TECHNICAL STANDARDS – Issue version (2024)
NAMCATS : Part 127 – COMMERCIAL HELICOPTER OPERATIONS: PASSENGERS, CARGO, AND MAIL

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1. General

1.2 Section 227 of the Civil Aviation Act, 2016 (Act no. 6 of 2016 – hereinafter "the Act") empowers the Executive Director of Civil Aviation to issue technical standards for civil aviation "on such matters as may be prescribed". Section 227(3) of the Act further empowers the Executive Director of Civil Aviation to incorporate into a technical standard any international aviation standard or any amendment without publishing the text of such standard or any amendment "by mere reference" to the title, number and year of issue of such standard or amendment or to any other particulars by which such standard or amendment is sufficiently identified.

1.3 By way of Government Notice 11/2024 published in Government Gazette 8299 dated 1st February 2024, NAMCARS (amendment 2024) provides for Part 127 – "Commercial Helicopter Operations: Passengers, Cargo, and Mail" (OPS-127). This Part 127 provides for the issue of technical standards as NAM-CATS-OPS-127.

1.4 The Executive Director of Civil Aviation has, pursuant to the empowerment mentioned above, issued technical standards relating to NAMCAR Part 127 to be known as NAM-CATS-OPS-127 as further set out in the SCHEDULE herein.

1.5 To the extent possible, each reference to a technical standard in this document, is a reference to the corresponding regulation in the Namibian Civil Aviation Regulations.

Example: *Technical standard 127.02.2 refers to Part 127, Subpart 02, Regulation 2, Technical standard 127.02.2(1) refers sub-regulation (1) of Regulation.*

1.6 Where there is any perceived disparity of meaning or inconsistency between these technical standards and the regulations, the provisions of the regulations will take precedence.

1.7 Where there is a difference between a standard and procedure prescribed in an ICAO document and the Civil Aviation Technical Standards (CATS), the CATS standard will prevail.

2. GUIDANCE MATERIAL

2.1 Guidelines and recommendations in support of any Technical Standard are contained in schedules or appendices to, and/ or compliance notes inserted throughout, technical standards. These guidelines, upon release, are intended to provide recommendations and guidance to illustrate a means, but not necessarily the only means of complying with the regulations and technical standards. They may explain certain regulatory requirements by providing interpretive and explanatory materials. It is expected that service providers will document internal actions in their own operational manuals, to put into effect those, or similarly adequate, practices.

AMENDMENTS TO THE TECHNICAL STANDARDS

3.1 The NCAA Safety Division, Safety Promotion and Quality (SPQ) Department has responsibility for the technical content of this technical standard.

3.2 This Technical Standard is issued, and may only be amended, under the authority of the Executive Director of Civil Aviation.

3.3 Requests for changes to the content of this Technical Standard must be dealt with in accordance with the relevant Sub-Part of Part 3 of the NAMCARS. Requests shall be forwarded to the Executive Director and may come from:

(a) technical areas within NCAA; or
(b) aviation industry service providers or operators; or
(c) pilots and ATC staff,

3.4 The need to change the content of this technical standard may arise for any of the following reasons:

(a) to ensure safety;
(b) to ensure standardisation;
(c) to respond to changed NCAA regulations or standards;
(d) to respond to changes initiated by ICAO; or
(e) to accommodate proposed initiatives or new technologies, and for it to meet the validity and other requirements set out accordance with the relevant Sub-Part of Part 3 of the NAMCARS.

3.5 NCAA may approve trials of new procedures or technologies to develop appropriate standards.

INTERNATIONAL STANDARDS

4.1 Based on the empowering provisions to the Executive Director in section 227 to incorporate into a technical standard any international aviation standard or any amendment without stating the text of such standard or amendment, by mere reference to the title, number and year of issue of such standard or amendment, or to any other particulars by which such standard or amendment is sufficiently identified the Technical Standards herein provide for the following international standards, recommended practices and procedures, as amended from time to time, are incorporated into the technical standards contained in this document:

(a) ICAO Annex 6 – Operation of Aircraft;

4.2 Differences from ICAO Standards, Recommended Practices and Procedures are published in the AIP.

These Technical Standards are effective from 01 October 2024
Further access is available on NCAA website: https://www.ncaa.com.na
Enquiries: ops@ncaa.na

TOSKA SEM
EXECUTIVE DIRECTOR

NAM-CATS 127

Commercial Helicopter Operations: Passengers, Cargo, and Mail

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1. General

(1) NCAA has adopted the ICAO language standards with respect to the minimum comprehension that would qualify any flight crew member to be assigned or accept an assignment that requires the use of the aeronautical language in the area or areas being travelled by such crew member. For the purposes of this TS that language is normally considered to be English unless it can be shown that another language is used by the aeronautical community at the location where the aeroplane is being operated. Notwithstanding this standard, the English language criteria specified in Part 61 still applies with respect to personnel licensing matters.

(2) For a full description of the proficiency testing benchmarks, ICAO Annex 1, Attachment A, ICAO Language Proficiency Rating Scale should be consulted.

(3) In order to comply with regulation 127.01.6, a language proficiency rating of level 4 or higher must be demonstrated. The levels of language proficiency ratings and demonstration anniversaries published in the following table shall be established by using the criteria specified in paragraph (2).

PROFICIENCY LEVEL	TESTING INTERVAL
Level 6: Expert	Retesting not required
Level 5: Extended	Retesting required every six years
Level 4: Operational (minimum level)	Retesting required every three years
Level 3: Pre-operational	Licence not issued/maintained
Level 2: Elementary	Licence not issued/maintained
Level 1: Pre-elementary	Licence not issued/maintained

2. Holistic descriptors

Proficient speakers shall-

(a) communicate effectively in voice-only (telephone/radiotelephone) and in face-to-face situations;

(b) communicate on common, concrete and work-related topics with accuracy and clarity;

(c) use appropriate communicative strategies to exchange messages and to recognise and resolve misunderstandings (e.g. to check, confirm or clarify information) in a general or work-related context;

(d) handle successfully and with relative ease the linguistic challenges presented by a complication or unexpected turn of events that occurs within the context of a routine work situation or communicative task with which they are otherwise familiar; and

(e) use a dialect or accent which is intelligible to the aeronautical community.

3. Language Proficiency Records

Each operator shall maintain in the flight crew member's training file the language proficiency rating held by such flight crew member and in the case of levels 4 and 5, the results of the required re-testing.

127.02.1 COMPOSITION OF FLIGHT CREW

1. General

A helicopter certificated to be operated by a single pilot, that is not required to be crewed by two pilots in terms of sub-regulation 127.02.1(6), shall meet the requirements of this technical standard.

2. Single-pilot night VMC operations

A helicopter may be operated by a single pilot in VMC by night if the following requirements are complied with-

(a) the helicopter shall be certificated and equipped for single-pilot night operations;

(b) the operator shall include, in the operations manual referred to in regulation 127.04.2, a recurrent training programme for pilots which includes the additional requirements for a single-pilot night VFR operation;

(c) the flight deck procedures shall include-

(i) use of night flying equipment, including lights and lighting;

(ii) use of normal, abnormal and emergency checklist;

(iii) departure and approach procedures;

(iv) simplified in-flight documentation; and

(v) if applicable, stability augmentation or automatic flight control system management;

(d) the recurrent checks prescribed in Subpart 3 shall be performed at night in the single-pilot role in an environment suitable for the type of operation involved;

(e) the pilot concerned shall, during the ninety days immediately preceding the intended flight, have-

(i) executed, by night, not less than three circuits (including take-off and landing); or

(ii) passed the appropriate skill test or proficiency check prescribed in Part 61 for the helicopter night rating in the type of helicopter in which the intended flight is to be undertaken; and

(f) if the helicopter has not been fitted with a stability augmentation system or automatic flight control system, night flight time shall be less than allowed for in Table 1, section 7.1 of TS 127.02.12. To what extent these hours are to be further restricted shall be based on the type of helicopter and the type of operation.

