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MINISTRY OF WORKS, TRANSPORT AND COMMUNICATION

No. 78 2003

PROPOSED CIVIL AVIATION TECHNICAL STANDARDS
NAM-CATS-OPS 121 "AIR TRANSPORT OPERATIONS -
LARGE AEROPLANES"

The Ministry of Works, Transport and Communication recently initiated the project to update the current Namibian aviation legislation. There are two main reasons for updating the aviation legislation, namely, the current legislation does not adequately reflect the policies of Namibia for the aviation sector and does not reflect recent developments within SADC. The project further aims to enhance the safety of civil aviation by ensuring that the Namibian legislation complies with the minimum standards prescribed by the International Civil Aviation Organization.

In this regard the legislative reform process involves the updating of the regulations made under the Aviation Act (Act No. 74 of 1962). It also involves the issuing Technical Standards by the Director of Civil Aviation.

The Technical Standard proposed in this General Notice is one of thirty four (34) technical standards associated with the Namibian Civil Aviation Regulations, 2001.

Pursuant to the provisions of regulation 11.03.2 the Director: Civil Aviation hereby invites all interested parties to comment on the proposed NAM-CATS-OPS 121 "Air Transport Operations - Large Aeroplanes".

Comments or representations should be lodged in writing and should reach the Ministry no later than 30 days from the date of publication of this notice. Correspondence should be addressed to:

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REPUBLIC OF NAMIBIA

CIVIL AVIATION

DOCUMENT NAM-CATS-OPS 121 (AIR TRANSPORT OPERATIONS: LARGE AEROPLANES)

NAMIBIAN CIVIL AVIATION TECHNICAL STANDARDS RELATING TO AIR TRANSPORT OPERATIONS: LARGE AEROPLANES

1. GENERAL

Section 22A of the Aviation Act, 1962 (as amended by section 5 of the Aviation Amendment Act, 1998) empowers the Director: Civil Aviation to issue technical standards for civil aviation on the matters which are prescribed by regulation.

The Director: Civil Aviation has pursuant to the empowerment mentioned above, on 1 August 2003 issued technical standards relating to air transport operations: large aeroplanes to be known as Document NAM-CATS-OPS 121.

2. PURPOSE

Document NAM-CATS-OPS 121 contains the standards, rules, requirements, methods, specifications, characteristics and procedures which are applicable in respect of air transport operations: large aeroplanes.

Each reference to a technical standard in this document, is a reference to the corresponding regulation in the Namibian Civil Aviation Regulations, 2001, for example, technical standard 121.02.8 refers to regulation 8 of Subpart 2 of Part 121 of the Regulations.

The abbreviation "CAR" is used throughout this document when referring to any regulation.

The abbreviation "TS" refers to any technical standard.

3. SCHEDULES AND NOTES

Guidelines and recommendations in support of any particular technical standard, are contained in schedules to, and/or notes inserted throughout the technical standards.

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121.01.5 INFORMATION ON EMERGENCY AND SURVIVAL EQUIPMENT CARRIED

1. Emergency and survival list

The operator must have a list containing the following minimum information regarding the emergency and survival equipment carried on board:

(1) The number, colour and type of life rafts and pyrotechnics;

(2) details of emergency medical supplies;

(3) water supplies; and

(4) type and frequencies of emergency portable radio equipment.

121.01.9 ELECTRONIC DEVICES

1. Operation of electronic devices on board a large aeroplane during flight time

Electronic devices which are not intentional transmitters of radio signals, may, with the prior permission of the pilot-in-command, be operated on board a large aeroplane, but only in the cruise phase of flight.

Examples of such devices are -

(1) laptop computers;

(2) video cameras;

(3) tape recorders;

(4) electronic entertainment devices; and

(5) hand held calculators.

(2) Cellular or mobile telephones shall not be operated on board a large aeroplane once the engines have been started and shall remain switches off until the doors have been opened at the end of the flight.

121.01.15 SUBCHARTERING

1. Subchartering

An operator may subcharter an aeroplane or crew, or both an aeroplane and crew in circumstances where the operator is faced with an immediate, urgent and unforeseen need for a replacement aeroplane and/or crew.

121.02.4 CREW MEMBER EMERGENCY DUTIES

1. Emergency evacuation demonstration

An emergency evacuation demonstration must be performed by the crew members in accordance with the following:

(1) Actual operation of all types of exits;

(2) demonstration of the method used to operate a slide where fitted;

(3) actual fire fighting using equipment representative of that carried in the aeroplane on an actual or simulated fire except that, with Halon extinguishers, an approved alternative method may be used;

(4) the effects of smoke in an enclosed area and actual use of all relevant equipment in a simulated smoke-filled environment;

(5) actual handling of pyrotechnics, real or simulated, where fitted; and

(6) demonstration in the use of the life raft(s) where fitted.

