 An operator's FRM Policy should address the following areas:

- a. A commitment from the highest levels of the organisation;
- b. A specified line of accountability for fatigue risk management in the organisation;
- c. Joint ownership among all affected personnel of the FRMS;
- d. The identification of the work groups and operations covered by the FRMS;
- e. The terms of reference for the fatigue management steering group including the frequency of meetings;
- f. The policies for identifying and managing employees who are fatigued to an extent that represents a safety risk, including considering provision for opting out of an assignment;
- g. A commitment to provide training and resources;
- h. A commitment to act on recommendations regarding fatigue risk management arising from internal audit; and
- i. A commitment to a non-punitive, "just" organisational culture.

3 An operator's FRMS education and awareness training programme should include the following:

- a. Physiological effects of fatigue and fatigue recognition both as an individual and in others;
- b. Causes of fatigue and how to recover from fatigue;
- c. Mitigation and countermeasure strategies;
- d. Planning rest and sleep;
- e. Circadian rhythm, circadian low, and how to best mitigate its effect;
- f. The operator's FRMS including operator and crew member responsibilities; and
- g. Diet and exercise, use of prescription medication, and family/lifestyle issues.

4 A Fatigue Management Steering Group (FMSG) established by the operator, responsible for coordinating all fatigue management activities (e.g., procedural recommendations, roster practices, data collection and analysis) within the organisation. The FMSG should incorporate representation of all stakeholder groups, including those having relevant

scientific, data analysis, and medical expertise. The duties of the FMSG should include, but not be limited to the following:

- a. Monitoring fatigue information sources;
- b. Investigating fatigue-related issues;
- c. Requesting internal audit of specific issues;
- d. Proposing solutions to fatigue-related issues;
- e. Making recommendations on priorities for targeting fatigue management resources;
- f. Providing transparent and timely feedback to the crew members;
- g. Providing transparent and timely feedback to higher management;
- h. Cooperating with internal and regulatory audits;
- i. Overseeing the quality assurance of fatigue risk management training (initial and recurrent) across the organization; and
- j. Assist in roster development, modelling and roster modifications.

AMC OR.OPS.330.FTL(c) Flight time specification schemes for commercial operators

INDIVIDUAL FLIGHT TIME SPECIFICATION SCHEME

(a) The risk assessment for an individual flight time limitation scheme which is submitted to the competent authority should include a hazard analysis and risk management log, if appropriate for the type, size and complexity of the operations and the flight time limitations scheme.

(b) The details regarding consultation with the affected groups should describe the consultation with scheduling managers, crew member representatives, etc., as applicable.

AMC OR.OPS.040.FTL Flight times and duty periods

(a) The total duty periods and total flight times referred to in OR.OPS.040.FTL (a) and (b) should be spread as evenly as practicable throughout their respective periods.

(b) In addition to the time periods specified in OR.OPS.040.FTL, operators may include additional limitations, such as duty hours in any 14 consecutive days, if considered useful for fatigue mitigation.

GM OR.OPS.040.FTL Flight times and duty periods

An operator should ensure that flight and duty time limitations and rest requirements are established, implemented and maintained without prejudice to the standards set in Council Directive 2000/79/EC of 27 November 2000 concerning the European Agreement on the Organisation of Working Time of Mobile Workers in Civil Aviation.

GM OR.OPS.055.FTL Rest periods

Crew members should make optimum use of the opportunities and facilities for rest provided and plan and use their rest periods appropriately.

Section IX – Security

GM OR.OPS.020.SEC Disruptive Passenger Behaviour

This guidance material is provided with regard to the transportation of passengers by commercial air transport operators where appropriate to the size and type of operation. Operators engaged in non-commercial transportation of passengers with complex motor-powered aircraft may also find this guidance material useful.

To address the effects of unruly passengers on flight safety, operators should manage and reduce the instances of disruptive passenger behaviour by means of:

- a policy and detailed procedures on the handling of disruptive passengers;
- restraining devices on board the aircraft;
- clearly stated responsibilities of the crew members;
- a warning and reporting system (documents to be on board the aircraft);
- a communication system between the ground staff and crew members;
- a training programme consisting of initial and recurrent training; and
- a process for the review of disruptive passenger incidents.