The operator shall submit to the Executive Director for approval his or her proposed limitations, which - after approval - shall be incorporated in the operations manual, referred to in regulation 127.04.2, and listed on the operations specification document referred to in Subpart 6 of Part 127.

3. Single-pilot IMC operations

A helicopter may be operated by a single pilot in IMC if the following requirements are complied with-

(a) the helicopter shall be certificated and equipped for single-pilot IFR operations, as prescribed by regulation 127.05.3(5);

(b) the operator has included in the operations manual referred to in regulation 127.04.2, an approved conversion and recurrent training programme for pilots, which includes the additional requirements for a single-pilot IMC operation, as prescribed by regulation 127.05.3(5);

(c) the flight deck procedures shall include-

(i) use of normal, abnormal and emergency checklist;

(ii) operation with partial instrument panel;

(iii) departure and approach procedures;

(iv) stability augmentation or automatic flight control system management; and

(v) simplified in-flight documentation;

(d) the recurrent checks prescribed in Subpart 3 shall be performed in the single-pilot role in an environment representative of the operation;

(e) the pilot concerned shall be the holder of a valid instrument rating for helicopters and have completed, in helicopters, not less than 1 000 hours of flight time, of which-

(i) 250 hours shall be as pilot-in-command (PIC), or not less than 100 hours as PIC and the necessary additional flight time as second-in-command (SIC) performing, under the supervision of the PIC, the duties and functions of a PIC;

(ii) 200 hours shall be cross-country flight time, of which not less than 100 hours shall be as PIC or as SIC performing, under the supervision of PIC, the duties and functions of a PIC;

(f) the pilot concerned shall during the ninety days immediately preceding the intended flight have-

(i) executed at least three approaches, either under actual or simulated conditions with reference to flight instruments only; or

(ii) passed the appropriate skill test or proficiency check for the helicopter instrument rating as prescribed in Part 61, in the type of helicopter in which the intended flights to be undertaken; and

(g) if the helicopter has been equipped with a stability augmentation system only rather than with an automatic flight control system, instrument flight time shall be limited to periods of a maximum of two continuous hours with either a rest period, or flight in VMC by day, of at least half an hour between such periods.

4. Additional requirements

(1) Notwithstanding the provisions of section 2, no person may operate a helicopter in a Category II or Category III approach and landing operation unless the flight crew includes a properly rated second pilot.

(2) Nothing is this TS shall be construed as meaning that a flight under IFR or at night for the purpose of flight instruction conducted by an appropriately rated flight instructor would be a single-pilot operation or that such a training flight, if conducted in terms of Part 127, would be required to be operated by two qualified pilots.

5. Flight crew pairing

(1) Crew pairing

(a) Flight crew member pairing restrictions apply only to helicopters required to be operated with two or more flight crew members. This TS establishes the minimum experience requirements for the pairing of flight crew members in order to ensure that an entire flight crew is not comprised of flight crew members with very low operational experience on a new type and establishes the minimum level of collective crew experience that must be achieved. The intent is to provide each pilot recently trained on a new type of helicopter with a certain period of time, measured in flight hours over a fixed time period, to consolidate his or her new knowledge and skills while having the benefit of an experienced pilot occupying the other flight crew member seat.

(b) Flight crew pairing restrictions apply when any of the following situations occur with respect to either the pilot-in-command (PIC) or the second-in-command (SIC)-

(i) initial appointment to PIC or SIC on a new helicopter type;

(ii) the first upgrade from SIC to PIC on any helicopter type except the same helicopter type on which currently operating; or

(iii) transition from a reciprocating-powered helicopter to a turbine powered helicopter.

(2) Crew pairing restrictions come into effect after completion of the pilot proficiency check (PPC) in the new position or new type and remain in effect until the completion of the consolidation period for the flight crew member.

(3) Where one of the flight crew members is subject to pairing restrictions he or she must be paired with a flight crew member who has satisfied the consolidation period requirements.

(4) All flight hours accumulated during line indoctrination training may be applied toward the consolidation time requirements.

(5) Consolidation period requirements are-

(a) the consolidation period shall take place in accordance with the time limits from the following sliding scale and shall begin upon successful completion of an initial PPC on each helicopter type-

(i) 10 hours in 60 days;

(ii) 20 hours in 90 days; or

(iii) 25 hours in 120 days;

(b) if the consolidation period is not completed within 120 days, an extension to 150 days is permitted, at the operator's discretion, under the following conditions-

(i) on or before the 120th day, the operator shall make a ground evaluation of the pilot's level of competency; and

(ii) when the pilot is assessed as not possessing a satisfactory level of competence, the pilot shall undergo additional training, followed by a supervised line operating flight, after which the consolidation period may be extended to 150 days; or

(iii) when the pilot's proficiency is judged satisfactory, the pilot shall be observed on at least one supervised line operating flight, after which the consolidation period may be extended to 150 days; and

(c) if at any time before the consolidation period ends a pilot is assigned to another helicopter type, the pilot shall undergo refresher training with a training pilot or check pilot before resuming the consolidation process.

6. Minimum experience for assignment

(1) An operator shall publish in its operations manual details of the procedures to ensure persons who do not meet the flight experience criteria of this TS are not assigned as the PIC of a helicopter unless adequate mitigating steps acceptable to the Executive Director are taken by the operator.

(2) In establishing procedures, an operator shall consider the following methods of mitigating risks associated with low experience levels-

(a) limiting the authorised radius of action to a 200, 250, 300 NM sliding scale depending on experience deficit;

(b) imposing higher route and aerodrome operating minima;

(c) increasing operational weather limits;

(d) increased operational oversight;

(e) restricting to cargo flights only;

(f) more frequent communications requirements;

(g) more stringent flight following procedures; or

(h) additional line training.

(3) No person shall act as the PIC of a passenger-carrying helicopter operated in terms of this Part with a maximum certified take off mass of greater than 2730 kg or a maximum certified seating configuration of 10 or more passengers unless-

(a) in the case of IFR flight, the person has acquired at least 1200 hours of flight time as a pilot; and

(b) in the case of day or night VFR, the person has acquired not less than 500 hours of flight time as a pilot.

(4) No person shall conduct single-pilot operations unless he or she-

(a) has met the recency requirements specified in regulations 91.02.4 (1), (2) and (4) as the sole pilot of the helicopter;

(b) has successfully completed the operator's training programme, including passenger briefing with respect to emergency evacuation, autopilot management and the use of simplified in-flight documentation; and

(c) has successfully completed a PPC while acting as the sole pilot of the helicopter in an environment representative of the operation.

127.02.2 FLIGHT AND CABIN CREW MEMBER EMERGENCY DUTIES

1. Emergency evacuation demonstration

An emergency evacuation demonstration shall be performed by the flight 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 firefighting using equipment representative of that carried in the helicopter 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.

127.02.3 CABIN CREW COMPLEMENT

1. Minimum number of cabin crew

An operator must ensure that, when the carriage of cabin crew is required and 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 helicopter: 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 127.02.6 or were assumed to have taken part in the relevant analysis required during the certification of the helicopter.

127.02.8 CABIN CREW MEMBER QUALIFICATIONS

1. Operation on more than one helicopter type or variant

Notes:

1. The provisions of this TS apply to flight crew members operating more than one helicopter under Part 127 and assumes the flight crew member will be operating two types or variants of helicopters under this Part.