2. Aborted take-off demonstration

(1) The demonstration must be conducted either during the dark of the night or during daylight with the dark of the night simulated. If the demonstration is conducted indoors during daylight hours, it must be conducted with each window covered and each door closed to minimise the daylight effect. Illumination on the floor or ground may be used, but it must be kept low and shielded against shining into the aeroplane's window or doors.

(2) The aeroplane must be in normal ground attitude with landing gear extended.

(3) Unless the aeroplane is equipped with an off-wing descent means, stands or ramps may be used for descent from the wing to the ground. Safety equipment such as mats or inverted life rafts may be placed on the floor or ground to protect participants. No other equipment that is not part of the emergency evacuation equipment of the aeroplane may be used to aid the participants in reaching the ground.

(4) The aeroplane's normal electrical power sources must be de-energised.

(5) All emergency equipment for the type of passenger-carrying operation involved must be installed in accordance with the operations manual.

(6) Each external door and exit, and each internal door or curtain must be in position to simulate a normal take-off.

(7) A representative passenger load of persons in normal health must be used. At least 40 percent of the passenger load must be females. At least 35 percent of the passenger load must be over 50 years of age. At least 15 percent of the passenger load must be female and over 50 years of age. Three life-size dolls, not included as part of the total passenger load, must be carried by passengers to simulate live infants 2 years old or younger. Crew members, mechanics, and training personnel, who maintain or operate the aeroplane in the normal course of their duties, may not be used as passengers.

(8) No passenger may be assigned a specific seat except as the Director may require. Except as required by item (12) of this paragraph, no employee of the operator may be seated next to an emergency exit.

(9) Seat belts and shoulder harnesses (as required) must be fastened.

(10) Before the start of the demonstration, approximately one-half of the total average amount of carry-on baggage, blankets, pillows, and other similar articles must be distributed at several locations in the aisles and emergency exit access ways to create minor obstructions.

(11) The seating density and arrangement of the aeroplane must be representative of the highest capacity passenger version of that aeroplane the operator operates or proposes to operate.

(12) Each crew member must be a member of a regularly scheduled line crew, except that crew members need not be members of a regularly scheduled line crew, if they have knowledge of the aeroplane. Each crew member must be seated in the seat the crew member is normally assigned for take-off, and must remain in that seat until the signal for commencement of the demonstration is received.

(13) No crew member or passenger may be given prior knowledge of the emergency exits available for the demonstration.

(14) The operator may not practice, rehearse, or describe the demonstration for the participants nor may any participant have taken part in this type of demonstration within the preceding 6 months.

(15) The pre-take-off passenger briefing may be given in accordance with the operations manual. The passengers may also be warned to follow directions of crew members, but may not be instructed on the procedures to be followed in the demonstration.

(16) If safety equipment as allowed by item (3) of this paragraph is provided, either all passenger and flight deck windows must be blacked out or all of the emergency exits must have safety equipment in order to prevent disclosure of the available emergency exits.

(17) Not more than 50 percent of the emergency exits in the sides of the fuselage of an aeroplane that meet all of the requirements applicable to the required emergency exits for that aeroplane, may be used for the demonstration. Exits that are not to be used in the demonstration, must have the exit handle deactivated or must be indicated by red lights, red tape, or other acceptable means, placed outside the exits to indicate fire or other reason that they are unusable. The exits to be used must be representative of all of the emergency

exits on the aeroplane and must be designated by the operator, subject to approval by the Director. At least one floor level exit must be used.

(18) Except as provided in item (3), all evacuees must leave the aeroplane by a means provided as part of the aeroplane's equipment.

(19) The operator's approved procedures and all of the emergency equipment that is normally available, including slides, ropes, lights, and megaphones, must be fully utilised during the demonstration, except that the crew must take no active role in assisting others inside the cabin during the demonstration.

(20) The evacuation time period is completed when the last occupant has evacuated the aeroplane and is on the ground. Evacuees using stands or ramps allowed by item (3) above are considered to be on the ground when they are on the stand or ramp: Provided that the acceptance rate of the stands or ramps is no greater than the acceptance rate of the means available on the aeroplane for descent from the wing during an actual crash situation.

3. Ditching demonstration

The demonstration must assume that daylight hours exist outside the aeroplane, and that all required crew members are available for the demonstration.

(1) If the operations manual requires the use of passengers to assist in the launching of life rafts, the needed passengers must be on board the aeroplane and participate in the demonstration according to the manual.

(2) A stand must be placed at each emergency exit and wing, with the top of the platform at a height simulating the water level of the aeroplane following a ditching.

(3) After the ditching signal has been received, each evacuee must don a life vest according to the operations manual.

(4) Each life raft must be launched and inflated, according to the operations manual, and all other required emergency equipment must be placed in rafts.