1 Disruptive Passenger Policy

The operator should establish a policy and procedures on the handling of disruptive passengers which should be supported by the executive management of the operator. The operator should designate a focal point responsible for the handling of disruptive passenger incidents. The disruptive passenger policy should be communicated to all staff members that come in contact with passengers, both on the ground and in the air.

1.1 The disruptive passenger policy should include information, such as:

- a. the designated focal point;
- b. a transparent mechanism to ensure that incidents are well documented;
- c. an incident reporting system as well as incident management process;
- d. the documentation of the number and types of incidents occurring over a set period of time;
- e. the circumstances when actions should be taken; and
- f. the definition and communication of actions to be taken.

1.2 The disruptive passenger policy should include provisions:

- a. to empower crew members and ground staff to take reasonable steps to prevent disruptive and unruly behaviour and, where it occurs, to deal with it as effectively as practicable;
- b. to support crew members and ground staff taking such action;
- c. to provide appropriate training to crew members and ground staff in dealing with conflict and its aftermath;
- d. to encourage ground staff to detect and report disruptive behaviour at check-in, in the lounges and at the boarding gate in order to prevent such passengers from boarding;
- e. to keep crew members and ground staff aware of potentially disruptive passengers; and
- f. to pay particular attention to large groups of travellers and have permanent procedures in place to monitor sporting teams' travel.

1.3 The disruptive passenger policy should address the issues of:

- a. prevention;
- b. initial and recurrent training in the handling of disruptive passengers;
- c. handling problematic passengers;
- d. categorising of incidents;

- e. reporting of incidents; and
 - f. the responsibilities of the pilot in command, prosecutions and communication.
- 1.4 The disruptive passenger policy should include procedures for all phases of flight, including boarding and de-boarding, to address:
- a. underage passenger issues (e.g. alcohol service);
 - b. alcohol/smoking situations;
 - c. physical and verbal assaults/harassment; and
 - d. co-operation with authorities.
- 2 Communication Programme
- 2.1 The operator should inform all staff members about the contents of the disruptive passenger policy and about:
- a. the danger and risks associated with disruptive passenger behaviour;
 - b. what the operator expects of its staff members, i.e. inform staff members of what actions they are empowered to perform, as well as to ensure that ground staff communicate effectively with crew members on potential problems; and
 - c. the physical dangers; the need to be trained on preventative measures and become "safety minded" as soon as such a situation presents itself.
- 2.2 Passenger communication and education is a crucial element to the prevention of disruptive passenger incidents. For example, passengers should be informed of the operator's policy on smoking prior to boarding. The operator should determine appropriate means of passenger communication and education.
- 3 Prevention of disruptive passenger behaviour
- Disruptive passenger behaviour is primarily a safety issue. The operator should focus on measures regarding the prevention of (escalated) disruptive passenger behaviour. Dealing firmly and legally with disruptive behaviour may serve as a deterrent, however, in many disruptive incidents, passengers behave irrationally and will not calculate the consequences of their behaviour. The study of disruptive behaviour shows that often a series of events build up to the disruptive behaviour and early signs of potential disruptive behaviour can be observed. The focus of an operator's policy should be first on prevention by acting on these early signs, rather than dealing exclusively with the escalated incident. Research further indicates that many incidents (and those which tend to be particularly violent) are related to excessive alcohol consumption, as well as to nicotine withdrawal symptoms of smokers. The operator should take a responsible approach with regards to the serving of alcohol on board, and should provide alternatives (such as nicotine gum) for smokers.
- 3.1 Measures to maximise prevention of incidents
- The operator should:
- a. provide staff with a clear written policy on how to deal with disruptive passenger behaviour, especially in its early stages;
 - b. minimize passenger frustration that occurs over long waiting times, the flight being overbooked, lack of information, technical deficiencies, etc.;
 - c. provide training for staff members who are in contact with passengers. This includes instructing crew members and ground staff to learn how to recognise the early signs of potentially disruptive passenger behaviour; ensuring that those who come in contact with passengers have acquired the necessary verbal skills and ensuring they understand the importance of informing other operational areas of the situation to enable them to deal with the passenger effectively (not simply "passing" the passenger onwards without identifying that the passenger is showing early signs of potentially problematic behaviour); and
 - d. maintain accurate and updated reports and statistics of disruptive passenger incidents so as to continually monitor the types of incidents and identify potential training needs, etc.