2. *"Base helicopter" means, with respect to the two types or variants flown, the helicopter for which a type rating was first obtained.*

3. *Refer to TS 61.17 in Document NAM-CATS 61 for the determination of helicopter types and variants and guidance as to the training required to obtain the type rating or convert to another type or variant.*

(1) When considering operations of more than one type or variant, the operator shall ensure that the differences or similarities of the helicopters concerned justify such operations, taking account of the following-

(a) the level of technology;

(b) operational procedures; and

(c) handling characteristics.

(2) The operator shall ensure that a flight crew member operating more than one type or variant of helicopters complies with all of the requirements prescribed in Subpart 3 for each type or variant unless the Executive Director has approved the use of credit(s) related to the training, checking and recent experience requirements.

(3) The operator shall specify appropriate procedures or operational restrictions, approved by the Executive Director, in the operations manual, for any operation on more than one type or variant of helicopter covering-

(a) the flight crew member's minimum experience level;

(b) the minimum experience level on one type or variant before beginning training for and operation on another type or variant;

(c) the process whereby flight crew qualified on one type or variant will be trained and qualified on another type or variant;

(d) all applicable recent experience requirements for each type or variant.

(4) When a flight crew member operates more than one helicopter type or variant within one or more licence endorsements, as specified in TS 61.17 of Document NAM-CATS 61, the operator shall 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 helicopter types or variants for which a separate licence endorsement is required; and

(c) only helicopters within one licence endorsement are flown in any one flight duty period unless the operator has established procedures to ensure adequate time for preparation.

(5) When a flight crew member operates more than one helicopter type or variant listed in TS 61.17 of Document NAM-CATS 61, but not within a single licence endorsement, the operator shall comply with the following-

(a) subparagraphs (4) above;

(b) recency shall be maintained for each type of helicopter operated unless credits have been allowed by the Executive Director in accordance with subparagraph (c) below;

(c) where credits are sought to reduce the training, except as provided in subparagraph (d), checking and recent experience requirements between helicopter types-

(i) for training, the operator shall demonstrate to the Executive Director which items need not be repeated on each type or variant because of similarities. If credits are approved, the reduced recurrent training shall be specified in the operations manual;

(ii) for proficiency checks, credit may be given for PPCs to be alternated between the two types, in which case each proficiency check revalidates the PPC for the other type; and

(d) annual emergency and safety equipment training and checking shall cover all requirements for each type.

2. Area, route and aerodrome familiarisation

(1) A pilot shall not act as pilot-in-command of a helicopter operated in accordance with regulation 127.01.1, unless the pilot has familiarised him- or herself with the area, route and aerodrome to be operated over or into prior to the flight operation therein including consideration of-

(a) the terrain and minimum safe altitudes;

(b) the seasonal meteorological conditions;

(c) the meteorological, communication and air traffic facilities, services and procedures;

(d) the search and rescue procedures;

(e) the navigation facilities and procedures associated within the route or in the area in which the flight is to take place;

(f) the procedures applicable to flight paths over densely congested areas and areas of higher traffic density; and

(g) obstructions, physical layout, lighting, approach aids and arrival, departure, holding and instrument approach procedures including operating minima.

(2) The operator shall establish in its operations manual the means by which the PIC is to become familiar with the area, route or aerodrome to be operated over or into which he or she is to operate.

(3) If a route and or area of operation requires a specific type of navigation qualification, the pilot-in-command shall hold the appropriate valid qualifications.

(4) An operator shall not release nor may a pilot accept a flight as a pilot-in-command of a scheduled air transport service operation unless, within the preceding 12 months, the pilot has made at least one flight over that area or route or into that aerodrome as-

(a) a pilot member of the flight crew in which at least one member is qualified for the flight or is a check pilot; or

(b) as an observer on the flight deck.

(5) A pilot who has not used the specific means of navigation or made at least one flight over an area or route or into that aerodrome as specified in sub-regulations (3) and (4), shall re-qualify in accordance with sub-regulations (1), (3) and (4).

Note: *The requirements for demonstrating arrival, departure, holding and instrument approach procedures specified in sub-regulation (1)(g) may be accomplished in a flight simulation training device approved for the purpose.*

(6) The operator shall maintain a record of the qualification of the pilot and of the manner in which such qualification was achieved.

127.02.12 FLIGHT TIME AND DUTY PERIODS

Note: *Regulation 127.02.12 requires each operator of a commercial air transport of general aviation operation to establish a scheme for the administration of flight time and duty periods. Operators are reminded that they bear sole responsibility for such schemes being in full compliance with any Acts, laws and regulations that are external to the Namibia Civil Aviation Regulations, notwithstanding any approvals given by the NCAA.*

1. Definitions

(1) Any word or expression to which a meaning has been assigned in the Civil Aviation Act, 2016, and the Civil Aviation Regulations, 2001, bears, when used in this technical standard, the same meaning unless the context indicates otherwise.

(2) In addition, the definition of "duty period" is applicable to flight operations officers employed by an operator.

(3) Time spent on flight watch or home reserve may also be deemed to be part of a rest period as provided in section 8(2)(e) of this technical standard.

2. Maximum Flight Time

(1) An operator may not allow, nor may a flight crew member exceed, the following maximum flight times-

(a) the flight times specified in Table 1 of subsection 7.1 of this TS;

(b) during the preceding seven days:

(i) for a single-pilot operation: 35 hours;

(ii) for a multi-pilot operation: 40 hours; and

(iii) for mixed single- and multi-pilot operations: 37.5 hours;

(c) during the preceding thirty days:

(i) for a single-pilot operation: 100 hours;

(ii) for a multi-pilot operation: 120 hours; and

(iii) for mixed single- and multi-pilot operations: 110 hours;

(d) 300 during the preceding 90 days; or

(e) 1000 hours during the preceding 365 days.

(2) If a flight crew member expects his or her cumulative flight hours, projected for a particular operation, to exceed the appropriate limit, the flight crew member shall inform the operator accordingly.

(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 specified in the Regulations.

3. Operators' schemes and their approval

(1) Operations conducted in terms of regulation 127.01.1 shall submit a proposed scheme for the regulation of flight time and duty periods and minimum rest periods to the Executive Director for approval which shall be based upon scientific principles and knowledge, where available, with the aim of ensuring that crew members are performing at an adequate level of alertness.

(2) Any deviation from the approved scheme shall be submitted to the Executive Director for consideration.

(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 and duty limitations is to ensure that flight crew members are adequately rested at the beginning of each flight duty period (FDP). Helicopter 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 rest; and

(c) cumulative duty hours within specific periods.

(2) Duties shall be scheduled within the limits of the operator's scheme. To allow for unforeseeable delays the pilot-in-command (PIC) may, within prescribed conditions, use his or her discretion to exceed the limits on the day. Nevertheless, flight schedules shall be realistic, and the planning of duties shall be designed to avoid as far as possible exceeding the flight time and duty limits.

(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 crews 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 crews, other than those on standby duty; and

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

5. Responsibilities of crew members

It is the responsibility of all 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 Executive Director regards as the basis for an acceptable scheme of flight time and duty limitations and which, if included in an operator's scheme, will facilitate approval by the Executive Director are contained in sections 7 to 12 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 therefore 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 and flight time

The maximum rostered FDP (in hours) shall be in accordance with Table 1. Rostering limits in the tables may be extended by in-flight relief or split duty under the terms of subsections 7.2 or 7.3. On the day, the PIC may at his or her discretion further extend the FDP actually worked in accordance with subsections 7.6.

Table 1: Maximum flight duty period and flight times: Helicopters

Local time of start	Single pilot		Two pilots	
	Maximum length of flight duty period	Maximum flight time	Maximum length of flight duty period	Maximum flight time
0600 – 1759	10	7	12	8
1800 – 0559	9	6	12	7

7.2. Extension of flying duty period by split duty

When a FDP consists of two or more flight 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 shall 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 shall be provided.

7.3. Positioning

All time spent on positioning as required by the operator is classed as duty, but positioning as a passenger does not count 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 subsection 7.1.