(5) Each evacuee must enter a life raft, and the crew members assigned to each life raft must indicate the location of emergency equipment aboard the raft and describe its use.

(6) Either the aeroplane, a mockup of the aeroplane or a floating device simulating a passenger compartment must be used as follows:

(a) If a mockup of the aeroplane is used, it must be a life-size mockup of the interior and representative of the aeroplane currently used by or proposed to be used by the operator, and must contain adequate seats for use of the evacuees. Operation of the emergency exits and the doors must closely simulate those on the aeroplane. Sufficient wing area must be installed outside the over-the-wing exits to demonstrate the evacuation;

(b) if a floating device simulating a passenger compartment is used, it must be representative, to the extent possible, of the passenger compartment of the aeroplane used in operations. Operation of the emergency exits and the doors must closely simulate operation on that aeroplane. Sufficient wing area must be installed outside the over-the-wing exits to demonstrate the evacuation. The device must be equipped with the same survival equipment as is installed on the aeroplane, to accommodate all persons participating in the demonstration.

121.02.7 DUTIES OF PILOT-IN-COMMAND REGARDING FLIGHT PREPARATION

1. Category II approach

A Category II approach is an ILS approach procedure which provides for an approach to a decision height lower than 200 feet but not lower than 100 feet and a RVR of not less than 350 m, in the case of a manual landing, or 300 m, in the case of an automatic landing.

2. Category III approach

A Category III approach is divided into a -

(1) Category III A approach, which is an ILS approach procedure which provides for an approach with either a decision height lower than 100 feet or with no decision height and with a RVR of not less than 200 m;

(2) Category III B approach, which is an ILS approach procedure which provides for an approach with either a decision height lower than 50 feet or with no decision height and with a RVR of less than 200 m but not less than 75 m; and

(3) Category III C approach which is an ILS approach procedure which provides for an approach with no decision height and no RVR limitations.

3. Adequate and suitable aerodromes

For the purposes of CAR 121.02.7(1)(s) -

(1) an adequate aerodrome is an aerodrome licensed or approved or a heliport in an urban area approved in terms of Part 139 or is found to be equivalent to the safety requirements prescribed in Part 139; and

(2) a suitable aerodrome is an adequate aerodrome with weather reports, or forecasts or any combination thereof, indicating that the weather conditions are at or above operating minima, as specified in the operation specifications, the field condition reports indicate that a safe landing can be accomplished at the time of the intended operation and the facilities necessary to complete an approach at such aerodrome is operational.

121.02.10 CABIN CREW MEMBER COMPLEMENT

1. Minimum number of cabin crew

(1) An operator must ensure that, when carrying one or more passengers, not less than one cabin crew member is carried for every 50 passenger seats, or part thereof, installed on the same deck of the large aeroplane: Provided that the minimum number of cabin crew members carried is not less than the number of cabin crew members who actually participated in the emergency evacuation demonstration referred to in CAR 121.02.4 or were assumed to have taken part in the relevant analysis required during the certification of the large aeroplane.

(2) A large aeroplane with a maximum certificated passenger seating capacity of more than nine seats but less than 20 seats, which is crewed by two flight crew members, need not carry a cabin crew member: Provided that the duties of the flight crew members regarding briefing and control of passengers in all situations are specified in the operations manual, and such flight crew members are qualified to perform such duties and responsibilities.

121.02.11 OPERATION ON MORE THAN ONE TYPE OR VARIANT BY CABIN CREW MEMBER

1. Type or variant of aeroplane

(1) With the approval of the Director, cabin crew may operate on four aeroplane types if emergency exits and safety equipment are similar.

(2) When assessing if a fourth aeroplane type is permissible, the following factors must be taken into consideration:

(a) Similarity of emergency procedures and drills; and

(b) similarity and location of emergency equipment.

(3) When assessing aeroplane variants as same types, the following factors must be taken into consideration:

(a) The variant has the same type of exits with identical operating mechanisms;

(b) emergency procedures and drills are essentially the same; and

(c) emergency equipment on board each variant is essentially the same and that its location is standardised.

(4) Aeroplane variants not meeting these criteria, are considered to be a separate aeroplane type.