Preventative methods may include denied boarding or removal from the aircraft, or refusal to serve alcohol/removal of drink from passengers, and in the worst case, restraint.

Some of the obvious warning signs are:

- drunkenness;
- unusually loud and boisterous behaviour;
- threatening, violent and disruptive behaviour; and
- smoking in non-smoking areas.

4 Categorising of disruptive passenger incidents

The identification and categorisation of incidents is an effective approach. In order for a policy to be created, the organisation needs to categorise the types of incidents that are occurring; for example: smoking, alcohol, seating, delayed flights, etc. There are many types of incidents which can be classified into 4 levels:

- a. Level I (disruptive behaviour – suspicious or threatening), such as disorderly behaviour due to alcohol, drugs etc.; abusive language used by passenger; or acts or body language confirming any suspicious or threatening behaviour.

The disruptive passenger complies with crew member instructions and no further action is required.

- b. Level II (physically abusive behaviour), such as physical abuse (e.g. grabbing, pushing, slapping, kicking another passenger or crew) or deliberate damage to property (e.g. breaking of seats, destroying panels etc.) and the passenger continues the disturbance in spite of crew member instructions.

Issuance of a written warning to the passenger. The written warning should clearly state the implications of action that will be taken as a result of continuous disruptive behaviour.

See Appendix 2 for sample warnings that could be used in Level II incidents.

- c. Level III (life-threatening behaviour, use of a 'weapon'):

- i. passenger disrupts crew member duties due to continuing interference; and/or
- ii. a passenger or crew member is injured or subjected to a serious threat of injury; and/or
- iii. a restraint device has to be used; and/or
- iv. a diversion or unscheduled landing is made.

Issuance of a written passenger disturbance report and notification of the appropriate authorities.

- d. Level IV (attempted or actual breach of the cockpit):

Crew members should act early and use all resources available to prevent a disruptive passenger from gaining access to the cockpit.

5 Types of offences

Distinguishing the type of offence is important in determining what the legal framework is that governs the response. Offences can be categorised into 3 main categories:

- a. Offences classed as acts of terrorism, such as bomb threats, hijacking etc. These are currently covered by existing industry policy and mechanisms are well in place to deal with these occurrences;
- b. Offences that are subject to the Tokyo Convention and which could endanger the safety of the aircraft, such as unauthorised cockpit entry, attempting to open exit doors, failure to follow directions of the crew members, smoking in lavatories, threatening with intent to cause bodily harm, abuse of alcohol, sitting on door bustles and unauthorised use of electronic devices;
- c. General offences which contravene the common law of the operator's jurisdiction, such as indecent assault (crew and passengers),

threatening/abusive behaviour, theft, public order offences, smoking in unauthorised zones (other than lavatories).

In addition, the legal types of offences of incidents should, if possible, have a clear relationship with the "levels" or "categories" of disruption, in order to enable the affected crew members to make a distinction. Furthermore, incidents could be added to the classification which have no bearing from a legal standpoint (e.g. not falling into the category of a general offence) but which from the majority of cases that require the involvement of crew members (e.g. passenger very upset, verbal abuse, etc.).

6 The role of the pilot in command

When a disruptive passenger incident occurs on board an aircraft, the pilot in command has the ultimate authority on the issue. The pilot in command should ensure that the required documentation has been filled out, assist with the collection of data, ensure that witness statements are made upon arrival, and be prepared to help with prosecution and internally with the aftermath of the incident.

The pilot in command should be fully aware of the powers bestowed upon him/her by the operator (under the Tokyo Convention of 1963) to assess and deal effectively with disruptive behaviour on board. The operator should provide full support to the pilot in command whenever these powers are legally used. The pilot in command should consider restraint whenever he/she assesses that a situation will in any way affect the safety of the aircraft, its passengers and crew members.