7.4. 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 shall 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 subsection 7.3.

7.5. Pilot-in-command's discretion to extend a flight duty period

(1) A pilot-in-command (PIC) may, at his or her discretion, extend a FDP beyond the maximum normally permitted 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. The operator's scheme shall include guidance to PICs on the limits within which discretion to extend a FDP may be exercised. An extension of three hours beyond the maximum normally permitted should be regarded as the maximum, except in cases of emergency.

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

Notes:

1. *Discretion reports either concerning extension of an FDP in excess of two hours or reduction of a rest period shall be submitted in the PIC's Discretion Report form, which is available from the NCAA. Those reports will be used by the Executive Director when assessing the realism of particular schedules.*

2. *An emergency in respect of an extension of an FDP is a situation which in the judgment of the PIC presents serious risk to health or safety.*

7.6. 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 subsection does not apply if flight crew members are given ten hours or more notice of a new reporting time.

7.7. Additional limits applicable to helicopter flying

(1) Pilots engaged in repetitive short flights, with an average of ten or more take-offs and landings per hour shall have a break of at least thirty minutes away from the helicopter, where possible, within any continuous period of three hours.

(2) Operations conducted in terms of regulation 127.01.1 shall specify maximum periods of continuous operation on the more demanding aspects of helicopter flying, such as winching and external-load carrying. The limits applied should not exceed those set out in paragraph (1) but, depending on the nature and circumstances of a particular operation, may need to be more restrictive.

8. Rest periods

(1) It is the responsibility of the operator to notify flight crew members of an FDP and not to schedule them for duty, other than flight watch or home reserve so that adequate and, within reason, uninterrupted pre-flight rest can be obtained by the flight crew before the commencement of the next FDP. Away from base the operator shall 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 PIC's responsibility to obtain satisfactory accommodation.

(2) The following rest period requirements shall be followed-

(a) Each duty period, as well as flight watch and home reserve, shall be preceded by a rest period of at least-

(i) nine consecutive hours including a local night; or

(ii) ten consecutive hours; or

(iii) if the preceding FDP, adjusted for split duty, exceeds eleven hours, an additional rest period shall be provided for in the operator's scheme to the satisfaction of the Executive Director;

(b) where a flight crew member has completed two consecutive flight duty periods, the aggregate of which exceeds eight hours flight time or eleven hours flight duty time (extensions by in-flight relief

or split-duty disregarded), and the intervening rest period has been less than twelve consecutive hours embracing the hours between 22h00 and 06h00 local time, he or she shall have a rest period on the ground of at least twelve consecutive hours embracing the hours between 22h00 and 06h00 local time or so much longer as to embrace these hours prior to commencing any further duties, but not necessarily longer than twenty-four consecutive hours; provided that this requirement does not apply in respect of consecutive flight watch and home reserve duties;

(c) following sixty hours of duty of any nature associated with his or her employment, except flight watch and home reserve duty, a flight crew member shall have a rest period of not less than twenty-four consecutive hours before commencing further duties;

(d) when a flight crew member has completed a flight time and duty period in excess of eighteen hours, he or she shall have a rest period of at least eighteen hours including a local night before he or she commences any further duties; and

(e) time spent on flight watch and home reserve duty prior to a FDP shall not be counted when determining the limitations associated with the FDP.

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

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

(4) For the purpose of calculating the minimum rest period before commencement of flight duty, 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 (no necessarily consecutive) in any 24 hour period
Standby + FDP	20 hours

* However, the provisions of paragraph (2) apply.

** However, the provisions of subsection 7.4 apply.

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

(a) for the calculation of accumulated duty time in terms of section 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 shall count fully as duty time for the calculation of accumulated duty time in terms of subsections 8(2)(c) and (d) and 11.

(c) see subsection 7.4 in respect of positioning time.

10. Days off

Flight crew members shall:

(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 total duty hours may not exceed seventy hours over any consecutive seven days, and

The total duty hours may not exceed 60 hours over any consecutive 14 days.

All types of duty, flight duty, ground duty, split duty, stand-by and positioning is counted in full for this purpose. Any period of seven or more consecutive days within which the flight crew member is employed on duty other than flight duty, flight watch or home reserve, standby or positioning is not included in calculating the above average weekly total of duty hours.

12. Cabin crew members

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

(2) The limitations which apply to cabin crew members are those contained in sections 7 to 11 applicable to flight crew members, but with the following adjustment-

(a) rostered FDPs for cabin crew members may begin no more than one hour earlier than the flight crew members. In such an event-

(i) the FDP for cabin crew members shall be deemed to have started at the same time as the flight crew FDP; and

(ii) where a preceding rest period is shortened to less than minimum rest period in order to accommodate an earlier sign-on by cabin crew members, their subsequent rest period shall be extended by the amount of time the preceding rest period was shortened;

(b) for the purpose of a FDP extension following in-flight rest by cabin crew members-

(i) a period of a minimum of two consecutive hours of rest shall allow for the extension of such FDP by half the actual rest period; and

(ii) where in-flight rest is provided for more than three hours, the provisions of subsection 8(2)(iii) apply;

(c) the combined sum of standby duty and following FDP may not exceed twenty-one hours;

(d) the average weekly total of duty hours may not exceed fifty-five hours; and

(e) the annual and monthly limits on flying hours need not be applied.

13. Records to be maintained

(1) An operator of a commercial air transport operation shall retain flight crew member flight time and duty period records as provided in regulation 127.04.6.

(2) The operator shall retain all PIC discretion reports of extended FDPs and reduced rest periods for a period of at least six months.

127.02.13 FATIGUE RISK MANAGEMENT SYSTEM

1. Fatigue risk management policy

(1) An air operator's FRMS policy shall -

(a) clearly identify all elements of the FRMS;

(b) define the scope of the operations in the operations manual;

(c) reflect the shared responsibility of management, flight, cabin crew and other involved personnel;

(d) require that clear lines of accountability for management, flight and cabin crew and other involved personnel are identified;

(e) clearly state the safety objectives of the FRMS;

(f) be signed by the accountable executive of the organisation;

(g) be communicated, with visible endorsement, to all the relevant areas and levels of the organisation;

(h) declare management commitment to effective safety reporting;

(i) declare management commitment to the provision of adequate resources for the FRMS;

(j) declare management commitment to continuous improvement of the FRMS; and

(k) document periodic reviews to ensure it remains relevant and appropriate.

(2) FRMS manual

(a) An air operator shall develop and keep a current FRMS manual that defines and records the following:

(i) FRMS policy and objectives;

(ii) FRMS processes and procedures;

(iii) accountabilities, responsibilities and authorities for these processes and procedures;

(iv) mechanisms for on-going involvement of management, flight and cabin crew members and all other involved personnel;

(v) FRMS training programmes, training requirements and attendance records;

(vi) scheduled and actual flight times, duty periods and rest periods with significant deviations and reasons for such deviations; and

(vii) FRMS outputs including findings from collected data, recommendations, and actions taken.

Note - *This manual may be incorporated into the SMS manual of the system of operations manuals*.

2. Fatigue risk management processes

2.1. Identification of hazards

(1) When identifying hazards, an air operator shall develop and maintain the following three fundamental and documented processes for fatigue hazard identification:

(a) The predictive process which shall identify fatigue hazards by examining crew scheduling and taking into account factors known to affect sleep and fatigue and their effects on performance. Methods of examination may include but are not limited to:

(i) Operator or industry operational experience and data collected on similar types of operations;

(ii) Evidence-based scheduling practices; and

(iii) Bio-mathematical models.

(b) The proactive process which shall identify fatigue hazards within current flight operations. Methods of examination may include but are not limited to:

(i) Self-reporting of fatigue risks;

(ii) crew fatigue surveys;

(iii) relevant flight and cabin crew performance data;

(iv) available safety databases and scientific studies; and

(v) analysis of planned versus actual time worked.