121.02.15 FLIGHT TIME AND DUTY SCHEME

1. Definitions

Any word or expression to which a meaning has been assigned in the Aviation Act, 1962, and the Namibian Civil Aviation Regulations, 2001, bears, when used in this technical standard, the same meaning unless the context indicates otherwise, and -

"days off" means periods available for leisure and relaxation, no part of which forms part of a duty period. A single day off must include two local nights. Consecutive days off must include a further local night for each consecutive day off. A rest period may be included as part of a day off. Whenever possible, and if required by the crew member, days off should be taken in the home environment;

"**duty period"** means any continuous period throughout which either a flight crew member flies in any aeroplane, whether as a flight crew member or as a passenger, at the behest of his or her employer, or otherwise carries out a required duty in the course of his or her employment. It includes any flight duty period, positioning at the behest of the operator, ground training, office duties, flight watch, home reserve and standby duty;

"flight duty period" means any time during which a person operates in an aeroplane as a member of its flight crew. It starts when the flight crew member is required by an operator to report for a flight, and finishes at on-chocks or engines off, on the final sector for that flight crew member and include 15 minutes of post- flight activities for small operators and 30 minutes for large operators i.e. operators who operate more than 50 aircraft;

"flight watch" means a period of time during which a flight crew member be required to check with the operator at specified times as to whether his or her services as a flight crew member will be required and, should this be the case, will report for duty at the time then specified;

"**home reserve**" means a period of time during which a flight crew member must be prepared to respond to a call out for flight duties as yet unspecified. The flight crew member must report for duty within a specified time from call out;

"**late finish/early start**" means any duty that is carried out within any part of the period 0100 to 0650 hours local time, to which a crew member is acclamitized;

"**local night**" means a period of eight hours falling within the ten hour period from 21h00 to 07h00 local time;

"positioning" means the practice of transferring flight crew from place to place as passengers in surface or air transport at the behest of the operator;

"reporting time" means the time at which a crew member is required by an operator to report for any duty.

"rest period" means a period before starting a flight duty period which is intended to ensure that a flight crew member is adequately rested before a flight;

"**sector**" means the time between an aircraft first moving under its own power until it next comes to rest after landing, on the designated parking position.

"**split duty**" means a flight duty period which consists of two or more flight duties which are separated by less than the minimum rest period;

"**standby duty**" means a period of time during which a flight crew member is in a position to commence a flight duty at once.

"**suitable accommodation**" means a well-furnished bedroom which is subject to minimum noise, is well-ventilated, and has a facility to control the levels of light and temperature;

"**travelling**" means all the time spent by a crew member travelling between the place of rest, and the place of reporting for duty;

"**week**" means a period of seven consecutive days starting at any set time and on any set day as specified and stated by the operator.

2. Requirements of the Namibian Civil Aviation Regulations, 2001

(1) CAR 121.02.15 requires that an operator of an aeroplane must have a scheme for the regulation of flight time and duty periods of the flight crew.

(2) CAR 121.02.15 also requires that a flight crew member may not fly, and an operator may not require that flight crew member to fly, if either has reason to believe that he or she is suffering or is likely to suffer while flying, from such fatigue as may endanger the safety of the aeroplane or of its occupants.

(3) Every flight crew member is required to inform the operator of all flying he or she has undertaken if the cumulative amount of such flying and any scheduled duties is likely to exceed the maximum laid down in the Regulations.

3. Operators' schemes and their approval

(1) An operator must submit a proposed scheme for the regulation of flight time and duty periods and minimum rest periods to the Director for approval.

(2) Any deviation from the approved scheme must be submitted to the Director for approval.

(3) Non-availability of auto pilot or auto stabilisation systems requires a reduction in flight time and duty period in respect of commercial air transport and IFR operations.

4. General principles of control of flight, duty and rest time

(1) The prime objective of any scheme of flight time limitations is to ensure that flight crew members are adequately rested at the beginning of each flight duty period. Aeroplane operators will therefore need to take account of inter-related planning constraints on -

(a) individual duty and rest periods;

(b) the length of cycles of duty and the associated periods of time off; and

(c) cumulative duty hours within specific periods

(2) Duties must be scheduled within the limits of the operator's scheme. To allow for unforeseeable delays the pilot-in-command may, within the conditions prescribed in paragraph 7.6, use his or her discretion to exceed the limits on the day.

(3) Other general considerations in the sensible planning of duties are -

(a) the need to construct consecutive work patterns which will avoid, as far as possible, such undesirable rostering practices as alternating day/night duties and the positioning of flight crew in a manner likely to result in a serious disruption of established sleep/work patterns;

(b) the need, particularly where flights are carried out on a programmed basis, to allow a reasonable period for the pre-flight notification of duty to flight crew, other than those on standby; and

(c) the need to plan time off and also to ensure that flight crew members are notified of their allocation well in advance.

5. Responsibilities of flight crew members

It is the responsibility of all flight crew members to make optimum use of the opportunities and facilities for rest provided by the operator, and to plan and use their rest periods properly so as to minimise the risk of fatigue.

6. Standard provisions required for an operator's scheme

(1) The standard provisions which the Director regards as the basis for an acceptable scheme of flight and duty limitations and which, if included in an operator's scheme, will facilitate approval by the Director are contained in paragraphs 7 to 13 below.