6.1 Location of restraint devices

When passenger restraints are carried on an aircraft they should be kept in a secure location such as the cockpit and only used in consultation with the pilot in command when all the circumstances of the incident are evaluated. Consideration may need to be taken into account when locked cockpit door policies are in place. The pilot in command should communicate his/her decisions to the operations department as soon as possible so that suitable arrangements are made when the aircraft lands.

7 Reporting of disruptive passenger incidents and required documentation for prosecution

An operator should ensure that incidents are appropriately reported and documented. The reporting of these types of incidents needs to be distinguished from the "normal trip report". The appropriate place for publishing such documentation is the operator's operations manual where procedures are addressed, as well as in the relevant instructions for cabin crew. The operator's policy on the handling of disruptive passengers should be communicated in all relevant documentation, e.g. operations manuals, training manuals etc. The operator should provide clear guidance on the use and completion of the reporting forms. All documentation should meet the specific requirements as defined from a security, crew and legal perspective. The reporting forms should be user-friendly, simple, with clearly defined information requirements. It is important to note that all documentation must link to the overall operator policy on the issue of handling disruptive passengers. A sample Flight Disturbance Incident Report is set out at Appendix 1.

7.1 Staff empowerment

Ground support and passenger services staff often is the first to notice a potentially disruptive passenger. Their procedures and training should ensure that minor complaints do not escalate into major incidents. On those occasions when tact, reassurance and inter-personal skills fail to resolve an incident, it is vital that staff members have guidance identifying and handling these behaviours. This is also true for crew members. All staff members in direct contact with passengers must have a mandate from the operator to implement the appropriate procedures to protect themselves and other passengers.

7.2 Training requirements

As with the reporting of incidents, all training requirements must link to the operator's policy. Operators should identify specific training needs based on the types of incidents that are experienced. Only by training for the worse case scenario e.g. incidents that

endanger the safety of the aircraft, passengers or crew members, will the staff members be in a position to fully cope with all potential situations.

Some or all of the following issues should be addressed in the operator's training programme:

- a. identification of the reasons for training, operator's rationale, risk awareness;
- b. understanding of legal implications associated with the confrontation with disruptive passengers;
- c. communication skills/customer service skills;
- d. conflict management skills/verbal social skills;
- e. team skills;
- f. dealing with persons under the influence of drugs/alcohol;
- g. instruction on how to limit service (e.g. when and how to stop serving alcohol);
- h. physical breakaway and controlling skills;
- i. restraint device training; and
- j. restrained passenger welfare.

Disruptive passenger training should be provided to ground staff who have direct contact with passengers (e.g. check-in staff, duty managers and station managers) and to crew members.

A sample operator training programme for crew members and ground staff in the handling of disruptive passengers is set out at Appendix 3.

7.3 Relief programmes

When an incident occurs, there can be lasting effects on the staff involved. Relief programmes for victims of disruptive passenger behaviour aim at recovery from those incidents. A distinction can be made between a serious incident (e.g. a physical altercation, being threatened with a knife) and less serious incidents (e.g. verbal abuse). The seriousness of the incident depends on how it was experienced by the victim. Usually serious incidents will be recognised by colleagues and brought to the attention of management. Professional counselling should be considered. Less serious incidents cause less stress and emotional trauma to the victim, and therefore professional counselling may not be called for, and may even be counterproductive in this type of instance. However, if verbal abuse occurs frequently, the normal recovery time will likely be disturbed by these new incidents. There will be a build-up of stress, and recovery time is called for to prevent an extended period of illness. This recovery may take the form of group discussions with colleagues in addition to professional guidance.

8 Persons Travelling under Special Status

8.1 The policies and procedures for the handling of disruptive passengers should give consideration to persons of potentially disruptive passenger behaviour travelling under special status, such as deportees, inadmissible persons and persons in lawful custody which are obliged to travel due to judicial or administrative proceedings.