(c) The reactive process which shall identify the contribution of fatigue hazards to reports and events associated with potential negative safety consequences in order to determine how the impact of fatigue could have been minimised. At a minimum, the process may be triggered by any of the following -

(i) fatigue reports;

(ii) confidential reports;

(iii) audit reports;

(iv) incidents; and

(v) flight data analysis events.

(2) Risk assessment

(a) An air operator shall develop and implement risk assessment procedures that determine the probability and potential severity of fatigue-related events and identify when the associated risks require mitigation. The risk assessments procedures shall review identified hazards and link them to the following:

(i) operational processes;

(ii) their probability;

(iii) possible consequences; and

(iv) the effectiveness of existing safety barriers and controls.

(b) An air operator shall develop and implement risk mitigation procedures that -

(i) select the appropriate mitigation strategies;

(ii) implement the mitigation strategies; and

(iii) monitor the strategies implementation and effectiveness.

3. FRMS safety assurance processes

(1) An air operator shall develop and maintain FRMS safety assurance process to attain the following -

(a) Provide for continuous FRMS performance monitoring, analysis of trend, and measurement to validate the effectiveness of the fatigue safety risk controls. The sources of data may include, but are not limited to the following:

(i) hazard reporting and investigations;

(ii) audits and surveys; and

(iii) reviews and fatigue studies;

(b) Provide a formal process for the management of change which shall include but is not limited to the following:

(i) Identification of changes in the operational environment that may affect FRMS;

(ii) identification of changes within the organisation that may affect FRMS; and

(iii) consideration of available tools which could be used to maintain or improve FRMS performance prior to implementing changes; and

(iv) provide for the continuous improvement of the FRMS. This shall include but is not limited to the following -

(aa) the elimination and/or modification of risk controls have had unintended consequences or that are no longer needed due to changes in the operational or organisational environment;

(bb) routine evaluations of facilities, equipment, documentation and procedures; and

(cc) the determination of the need to introduce new processes and procedures to mitigate emerging fatigue-related risks.

4. FRMS promotion processes

(1) An air operator shall support the on-going development of the FRMS, the continuous improvement of its overall performance, and attainment of optimum safety levels. The following shall be established and implemented by the air operator as part of its FRMS -

(a) training programmes to ensure competency commensurate with the roles and responsibilities of management, flight and cabin crew, and all other relevant personnel under the planned FRMS; and

(b) an effective FRMS communications plan that ensures the following -

(i) FRMS policies, procedures and responsibilities are explained to all relevant stakeholders; and

(ii) communication channels used to gather and disseminate FRMS related information are described.

Note - *The FRMS shall reside within a SMS.*

127.03.1 OPERATOR APPROVED TRAINING PROGRAMME

Note: *While this technical standard establishes the means of compliance with Subpart 3 of Part 127 of the Namibia Civil Aviation Regulations, existing training programmes approved by the Executive Director shall maintain an approved status and do not require restructuring in order to meet this Technical Standard (TS). The intent of this TS is concerned with content, not necessarily structure or layout. If during the auditing or oversight process an existing programme is found to be deficient, the NCAA inspector or Designated Flight Examiner (DFE) will record the deficiencies and given a reasonable period of time, the operator will be required to produce the appropriate revision. Notwithstanding the foregoing, all new or revised training programme submissions shall comply with this TS in content and where noted, structure*.

1. Equipment, facilities and personnel of a training programme

An operator shall ensure that its training equipment and facilities and personnel are adequate for their intended purpose.

(a) Equipment - While no specific standards are published for the training equipment used as teaching aids, a benchmark that will be applied is whether or not the information being presented is represented by adequate

training aids so as to make the material understandable to the trainee. Equipment will be measured against the state of the art with reasonable consideration given to the scope and size of the operator.

(b) Facilities - Training facilities like equipment do not have any hard benchmarks but again are assessed for their suitability by a comparison to the state of the art training facilities giving due consideration for the scope and size of the operator. Facilities normally shall be such that the trainee will not be distracted from the course material or training aids being displayed and provides an environment conducive to learning. Such benchmarks as control over lighting, noise, temperature control, location, orientation and general comfort of learning stations, and where needed sound enhancement or amplification, shall be favourable to a learning environment.

Note: *While no hard benchmarks are imposed for the acceptability of an operator's training equipment and facilities, it will follow that the training times proposed will be assessed in light of the operator's ability to effectively transfer the required information which will in turn depend upon the equipment and/or facilities at the disposal of the training personnel*.

(c) Personnel - Qualifications of training and checking personnel listed herein shall be documented by the operator and approved in the manner prescribed herein.

2. Use of Full Flight Simulator (FFS) for training and checking

(1) It is anticipated that in the delivery of its flight training programme, an operator will make every reasonable effort to use the most updated Flight Simulation Training Devices (FSTDs) where such FSTD is available to the operator.

(2) In the case of flight training for which there is in service a FFS, the helicopter-specific training shall be completed in a FSS approved for that purpose.

(3) Reference to a FFS in this regulation means a FFS of a level required to accomplish the training programme approved for the operator.

(4) Where an operator has been approved for Low Visibility Operations (LVO) all training and checking with respect to LVO shall be performed in a FFS approved for that purpose.

3. Qualifications of training and checking personnel

Notes-

1. Unless otherwise specified, reference to a helicopter type shall be taken to mean type or variant of that type of helicopter, where applicable.

2. *Other than regaining qualification training as noted, reference to training or checking shall be taken to mean initial, upgrade, recurrent or differences training.*

(1) Qualifications of all training personnel

An operator shall select its training personnel based on them having a satisfactory practical and theoretical knowledge of-

(a) the subject the instructor is to teach;

(b) the aeroplane type the instructor is to teach on, if applicable;

(c) the basic principles of learning and techniques of instruction;

(d) preparation and use of lesson plans;

(e) the administrative procedures with respect to the established trainee progress forms;

(f) briefing and debriefing techniques relative to the training given;

(g) all associated training devices including applicable FSTDs to be used, if applicable; and

(h) the procedures established in the training programme for the administration, conduct, review and correction of, as applicable-

(i) required examinations or other approved methods of establishing comprehension; and

(ii) skills tests, proficiency or other competency checks.

(2) Qualifications of a ground instructor

Each ground instructor shall meet the requirements of subsection 3(1) of this TS and-

(a) unless he or she is or has been the holder of an instructor rating as provided in these Regulations, have received training on-

(i) the fundamental principles of the teaching/learning process;

(ii) teaching methods and procedures;

(iii) the instructor/student relationship;

(iv) learning impediments;

(v) human factors relating to the effects of stress and hazardous attitudes;

(vi) the objectives and standards of the operator's training programme;

(vii) the effective use of training devices used in the programme;

(viii) CAR and CATS relating to training requirements; and

(ix) the system of record keeping approved to be used in conjunction with the training programme; and

(b) if conducting helicopter type training, the ground instructor shall have successfully completed the initial and recurrent technical training and testing as applicable for each type of helicopter;

(c) if conducting training relating to special operations or non-helicopter specific courses shall have completed the associated training and testing and be certified by the training manager or equivalent company officer, as competent to teach such subject(s);

(d) have a sound knowledge of the Aircraft Flight Manual, manuals for special equipment training and the Operator's Operations and Training Manuals; and

(e) where the type of training includes interfacing with other crew members, an appropriate level of knowledge of the functional manuals assigned to such other crew members.