(2) Although operators are expected to plan their schemes in accordance with the requirements, it is however, recognised that the standard provisions will not necessarily be completely adaptable to every kind of operation. In exceptional circumstances, operators may apply to have variations from the standard provisions included in their schemes. However, such variations should be kept to a minimum and approval will only be granted where an operator can show that these proposed provisions will ensure an equivalent level of protection against fatigue.

7. Limitations of single flight duty periods - flight crew

7.1 Maximum rostered flight duty periods

Standard reporting times prior to flight must be specified by the operator. Pre-flight duties are part of the FDP. A period of duty must be allowed for post flight activities: the minimum for large operators i.e. more than 50 aircraft, is 30 minutes and 15 minutes for others. The time spent between reporting for a flight and the completion of post-flight duties determines the length of the subsequent rest period.

The maximum rostered flight duty period (FDP) (in hours) must be in accordance with Table 1, or Table 2 or 3, or Table 4 or 5. Rostering limits in the tables may be extended by in-flight relief or split duty under the terms of paragraphs 7.2 and 7.3. On the day, the pilot-in-command may at his or her discretion further extend the FDP actually worked in accordance with paragraph 7.6.

(1) Maximum FDP - Two pilot crews : aeroplanes

Table 2 applies when the FDP starts at a place where the flight crew member is acclimatised to local time, and Table 3 applies to other times. To be considered acclimatised for the purpose of this technical standard, a flight crew member must be allowed three consecutive local nights free of duty within a local time zone band which is two hours wide. He or she will thereafter be considered to remain acclimatised to that same time zone band until he or she ends a duty period at a place where local time falls outside this time zone band.

(2) Maximum FDP - Two pilots plus additional flight crew member : aeroplanes

Table 4 applies when the FDP starts at a place where the flight crew member is acclimatised to local time, and Table 5 applies at other times. To be considered acclimatised for the purposes of this technical standard, a flight crew member must be allowed three consecutive local nights free of duty within a local time zone band which is two hours wide. He or she will thereafter be considered to remain acclimatised to that same time zone band until he or she ends a duty period at a place where local time falls outside this time zone band.

(3) Limits on two flight crew long range operations

(This paragraph does not apply to cabin crew members.)

When an aeroplane flight crew comprises only two pilots, the allowable FDP is calculated as follows: A sector scheduled for more than 7 hours is considered as a multi-sector flight, as below:

Scheduled sector times	**Acclimatised to local time** **Sectors**	**Not acclimatised to local time** **Sectors**
Sector length over 7 hrs but notmore than 9 hrs	2	4
Sector length over 9 hrs but not more than 11 hrs	3	4
Sector length over 11 hrs	4	Not applicable

Table 2 is then entered with the start time of the duty period and the "modified" number of sectors, to determine the allowable FDP.

When an additional, current, type rated pilot is a flight crew member, then these limits do not apply and the permissible FDP is determined by entering Table 2 or 3 with time of start and the actual sectors planned.

7.2 **Extension of flight duty period by in-flight relief**

(1) When any additional flight crew member is carried to provide in-flight relief for the purpose of extending a FDP, he or she shall hold qualifications which are equal or superior to those held by the crew member who is to be rested.

(2) When in-flight relief is provided, there must be available, for the flight crew member who is resting, a comfortable reclining seat or bunk separated and screened from the flight deck and passengers.

(3) A total of in-flight rest of less than three hours will not count towards extension of an FDP, but where the total of in-flight rest (which need not be consecutive) is three hours or more, the rostered FDP may be extended beyond that permitted in Tables 2 and 3 or 4 and 5 by:

(a) If rest is taken in a bunk, a period equal to one half of the total of rest taken, provided that the maximum FDP permissible is 18 hrs (or 19 hrs in the case of cabin crew members); and

(b) if rest is taken in a seat, a period equal to one third of the total of rest taken, provided that the maximum FDP permissible is 15 hrs (or 16 hrs in the case of cabin crew members).

(4) Where a flight crew member undertakes a period of in-flight relief and after its completion is wholly free of duty for the remainder of the flight, that part of the flight following completion of duty may be classed as positioning and be subject to the controls on positioning detailed in paragraph 7.4.

7.3 **Extension of flight duty period by split duty**

When a FDP consists of two or more duties separated by less than a minimum rest period, then the FDP may be extended beyond that permitted in the tables by the amounts indicated below:

Consecutive hour rest	**Maximum extension of the FDP**
Less than 3	Nil
3 - 10	Period equal to half of the consecutive hours rest taken

The rest period must not include the time required for immediate post-flight and pre-flight duties. When the rest period is not more than six hours, it will be sufficient if a quiet and comfortable place is available, not open to the public, but if the rest period is more than six consecutive hours, then a bed must be provided.

7.4 **Positioning**

All time spent on positioning as required by the operator is classed as duty, but positioning does not count as a sector when assessing the maximum permissible FDP. Positioning, as required by the operator, which immediately precedes a FDP, is included as part of the FDP for the purpose of paragraph 7.1.