8.2 Tickets and other travel documents including baggage identification tag(s), health certificates, etc. of persons travelling under special status should be carried in the charge of a crew member until disembarkation.

9 Note

9.1 Additional guidance material on the handling of disruptive passengers is contained in:

- a. ICAO Doc 8973 RESTRICTED – Security Manual for Safeguarding Civil Aviation Against Acts of Unlawful Interference;
- b. ICAO Doc 9811 RESTRICTED – Manual on the Implementation of the Security Provisions of Annex 6;
- c. ICAO Circular 288 – Guidance Material on the Legal Aspects of Unruly/Disruptive Passengers; and

- d. ECAC Doc 30 Part II RESTRICTED – ECAC Policy Statement in the Field of Civil Aviation Security.

9.2 This guidance material does not address issues regarding judicial prosecution, such as the need for:

- a. appropriate documentation of incidents and gathering of evidence (notes, statements, etc); and
- b. assistance and support to personnel to give witness statements or to appear in court proceedings when passengers are prosecuted.

Appendix 1 to GM OR.OPS.020.SEC Disruptive Passenger Behaviour**FLIGHT DISTURBANCE INCIDENT REPORT**

INFORM OPERATIONS – ☎

Flight Number	Aircraft Registration	Date
Place of Departure	Destination	

LEVEL II (following Level I - Verbal Warning)

Passenger Information

Name	Seat Number
Nationality	Passport (country and number)
Address	
Description of Incident	

Name of Pilot in Command	Employee Number
Phone	Signature

LEVEL III

Witness Information (Witness can be another crewmember)

Name	Seat	Phone
Address		

Name	Seat	Phone
Address		

Pilot in Command (involved) Name	Employee Number
Phone	Signature

Pilot in Command provides this portion to passenger as a Level II warning!

Passenger Name	Flight Number	Seat Number
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Sample – Final Warning

Your behaviour may be in violation with the law.

Your immediate cooperation is required if you wish to avoid prosecution and removal from this aircraft at the next point of arrival.

The law and international aviation regulations prohibit e.g. the following:

- * **Smoking in the lavatory or smoking while the no smoking light is on;**
- * **Interference with a crewmember or creating an alcohol related disturbance;**
- * **Drinking any alcoholic beverage unless served by a crew member;**

If you do not refrain from these activities, you will be prosecuted.

Aviation Law provides for civil monetary fines and in some cases, imprisonment.

Appendix 2 to GM OR.OPS.020.SEC – Disruptive Passenger Behaviour**1 SMOKING VIOLATION**

This is a non-smoking flight.

You have been told not to smoke by the crew members and the "No Smoking" sign is on.

If you smoke or attempt to smoke again the pilot in command will request the police/local authority to meet this aircraft on arrival and your conduct will be reported to them for possible prosecution.

This notice is given by the pilot in command of the aircraft.

2 VIOLATION UNACCEPTABLE BEHAVIOUR ON BOARD AN AIRCRAFT

You have already been told by the crew members that your behaviour on board this aircraft is unacceptable and may have been in violation of applicable law.

With immediate effect:

1. You must not drink any alcohol
2. You must hand all alcohol in your possession to a crew member (it will be returned to you when you leave this aircraft)
3. You must not behave in a manner likely to:
 - endanger the safety of the aircraft
 - cause concern to the crew or other passengers.
4. You must comply with the crew's instructions.

VIOLATION

If you fail to comply, the pilot in command may decide to land the aircraft at the nearest available location and off load you; you will be liable for the diversion costs and your ticket will be invalidated for further carriage.

On arrival detail of your conduct will also be reported to the police for possible prosecution.

This notice is given by the pilot in command of the aircraft.

3 SAMPLE — FINAL WARNING

Your behaviour appears to be in violation of [Country] law. If you fail to control your actions, police authorities will be notified and requested to meet this flight.