(3) Qualifications of a training pilot (helicopter)

(a) Each flight training pilot shall have met the requirements of subsection 3(1) of this TS and-

(i) hold at least a valid commercial pilot licence (helicopter) (CPL-H) and, if IFR flight is to be undertaken, an instrument rating;

(ii) for any training requiring licensing action such as an initial type rating or instrument rating, a valid flight instructor rating with appropriate endorsements as specified in Part 61;

(iii) hold a medical certificate and a type rating for the type of helicopter on which training will be given;

(iv) be qualified for operational flying on the type of helicopter;

(v) be qualified to perform pilot-flying (PF) and pilot-nonflying (PNF) duties while occupying either flight crew member seat;

(vi) know the content of the Aircraft Flight Manual, Special Equipment Manuals, as appropriate, Operator Operations and Training Manuals and the operator's Standard Operating Procedures, if applicable, for the helicopter type;

(vii) know the relevant provisions of the Namibia, and where international operations are involved the foreign, regulations; and

(4) Qualifications of a training pilot (FSTD)

Each FSTD training pilot shall-

(a) hold at least a valid CPL-H and, if IFR flight is to be undertaken, an instrument rating;

(b) for any training requiring licensing action such as an initial type rating or instrument rating, a valid flight instructor rating with appropriate endorsements as specified in Part 61;

(c) have completed the operator's ground school and synthetic training device programme for the type of helicopter;

(d) have successfully completed within the past 12 months a pilot proficiency check (PPS) in the synthetic training device or helicopter for that type;

(e) know the content of the Aircraft Flight Manual, Special Equipment Manuals, as appropriate, Company Operations and Training Manuals and the operator's Standard Operating Procedures, if applicable, for the helicopter type;

(f) know the relevant provisions of the Namibia, and where international operations are involved the foreign, regulations; and

(g) have received instruction on and demonstrated ability with respect to the operation of the synthetic training device from an instructor qualified to operate the FSTD.

(5) Qualifications of pilot checking personnel

Each person authorised to conduct pilot skills tests shall meet the requirements prescribed in Part 61 -

(a) in the case of a pilot proficiency check (PPC) conducted in a helicopter have met all the qualification requirements specified in subsections 3(1) and (3) of this TS;

(i) hold a valid medical certificate;

(ii) have completed the operator's training programme and be qualified as a line captain; and

(iii) be qualified to perform PF and PNF duties while occupying either flight crew member seat;

(b) in the case of a PPC conducted in a FSTD have met all the qualification requirements specified in subsections 3(1) and (3) of this TS;

(i) have completed the operator's training programme; hold a current PPC; and have participated in or observed at least six operational flight sectors from a pilot or observer seat in the preceding 12 months;

(c) in the case of operational checks performed by company pilots-

(i) have met all the qualification requirements specified in subsections 3(1), (3) and (5)(a)(i) of this TS;

(ii) hold a valid medical certificate;

(iii) have completed the operator's training programme;

(iv) be qualified to perform PF and PNF duties while occupying either flight crew member seat; and

(v) be certified in his or her training file as authorised by the operator to conduct operational checks as specified in such certification.

(6) Qualifications of cabin crew instructors and Designated Examiners

An operator of a commercial air transport of general aviation operation shall not assign any person to provide and no person shall provide any cabin crew member training or checking, as required in terms of Division Three or Five of Subpart 3 of Part 127 of the Regulations, unless such person-

(a) is the holder of a valid cabin crew member licence issued in terms of Part 64 and a valid Class II medical certificate;

(b) has completed an approved train-the-trainer course;

(c) has undergone an approved assessor course;

(d) has completed the operator's initial or recurrent training, as applicable, for each type of helicopter they are required to provide training on, including familiarisation flights;

(e) has successfully completed the cabin crew member proficiency check as required by Division Five of Subpart 3; and

(f) where the cabin crew member is required to conduct cabin crew member proficiency checks, in addition to the requirements of subparagraphs (a)(i) to (v) inclusive, such cabin crew member shall-

(aa) be the holder of a valid designated examiner authority appropriate to their assigned duties, issued by the Executive Director.

(7) Qualifications of Flight Operations Officer (FOO) instructors and examiners

(a) an operator shall not assign any person to provide and no person shall provide any generic or operator-specific FOO training required in terms of Division Four of Subpart 3, unless such person-

(i) is the holder of a valid FOO certificate of competency issued in terms of Division Five of Subpart 3;

(ii) has completed the FOO generic course of studies;

(iii) has completed the operator-specific FOO training for each type of operational control system and each helicopter type he or she will be required to perform training on; and

(iv) has successfully completed a proficiency check as specified in Division Five of Subpart 3 in the preceding 12 months.

(b) An operator shall not assign and no person shall act as a FOO examiner unless such person:

(i) is the holder of a current FOO certificate of competency appropriate to their assigned duties;

(ii) has completed the FOO training referred to in subparagraph (a) appropriate to their assigned duties,

(iii) has successfully completed a proficiency check as specified in Division Five of Subpart 3; and

(iv) has been certified by the operator to act as a FOO examiner for those types of operational control systems and helicopters listed in the certification.

(8) Training for other than crew members and FOO

Training for ground personnel whose function is essential to safety of flight operations shall be conducted by a competent person assigned by the manager responsible for the department to which such ground personnel are assigned. Specific qualifications for such instructors shall be published in the operators' operations manual.

127.03.3 APPROVAL OF A TRAINING PROGRAMME

1. Approval process of an operator training programme

(1) Each operator of a commercial air transport or general aviation operation shall submit two complete copies of its proposed training programme along with a list of effective pages to the Executive Director for review and approval.

(2) Where in the opinion of the Executive Director the proposed programme has been presented in sufficient detail to enable him to make a preliminary evaluation and determine the programme meets the requirements of these technical standards, an initial approval of the training programme will be given. One copy of the programme will be returned along with a copy of the list of effective pages which will bear an initial approval stamp. An operator is then authorised to present the programme.

(3) Where insufficient detail has been provided the Executive Director may return the syllabus either in whole or in part for further development.

(4) The initial approval referred to in paragraph (2) will normally be given for an initial period of one year during which time the programme will be monitored in sufficient depth to enable a final decision to be made with respect to the effectiveness of the programme in terms of meeting the established training goals.

(5) When the Executive Director is satisfied that the training programme meets the requirements of this technical standard, a final approval will be issued.

(6) After the initial approval has been received but before the final approval has been issued, each operator is required to advise the Executive Director within seven days of the intention to present the training programme. Unless otherwise advised, the operator shall make accommodation for an inspector to attend.

2. Approval of contracted training services

(1) An operator may contract crew member training to another organisation provided-

(a) the arrangement is clearly provided for in the approved training programme;

(b) the contracted training organisation is the holder of a valid ATO certificate issued in terms of Part 141, or is otherwise approved by the Executive Director to conduct training;

(c) the contracted organisation uses the manuals and publications approved for use by the operator (SOPs, Aircraft Flight Manual, Company Operations Manual, including training and Cabin Crew Member's Manual, etc.);

(d) the operator ensures that the training is conducted in accordance with the approved programme;

(e) where type training is conducted the training is provided on the same type and model helicopter operated by the operator unless appropriate differences training is provided and described in the approved training programme;

(f) the operator remains responsible to ensure the training records approved in the operator's training programme are completed by the contracted organisation and maintained in the trainee's file at the base of the operator; and

(g) the operator ensures that a service level agreement is in place with the contracted organisation.