7.5 **Travelling time**

(1) Travelling time other than that time spent on positioning may not be classed as duty time and may not be included in cumulative totals of duty hours.

Note: Travelling time from home to departure aerodrome can become an important factor if long distances are involved. If the journey time from home to the normal departure aerodrome is lengthy, flight crew members should make arrangements for accommodation nearer to their bases to ensure adequate pre-flight rest.

(2) Where travelling time between the aerodrome and sleeping accommodation provided by the operator exceeds thirty minutes each way, the rest period must be increased by the amount of the excess, or such lesser time as is consistent with a minimum of ten hours at the sleeping accommodation.

(3) When flight crew members are required to travel from their home to an aerodrome other than the one from which they normally operate, the assumed travelling time from the normal aerodrome to the other aerodrome is classed as positioning and is subject to the controls of positioning detailed in paragraph 7.4.

7.6 **Pilot-in-command's discretion to extend a flight duty period**

(1) A pilot-in-command may, after taking note of the circumstances of other members of the crew, at his or her discretion, extend a FDP beyond the maximum normally permitted in Tables 1, 2, 3, 4 and 5, provided he or she is satisfied that the flight can safely be made. In these circumstances the maximum normally permitted is calculated according to what actually happens, not on what was planned to happen. An extension of 3 hours is the maximum permitted, except in cases of emergency (see Note 2)_The operator's scheme must include guidance to pilots-in-command on the limits within which discretion to extend a FDP may be exercised.

(2) Whenever a pilot-in-command so exercises his or her discretion, he or she must report it to the operator and, should the maximum normally permitted be exceeded by more than two hours, both the pilot-in-command and the operator must submit a written pilot-in-command's discretion report - extension of flying duty period, to the Director within thirty days.

Notes:

1. Discretion reports either concerning extension of a flight duty period or reduction of a rest period must be submitted in the form contained in Annexure A. Those reports will be used by the Director when assessing the realism of particular schedules.

2. An emergency in respect of an extension of a flight duty period is a situation which in the judgement of the pilot-in-command presents serious risk to health or safety of crew, passengers, or endangers the lives of others.

7.7 **Delayed reporting time**

When flight crew members are informed of a delay before leaving their place of rest the FDP starts at the new reporting time or four hours after the original reporting time, whichever is the earlier. The maximum FDP is based on the original reporting time. This paragraph does not apply if flight crew members are given ten hours or more notice of a new reporting time.

7.8 **Mixed Simulator and Aircraft Flying**

This paragraph does not apply to cabin attendants.

When a crew member flies in the simulator, either on a check or training flight, or as a Training Captain or Instructor, and then within the same duty period flies as a crew member on a public transport flight, all the time spent in the simulator is counted in full towards the subsequent FDP. Simulator flying does not count as a sector, but the FDP allowable is calculated from the report time of the simulator detail.

7.9 **Late Finish/Early Start**

The condition set in this paragraph only applies when a crew member is acclimatized.

(a) Sleep deprivation, leading to the onset of fatigue, can arise if a crew member is required to report early for duty, or finishes a duty late, on a number of consecutive days. Therefore, not more than 3 consecutive duties that occur in any part of the period 0100 to 0659 local time can be undertaken, nor may there be more than 4 such duties in any 7 consecutive days. When a crew member is occupying suitable accommodation provided by the operator, and the normal journey time from that accommodation to the reporting point at the airfield does not exceed 15 minutes, then 0659 local time may be changed to 0559 local time.

(b) However, crew members who are employed on a regular early morning duty for a maximum of 5 consecutive duties shall work to the following:

(i) The minimum rest period before the start of such a series of duties is 24 hours.

(ii) The duty will not exceed 9 hours, irrespective of the sectors flown.

(iii) At the finish of such a series of duties, crew members will have a minimum of 63 hours free from all duties.

7.2 (c) Should a crew member be scheduled for duty that occurs during any part of the period 0200 to 0459 local time, for a minimum of 2 and a maximum of 3 consecutive nights, then crew members must be free from all duties by 2100 hours local time before covering the block of consecutive night duties, such that the crew members can take a rest period during a local night.

(d) However, crew members who are employed on a regular night duty for a maximum of 5 consecutive nights shall work to the following:

(i) The minimum rest period before the start of such a series of duties in 24 hours.

(ii) The duty will not exceed 8 hours, irrespective of the sectors flown.

(iii) At the finish of such a series of duties crew members will have a minimum of 54 hours free from all duties.

8. Rest periods

(1) It is the responsibility of the operator to notify flight crew members of a flight duty period so that adequate and, within reason, uninterrupted pre-flight rest can be obtained by the flight crew. Away from base, the operator must provide the opportunity and facilities for the flight crew to obtain adequate pre-flight rest. It is the operator's responsibility to ensure that rest

accommodation is satisfactory. When operations are carried out at such short notice that it is impracticable for an operator to ensure that rest accommodation is satisfactory, it will be the pilot-in-command's responsibility to obtain satisfactory accommodation.