This is a warning that [Country] law prohibits the following:

1. Assaults, threats, intimidation or interference with a crewmember in performance of the crew member's duties onboard an aircraft being operated.
2. Disruptive behaviour due to alcohol consumption.
3. Alcohol-related disturbance created by passenger
4. Consumption of alcoholic beverages unless served by a crew member
5. Alcohol service to passengers who appears to be intoxicated
6. Failure to follow instructions given by a crew member regarding compliance with passenger safety regulation such as the following:
 - no smoking in lavatories at any time
 - no smoking when "NO SMOKING" sign is illuminated
 - tampering with, disabling or destroying smoke detector installed in any airplane lavatory
 - requirement to keep seat belt fastened while the "FASTEN SEAT BELT" sign is on
 - operation of an electronic device when prohibited.

If you fail to comply, the pilot in command may decide to land the aircraft at the nearest available location and off load you; you will be liable for the diversion costs and your ticket will be invalidated for further carriage.

On arrival detail of your conduct will also be reported to the police for possible prosecution.

This notice is given by the pilot in command of the aircraft.

Appendix 3 to GM OR.OPS.020.SEC Disruptive Passenger Behaviour

Sample operator training programme for crew members and ground staff in the handling of disruptive passengers.

Initial Training: 1 day (8 hours)

Annual Recurrent Training: 1/2 day (4 hours)

Course Content	Course Objectives
Legal position of the crew in dealing with disruptive passengers	Knowledge of national and international legal regulations (e.g. Tokyo Convention) - (30 min)
Operator policy Guidelines and recommendations for crew members and ground staff on how to handle disruptive passengers	Knowledge of company guidelines - (30 min)
Reasons for unreasonable or aggressive behaviour of passengers <ul style="list-style-type: none"> • reasons for aggression • possible causes of aggressive behaviour of passengers (e.g. dissatisfaction, fear of flying, restriction of personal freedom, alcohol and drugs, disposition to use force or violence) 	Knowledge of reasons for aggressive behaviour by passengers - (1 hour)
Appropriate behaviour of crew members and ground personnel (theory) <ul style="list-style-type: none"> • Conflict avoidance/conflict management 	Strategies for conflict avoidance - (1 hour 30 min) De-escalation techniques
<ul style="list-style-type: none"> • Use of de-escalation techniques • appropriate measures to contain aggressive behaviour (incl. practical training in the use of restraining devices, if applicable) • Debriefing and documentation of incident (Flight Disturbance Incident Report) 	Knowledge of measures to contain aggressions
Case studies	Knowledge of real incidents - (1 hour 30 min)
Appropriate behaviour of crew members and ground staff (practical training) Practical training of techniques (role-play) in real situations, with trainees	Capability to use acquired knowledge in practical cases (2 to 3 hours)

Whenever practicable, the training should be conducted under realistic conditions (e.g. training in cabin mock-up) and with the use of video review after practical exercises (feedback).

AMC OR.OPS.025.SEC Security programme and Security training
COMMERCIAL OPERATORS

- 1 The training programme established by a commercial operator should include the following elements, if applicable:
 - a. determination of the seriousness of any occurrence;
 - b. crew communication and coordination;
 - c. appropriate self-defence responses;
 - d. use of authorised protective devices;

- e. understanding of behaviour of terrorists so as to facilitate the ability of crew members to cope with hijacker behaviour and passenger responses;
 - f. live situational training exercises regarding various threat conditions;
 - g. cockpit procedures to protect the aircraft; and
 - h. aircraft search procedures and guidance on least-risk bomb locations where practicable.
- 2 An operator should also establish and maintain a training programme to acquaint personnel involved in the operation of aircraft with preventive measures and techniques in relation to passengers, baggage, cargo, mail, equipment, stores and supplies intended for carriage on an aircraft so that they contribute to the prevention of acts of sabotage or other forms of unlawful interference.

GM OR.OPS.025.SEC Security programme and Security training

Guidance material on the operator security programme is contained in:

- 1 ICAO Doc 8973 RESTRICTED – Security Manual for Safeguarding Civil Aviation Against Acts of Unlawful Interference; and
- 2 ECAC Doc 30 Part II RESTRICTED – ECAC Policy Statement in the Field of Civil Aviation Security.

The following additional guidance material is provided to assist in particular, operators of complex motor-powered aircraft engaged in non-commercial operations with passengers.