127.03.4 FLIGHT CREW MEMBER TRAINING

For the purposes of this TS the following terms shall be taken to mean as indicated-

"company/operator induction training" means company-specific generic training covering a number of subjects as prescribed by regulation. Certain subjects may be presented only as a generic, introductory overview where an operator determines it would be more appropriate to provide amplified training in connection with a specific helicopter type or operational environment;

"crew resource management training" means training including the principles of human factors designed to ensure the individual and collective efforts of all crew members on board a helicopter are coordinated for maximum effectiveness;

"differences training" means training required to ensure a flight or cabin crew member is proficient on similar helicopter types or variants having significant differences in terms of equipment, configuration or operation;

"emergency equipment procedures training" means training given to helicopter crew members to familiarise them with the location, inspection, testing and use of all emergency equipment required to be carried on board an helicopter and includes specific training required to ensure passenger safety;

"familiarisation training" means training required to ensure a flight or cabin crew member is proficient on similar helicopter types or variants having only minor differences in terms of equipment, configuration, or operation;

"full flight simulator" means a full size replica of a specific type or make, model and series helicopter flight deck, including the assemblage of all equipment and computer programmes necessary to represent the helicopter in ground and flight operations, a visual system providing an out-of-the-flight deck view and a force-cuing motion system;

"helicopter type training" means initial helicopter type training;

"operational training" means training provided to a flight crew member in the form of approved supervised flying during line operations;

"regaining competency" means the training and, where specified, the check required when a person exceeds the currency criteria of any qualification required by this Part and is designed to return such person to a satisfactory level of competence;

"sector" means a flight, including a take-off, an en route segment of at least 30 NM, and a landing.

"surface contamination training" means training in an operator's procedures for removal of frozen contaminants from the critical surfaces of a helicopter, as established by the manufacture from the time, from the initial de-icing application to the point of last chance prior to the take-off; and

"upgrade training" means training provided to advance a flight crew member from one flight crew position to a higher flight crew position.

1. Ground training course syllabi

Regulation 127.03.1(4) requires from an operator of a commercial air transport or general aviation operation's ground and flight training programme to be developed in detail. In order to properly assess a training programme a detailed syllabus shall be published for each component making up the total programme. The following programme components shall contain the details of at least the following subject areas. While the company

induction would normally be the first course provided to a newly hire employee the sequence of the following curriculum is not necessarily intended to be sequential to the delivery of an operator's programme.

2. Company induction

(1) Company induction is required only upon initial engagement for all flight crew members except where substantial changes in the company make it necessary to revise the course material. The programme shall ensure that persons involved in flight operations are aware of their responsibilities, know company reporting relationships and are competent to fulfil their assigned duties related to flight operations. Company induction training shall include as applicable-

(a) Namibia Civil Aviation Regulations and, where necessary, foreign regulations, and technical standards;

(b) air operator certificate and operations specifications;

(c) company organisation, reporting relationships, administration and communication procedures;

(d) flight planning and operating procedures;

(e) fuelling procedures including procedures for fuelling with passengers on board and fuel contamination precautions;

(f) critical surface contamination where required, and safety management system;

(g) passenger safety briefings and safe movement of passengers to/from the helicopter, as applicable;

(h) use and status of company operations manual including the maintenance release procedures and accident/incident reporting procedures;

(i) use of minimum equipment lists, if applicable;

(j) windshear, helicopter icing and other meteorological training appropriate to the area of operations;

(k) navigation procedures and other specialised operations applicable to the operator;

(l) passenger on-board medical emergency;

(m) handling of disabled passengers;

(n) operational control systems;

(o) mass and balance system procedures;

(p) security and security awareness policies and procedures; and

(q) pre-flight crew member briefing including confirmation as to the discrete alerting procedures for suspected security breaches.

3. Crew Resource Management

(1) An operator involved in commercial air transport or general aviation operations shall provide Crew Resource Management (CRM) training, including human factors, risk analysis and error and threat management training in accordance with the following-

(a) initial training is required for all crew members and shall cover the subjects in both (a) and (b):

(i) hazardous attitudes and associated risks

(ii) communication skills;

(iii) problem solving;

(iv) human factors and behavioural profiles;

(v) conflict resolution;

(vi) decision making;

(vii) team building and maintenance;

(viii) flight deck management skills;

(ix) workload management; and

(x) risk analysis and management;

(b) annual training in safety and emergency procedures. It shall include, as applicable, joint participation of flight and cabin crew members and cover the following items-

(i) relationship of crew members;

(ii) review of accidents/incidents of operators;

(iii) presentation and discussion of selected coordinated emergency procedures (practice of CRM skills); and

(iv) crew member evacuation drills, including debriefing.

(2) CRM training shall include both classroom lectures and practical exercises. As a means of consolidating the information gained during the lectures, the use of group discussions as forums to problem solving, or accident reviews to analyse the human factors breakdown as possible contributing or causal factors contributes significantly to CRM training.

(3) A comprehensive initial CRM training course would normally take between 3 to 5 days and the recurrent course should be planned around a one to two day review with new scenarios discussed, preferably dealing with incidents or occurrences involving the operator. All scenarios shall be de-identified but where dealing with real cases shall be accurate and presented without exaggeration or incrimination.

Note: *It could be prejudicial to discuss incidents or accidents that are still under official investigation therefore would not be acceptable as a case study*.

(4) An operator may use a course provided by another operator, if that course has already been approved by the Executive Director and the training agreement complies with the requirements as prescribed in TS 127.03.3.

4. Emergency equipment procedures and security training

This training is required for each helicopter type a crew member is assigned to and shall be provided on initial training and thereafter annually except as noted below. Training devices approved to simulate flight operating emergency conditions, static helicopters, ground demonstrations, classroom lectures where adequate visual aids are provided, films or other devices may be used for training provided the method used ensures that each crew member is adequately trained in the operation or use of all emergency equipment. Where practical training is required, it shall be completed during initial training and every three years thereafter. This training should, where practicable, be provided either in whole or in part, as determined by the operator, as part of the CRM training scenario and involve both flight and cabin crew members, if applicable. Emergency equipment and procedures training shall include-

Note: *This emergency procedures training does not in itself satisfy the training requirements relating to the emergency procedures laid down in the aircraft flight manual*.

(a) the location, inspection schedules, testing, as applicable, and use of all emergency equipment required to be carried, or otherwise carried on board the helicopter;

(b) emergency evacuation and where applicable, ditching training;

(c) training in the functions for which each flight crew member is responsible and the relation of these functions to the functions of other crew members, particularly in regard to abnormal or emergency procedures.

(d) fire in the air and on the ground;

(e) use of fire extinguishers, including practical training;

(f) operation and use of emergency exits including practical training;

(g) passenger preparation for an emergency landing or ditching, as applicable, including practical training;

(h) emergency evacuation procedures including practical training;

(i) donning and inflation of life preservers, when equipped, including practical training;

(j) removal from stowage, deployment, inflation and boarding of life rafts/slide rafts, when equipped, including practical training;

(k) pilot incapacitation including practical training;

(l) hijacking, bomb threat and other security procedures associated with the operator's security programme which ensures crew members act in the most appropriate manner to minimise the consequences of acts of unlawful interference. As a minimum, this programme shall include the following elements-

(i) determination of the seriousness of any occurrence;

(ii) crew communication and coordination including discrete communications and signals between the cabin and flight crew during flight time;

(iii) appropriate self-defence responses;

(iv) use of non-lethal protective devices assigned to crew members where such use is authorised by the Executive Director;

(v) understanding of behaviour of terrorists so as to facilitate the ability of crew members to cope with hijacker behaviour and passenger responses;

(vi) live situational training exercises regarding various threat conditions;

(vii) flight deck procedures to protect the helicopter; and

(viii) helicopter search procedures and guidance on least-risk bomb locations where practicable;

(m) passenger on-board medical emergency;

(n) handling of unruly passengers; and

(o) special emergency procedures when the helicopter is used on MEDEVAC operations including patient evacuation in emergency situations.

5. Helicopter type ground training

(1) In developing a helicopter type training course an operator engaged in commercial air transport or general aviation operations shall show the order in which any other training courses considered necessary in support of an initial helicopter type training course, will be presented. This is to ensure all related information is presented in the best chronological order to facilitate the learning process. In the same manner, comprehension examinations shall be administered and successfully completed by the trainee following any training and prior to advancing to the next phase of learning.