(2) (a) Each duty period, including flight watch and home reserve, must be preceded by a rest period of at least:

(i) at least as long as the preceding duty period, or

(ii) 12 consecutive hours; whichever is the greater.

(3) **Pilot-in-command's discretion to reduce a rest period**

A pilot-in-command may, after taking note of the circumstances of other members of the crew, at his or her discretion, reduce a rest period to below the minimum required by paragraph 8(2) and 12(2)(b). The exercise of such discretion must be considered exceptional and should not be used to reduce successive rest periods. A rest period must be long enough to allow flight crew members at least 10 hours, at the accommodation where the rest is taken. If a rest period is reduced, the pilot-in-command must submit a report to his or her employer, and if the reduction exceeds 1 hours, must submit a written report to the Director within 14 days. (See note 1 to paragraph 7.6(2)).

(4) For the purpose of calculating the minimum rest period before commencement of duties, the required post flight duties on completion of the previous FDP is added to such FDP.

9. Duty periods

(1) The following limits apply:

Duty	Maximum duration
Flight watch	No limit*
Home reserve	No limit*
Positioning	No maximum**
Standby	Maximum 12 hours (not necessarily consecutive) in any 24 hour period
Standby + FDP	20 hours

* However, the provisions of item (2) applies.

** However, the provisions of paragraph 7.4 applies.

(2) For the purpose of calculating duty time, the following applies:

(a) For the calculation of accumulated duty time in terms of paragraph 11, flight watch and home reserve is credited on the basis of eight hours for every period of twenty four or fewer consecutive hours, or on a one-for-one basis, whichever is the lesser.

(b) Standby duty time must count fully as duty time for the calculation of accumulated duty time in terms of paragraphs 8(2)(c) and (d) and 11.

(c) See paragraph 7.4 in respect of positioning time.

10. Days off

Flight crew members must -

(1) not work more than seven consecutive days between days off; and

(2) have two consecutive days off in any consecutive fourteen days; and

(3) have a minimum of six days off in any consecutive four weeks at the aerodrome from which they normally operate; and

(4) have an average of at least eight days off in each consecutive four week period, averaged over three such periods.

11. Cumulative duty and flying hours

The maximum duty hours for flight crew shall not exceed;

55 hours in 1 week, but may be increased to 60 hours, when a rostered duty covering a series of duty periods, once commenced, is subject to unforeseen delays

95 hours in any 2 consecutive weeks and 190 hours in any 4 consecutive weeks.

When a crew member is not rostered for either standby or flying duties for 28 or more consecutive days then any duty hours worked need not be added to cumulative totals. However, when a crew member is anticipated to return to either standby or flying duties the duty hours worked in the 28 days preceding that duty must be recorded. Before allocating a flying duty to a crew member the operator must be satisfied that the crew member is in compliance with the scheme.

Calculation of Cumulative Duty Hours (all aircraft)

Duty hours shall be added to cumulative totals in accordance with the following:

(a) To count in full:

(i) Duty periods and flying duty periods, plus subsequent post-flight duties.

(ii) All standby duty, except that specified in (b)(i) and (ii) below

(iii) The time spent on positioning

(b) To count as half the time on duty:

(i) The standby duty, when the period of notice given to the crew member by the operator before reporting for duty, is treble or more the specified minimum report time.

(ii) The standby duty when undertaken at home, or in suitable accommodation provided by the operator, takes place during the period 2200 to 0800 hours, and the crew member can take undisturbed rest and is not called out for duty.

12. Cabin crew members

(1) The requirements detailed in this paragraph are applicable to all cabin crew members carried as cabin crew members.

(a) The limitations which apply to cabin crew members are those contained in paragraphs 7 to 11.

13. Records to be maintained

Records for the duty and rest periods of all flying staff shall include;

For each crew member:

The beginning, and duration of each duty and flying duty period, and function performed during the period. Duration of each rest period prior to a flying duty or standby duty period. Dates of days off. Weekly totals of duty.

For each flight crew member

Daily and weekly flying hours

Records shall be preserved for at least 12 calendar months from the date of the last relevant entry.

Additionally, copies of all aircraft commanders' discretion reports of extended flying duty periods and reduced rest periods will be retained for a period of at least six months after the events.

121.03.1 TRAINING OF CREW MEMBERS

1. Training syllabus

The training syllabus for crew members required in terms of CAR 121.03.1, is -

(1) the syllabi prescribed in Parts 61, 63 and 64, for initial training;

(2) the syllabi prescribed in TS 121.03.3 and 121.03.10, for conversion training;

(3) the syllabi prescribed in TS 121.03.6, 121.03.12, 121.03.13 and 121.03.14, for recurrent training and checking and refresher training and type and differences training; and

(4) the syllabi prescribed in Part 92 for initial and refresher dangerous goods training.