1 Overview

A security programme should be proportional to the threat against an operator, their personnel, aircraft and facilities. The security programme should include a threat assessment process, preventive measures designed to deter and prevent the commission of unlawful acts, responsive measures to be taken when an unlawful act has been committed against the operator, appropriate training of personnel involved and testing of the security programme preventative and responsive measures. The security programme should be periodically assessed to ensure that it is appropriate and effective.

2 Assessing the Threat and Vulnerability

The first step in the development of an effective security programme is to assess the threat against the operator, its personnel, aircraft and facilities and the operator's vulnerabilities. Threats may relate to the nature of business conducted by the operator, the location of the business, the nationality of the operator, the nationality of the operator's aircraft, the profile of passengers carried, and the value of goods carried. Information on the various kinds of threats the operator is subject to, will come from a variety of sources. In developing and maintaining a current threat assessment for areas of operations, the following resources should be used as appropriate:

- a. national and local security officials;
- b. national and local law enforcement officials;
- c. the operator security officer, if applicable;
- d. national and international trade associations;
- e. air security assessment and intelligence service providers;
- f. local and foreign media reports; and
- g. company/organisation officials posted in foreign locations, if applicable.

Security professionals can provide assistance in determining and assessing the vulnerabilities.

3 Preventive Measures

The focus of preventive security measures will be to:

- a. prevent unauthorized access to aircraft and facilities of the operator;

- b. prevent the unauthorized introduction of weapons or explosives onto aircraft and into facilities of the operator; and
- c. prevent the use of aircraft of the operator to commit unlawful acts.

The security measures implemented by the operator should be proportional to the threat. Procedures and training should be in place to implement enhanced measures when the threat is increased and to implement reduced measures when the threat is reduced.

Preventive security measures should include, as appropriate:

- a. Global considerations:
 - i. Whenever possible, avoidance of areas where there is an identified security risk;
 - ii. A security programme that is specific to the location and operation;
 - iii. Security programme training for all flight department personnel;
 - iv. Establish security as integral part of all aspects of the flight department and its operation;
 - v. Establish a Security Support function, much like the Safety Officer role; and
 - vi. Maintain a security information programme.
- b. Persons and Processes
 - i. Require pre-employment screening of flight department personnel;
 - ii. Require that crew members display photo IDs at all times;
 - iii. Limit the publication of aircraft itineraries;
 - iv. Establish security threat alerting procedures, such as a code word for use by persons under duress;
 - v. Require an accurate and accessible passenger manifest for all trip legs;
 - vi. Ensure that only operator's personnel and authorized guests, identified in advance, are allowed to board an aircraft;
 - vii. Ensure that passengers or flight department members maintain positive control of luggage; and
 - viii. Positively identify all luggage and match luggage to specific passengers (colour-coded bag tags can be helpful).
- c. Aircraft
 - i. Check lavatories, baggage compartments and all cavities for unauthorized people or objects prior to every departure;
 - ii. Ensure that a flight department member is present at all times when the aircraft is being serviced (fuelling, catering, etc.) at operators facilities;
 - iii. Ensure that a aircraft crew member is present at all times when the aircraft is being serviced (fuelling, catering, etc.) at locations away from operator's facilities;
 - iv. Use the aircraft's security system (locks and alarms) whenever it is unattended away from facilities of the operator;
 - v. Apply tamper evidence security tape on doors, panels, etc;
 - vi. Post a guard at the aircraft when away from operator facilities at locations where security is a concern; and
 - vii. Consider removing operator identification from the aircraft and facilities.
- d. Facilities
 - i. Ensure facility perimeter security with effective fencing, lighting, security patrols (as appropriate), gates and limited access areas;
 - ii. Ensure external gates and doors are closed and locked at all times;

- iii. Require positive access control for all external gates and doors;
- iv. Close hangar doors when that area is unattended;
- v. Secure all key storage areas (food and liquor, parts and tools, etc.);
- vi. Have an access control management system for keys and passes;
- vii. Confirm the identity and authority of each passenger, vendor and visitor prior to allowing access to facilities and aircraft;
- viii. Accompany all visitors away from secure areas (visitor lounge, etc.);
- ix. Require a picture ID of any unfamiliar or unaccompanied visitor or vendor;
- x. Post emergency numbers prominently around facility;
- xi. Ensure easy access to phones or "panic buttons" in various facility locations (break room, hangar bay, etc.); and
- xii. Confirm security of destination facilities.