121.03.3 CONVERSION TRAINING

1. Operator's conversion training course syllabus

(1) An operator's conversion course syllabus must include the following items:

(a) Ground training and checking including aeroplane systems, normal, abnormal and emergency procedures;

(b) emergency and safety equipment training and checking which must be completed before aeroplane training commences;

(c) crew resource management training;

(d) aeroplane/simulator training and checking; and

(e) line flying under supervision and line check.

(2) The conversion course must be conducted in the order set out in subparagraph (1) above.

2. Crew resource management training

2.1 **Procedures**

(1) If the flight crew member has not previously completed an operator's conversion course, the operator must ensure that a crew resource management (CRM) course with a full length syllabus is completed. The flight crew member should not be assessed either during or upon completion of this course.

(2) If the crew member undergoes a subsequent conversion course with the same or another operator, he or she should complete the appropriate elements of the CRM course. The flight crew member should not be assessed either during or upon completion of this training.

(3) Recurrent training:

(a) Where an operator utilises line orientated flying training (LOFT) in the recurrent training programme, the flight crew member should complete elements of CRM training. The flight crew member should not be assessed.

(b) Where an operator does not utilise LOFT, the flight crew member should complete elements of CRM training every year. The flight crew member should not be assessed.

(c) An operator should ensure that flight crew members complete the major elements of the full length CRM course over a four year recurrent training cycle. The flight crew member completing this refresher training should not be assessed.

(d) When a flight crew member undergoes an operator proficiency check, line check or command course, then CRM skills should be included in the overall assessment.

(4) Operators should, as far as is practicable, provide combined training for flight crew and cabin crew.

(5) There should be an effective liaison between crew and cabin crew training departments. Provision should be made for flight instructors and cabin crew instructors to observe and comment on each others training.

(6) The successful resolution of aeroplane emergencies requires interaction between flight crew and cabin crew and emphasis should be placed on the importance of effective coordination and two-way communication between all crew members in various emergency situations. Initial and recurrent CRM training should include joint practice in aeroplane evacuations so that all who are involved; are aware of the duties other crew members should perform. When such practice is not possible, combined crew and cabin crew training should include joint discussion of emergency scenarios.

2.2 **Objective and contents**

(1) CRM is the effective utilisation of all available resources (e.g. crew members, aeroplane systems and supporting facilities) to achieve safe and efficient operation.

(2) The objective of CRM is to enhance the communication and management skills of the crew member concerned. The emphasis is placed on the non-technical aspects of crew performance.

(3) CRM training should include the following elements:

(a) Statistics and examples of human factor related accidents;

(b) human perception, learning process;

(c) situational awareness;

(d) management of workload, tiredness or fatigue, and vigilance - management of stress;

(e) operator’s standard operating procedures;

(f) personality type, delegation, leadership, effective communication skills;

(g) the CRM loop:

Notion of synergy — Inquiry (or explore, examine, scrutinise)

Conflict resolution
Decision making
Critique
Feedback

(h) effective communication and co-ordination within the crew, and between crew members and other operational personnel (air traffic service, maintenance personnel, etc.);

(i) error chain and taking actions to break the error chain; and

(j) implications of automation on CRM.

(4) CRM training should also address the nature of the operator's operations as well as the associated crew operating procedures. This will include areas of operations which produce particular difficulties, adverse climatological conditions and any unusual hazards.

(5) CRM training should include both:

(a) Classroom training; and

(b) practical exercises including group discussions and accident reviews to analyse communication problems and instances or examples of a lack of information or crew management.

(6) Ideally, the CRM training course should last a minimum of 3 days, but providing the whole syllabus is covered, then a 2 day course may be acceptable. A one day course for single-pilot operations may be acceptable.

(7) As part of the operations manual, the CRM course (for conversion and recurrent training) is approved by the Director. An operator may use a course provided by another operator, if that course has already been approved.

121.03.7 PILOT QUALIFICATION TO OPERATE IN EITHER PILOT'S SEAT

1. Training

(1) A pilot-in-command required to operate in the right-hand seat and carry out the duties of co-pilot, or a pilot-in-command required to conduct training or examining duties from the right-hand seat, must complete additional training and checking as specified in the operations manual, concurrent with the operator proficiency checks prescribed in CAR 121.03.6. This additional training must include at least the following:

(a) An engine failure during take-off;

(b) a one-engine inoperative approach and go-around;

(c) a one-engine inoperative landing; and

(d) Category II or Category III operations, if applicable.

(2) When engine-out manoeuvres are carried out in the aeroplane, the engine failure must be simulated.