4 Responsive Measures

In the case of a hijacking, the crew members should attempt to make an assessment of the intent of the hijacker and follow the emergency procedures set out in the operations manual. These procedures should include the making of distress radio calls and transponder settings, to indicate that the aircraft has been hijacked and for adherence to the procedures that have been established and promulgated in ICAO Doc 7030 – Regional Supplementary Procedures in both the cases where the aircraft continues on the assigned track and cruising level or is forced to deviate there from.

In the case of bomb threats, the operator should first determine the legitimacy of the threat or whether it is likely to be a hoax. If considered to be legitimate, law enforcement officials should be notified. If the aircraft is in the air, ATS should be notified and the aircraft should land to be searched. If on the ground, the aircraft should be moved, for searching, to the designated isolated parking.

In the case of other unlawful acts, the operator should contact the responsible law enforcement authorities.

5 Training

Training programmes should be established with the objective of ensuring that all personnel with security related duties acquire and maintain the competence to perform their duties. The training programme should include initial and periodic refresher training.

6 Testing

Testing of the security programme preventative and responsive measures should be undertaken periodically. Scenario based exercises that involve elements of the preventative or responsive measures are an appropriate means of testing. It is very important that the results of such test be recorded and where deficiencies are identified, corrective action plans are developed and implemented and then tracked to ensure that they are appropriate and effective.

7 Sample Security Checklist

PRIOR TO EVERY FLIGHT

Perimeter Awareness	MAINTAIN
Gates and Doors	LOCKED or ATTENDED
Storage Areas	LOCKED or ATTENDED
Hangar Security Systems	ACTIVATED IF INSTALLED or ATTENDED
Transient Facility Security	VERIFIED
Suspicious Activity	CALL LAW ENFORCEMENT SECURITY AUTHORITY
Servicing	CREW PRESENT

Security Inspection:

Refer to AFM guidance and include the following if appropriate:

No sign of tampering
Externally accessible service compartments
Wheel wells
System openings and vents
Lavatories
Internal/external storage compartments
Baggage holds
Accessible mechanical/ electrical compartments

Passenger Manifest

COMPLETE

Passengers

IDENTIFIED & VERIFIED

Luggage/Cargo

IDENTIFIED & VERIFIED

Unmatched Luggage/Cargo

DO NOT LOAD

Any Behavioural Changes in Personnel

CHECKED

Security Flight Restrictions

CHECK NOTAMS

All Itinerary/Manifest Information Retained Only if Required by Regulation or Operator Policy

BEFORE LEAVING AIRCRAFT

Unattended Aircraft Security:

AFM recommendations
Close and secure emergency exits
Arm alarm systems (if installed)
Close and lock all keyed access doors
Operator specific procedures/alternative means of compliance
Note: Procedures specified in the AFM always take precedence.

GM OR.OPS.030.SEC**Aircraft search procedure checklist****COMMERCIAL OPERATORS AND NON-COMMERCIAL OPERATORS OF COMPLEX MOTOR-POWERED AIRCRAFT**

Guidance material on the operator training programme and aircraft search procedure checklist for commercial operators and operators of complex motor-powered aircraft is contained in:

- 1 ICAO Doc 8973 RESTRICTED – Security Manual for Safeguarding Civil Aviation Against Acts of Unlawful Interference;
- 2 ICAO Doc 9811 RESTRICTED – Manual on the Implementation of the Security Provisions of Annex 6; and
- 3 ECAC Doc 30 Part II RESTRICTED – ECAC Policy Statement in the Field of Civil Aviation Security.

Further guidance material is contained in best practices and manuals developed by trade organisations, such as the IATA Security Manual and the IBAC IS-BAO International Standard for Business Aircraft Operations.