(2) Subject to paragraph (1), initial helicopter type technical training shall be provided as the first phase of an initial helicopter type course or variant of the same type of helicopter. This training shall provide an in-depth description of the design and function of all helicopter systems and major components sufficient to ensure each flight crew member is knowledgeable with respect to helicopter systems and related normal, abnormal, emergency and supplementary procedures. The following subjects shall be detailed in the helicopter type ground training syllabus:

(a) each helicopter system contained in the helicopter aircraft flight manual and supplements thereto, including system limitations and alternate modes of operation;

(b) operation of all equipment that is installed in all helicopters of the same type operated by the operator;

(c) differences in equipment that is installed in all helicopters of the same type operated by the operator;

(d) specific standard operating procedures for pilot flying and pilot not flying duties for normal, abnormal and emergency procedures for the helicopter;

(e) helicopter performance; and

(f) mass and balance procedures.

(3) Recurrent ground training shall be conducted annually and shall be a review of the subjects outlined in paragraphs (1)(a) through (d) and an in-depth description of any changes to the helicopter or operating procedures that occurred since the previous course.

6. Helicopter type flight training

Notes:

1. The operator's flight training programme may be comprised of different combinations of the programmes listed below. Flight training is normally acquired through a combination of different types and levels of training devices and in most cases a portion of the flight training would occur in a helicopter.

2. *If engine-out training exercises are conducted in a helicopter in accordance with an approved training programme, no engine may be shut down.*

(1) Initial helicopter type training shall include visual, instrument and special flight procedures, as applicable, crew coordination in all phases of operation, normal, abnormal, emergency and supplementary procedures for the type of helicopter, including where applicable MEL and CDL provisions.

(2) The operator shall develop and publish in its training programme, a flight training syllabus and lesson plans for each phase of training for each type of helicopter operated showing, where required, which manoeuvres will be conducted in a helicopter.

(3) Initial, Upgrade and Recurrent Synthetic or Helicopter Flight Training for Flight Crew Members.

Flight training for flight crew members shall be carried out in accordance with one of the following training programmes. Where an operator utilises a FSTD other than those included in the following flight training programme combinations, the Executive Director will make a case by case determination with respect to the training and checking credits allowed for such FSTD-

(a) level A training programme;

(b) level B training programme;

(c) level C training programme;

(d) level D training programme; or

(e) level E helicopter-only flight training programme.

(4) Recurrent training for all flight crew members on a helicopter or FSTD shall meet the following requirements-

(a) all items for the initial training syllabus shall be covered over a defined period of time (through a cycle); and

(b) a briefing shall be provided on changes that have occurred to the helicopter or its operation since the flight crew member's last annual training.

(5) Each operator shall publish a flight training syllabus containing all items and manoeuvres outlined in the applicable training programme indicated above.

(6) Level A Training Programme for Pilots

(a) An operator with an approved Level A training programme using an approved Level A or better FFS is permitted to conduct most initial, upgrade and recurrent training in that simulator. Additionally, flight training in a helicopter shall be carried out for general handling and landing manoeuvres for initial training as specified in subparagraph (d) of this training programme.

(b) Flight training shall include and be in accordance with all flight profiles published by the manufacturer, when such profiles are published, including the following training in standard operating procedures for normal, abnormal and emergency operation of the helicopter systems and components, and shall be carried out in the FFS:

(i) use of checklists;

(ii) flight crew co-operation, command and co-ordination;

(iii) helicopter and cargo fire on the ground and while airborne;

(iv) engine fire and failure;

(v) effects of engine icing and anti-ice operation;

(vi) take-off, landing and flight with the critical engine inoperative and engine inoperative performance capabilities;

(vii) flight control failures and abnormalities;

(viii) hydraulic, electrical and other system failures;

(ix) failure of navigation and communication equipment;

(x) pilot incapacitation - recognition and response during various phases of flight;

(xi) steep turns and other flight characteristics such as unusual attitudes (as applicable for initial and upgrade only);

(xii) helicopter performance for hover-in-and-out-of ground effect, climb, cruise, holding, descent and landing;

(xiii) normal, and performance limited take-offs;

(xiv) take-off and landing data calculations;

(xv) rejected take-off procedures;

(xvi) passenger and crew evacuation;

(xvii) flight management system, ground proximity warning system, airborne collision avoidance system, head-up display, enhanced vision system and other specialised helicopter equipment, as applicable; and;

(xviii) inadvertent encounters with moderate or severe in-flight icing conditions where the helicopter is certified for flight into known icing conditions, as applicable.

(c) Where the operator seeks authorisation for flight in IMC the following training in flight planning and instrument flight procedures shall be included-

(i) departure, en route, holding and arrival; and

(ii) all types of instrument approaches and missed approaches in minimum visibility conditions using all levels of automation available, as applicable.

(d) In addition to the training in a Level A FFS, at least 3 take-offs and landings including circuits and the following items and manoeuvres shall be completed in a helicopter of the same type as the FFS:

(i) interior and exterior helicopter pre-flight checks;

(ii) ground handling for PICs only, unless the helicopter provides full steering capability from the second-in-command (SIC) flight crew station and company procedures permit the SIC to conduct taxi operations;

(iii) hover, normal take-off, visual circuit, where possible, and landing;

(iv) a full circling approach off an instrument approach to circling minima where the flight crew member is authorised to perform circling manoeuvres;

(v) a simulated engine failure procedure after take-off (at safe altitude and airspeed);

(vi) a normal missed approach;

(vii) a simulated engine inoperative landing; and

(viii) any other manoeuvre for which the simulator was not given training credits.

(e) If a Level A flight simulator has differences in performance, systems or flight deck layout and configuration from the operator's helicopter, additional training on these differences shall be provided either in the helicopter or a training device that is representative of the operator's actual helicopters and is approved for use by the Executive Director.

(f) In addition to the training prescribed in a Level A training programme using a level A FFS, the proficiency check prescribed in Schedule One of TS 127.03.8 shall be completed.

(7) Level B Training Programme for Pilots

(a) An operator with an approved Level B training programme using an approved Level B or better FFS is permitted to conduct most initial, upgrade and recurrent training in that simulator. Additionally, initial flight training in a helicopter shall be carried out for ground handling, hovering, landing manoeuvres and any other manoeuvre for which the Level B FFS has not been given a training and checking credit.

(b) In addition to those items of training required by paragraphs (7)(b) and (c), training in an approved Level B flight simulator shall include recovery from turbulence and windshear on take-off and approach.

(c) If a Level B flight simulator has differences in performance, systems or flight deck layout and configuration from the operator's helicopter fleet, additional training on these differences shall be provided either in the helicopter or a training device that is representative of the operator's actual helicopters and is approved for use by the Executive Director.

(d) In addition to the training prescribed in a Level B training programme using a level B FFS, the pilot proficiency check prescribed in Schedule One of TS 127.03.8 shall be completed.

(8) Level C Training Programme for Pilots

(a) An operator with an approved Level C training programme using an approved Level C FFS is permitted zero flight time training for candidates with at least second-in-command (SIC) experience on a similar helicopter with the same operator or has otherwise had verifiable line currency as a SIC on a similar helicopter within the previous two years:

Note: *For the purpose of this provision, "similar helicopter" means both helicopters are operated in terms of Part 127 or Part 133 or Part 137 and are within the following groupings. Any type of helicopter not shown below, has not been considered for similar grouping and should be treated separately*.

(i) Agusta 109 and 119, all model series;

(ii) Bell 47, all model series (including Bell 47T);

(iii) Bell 206, all model series' (including 206 LT;

(iv) Bell 222, 230 and 430, all model series;

(v) Bell 204, 205, 210 and 212, all model series;

(vi) Bell 212 and 412, all model series;

(vii) Enstrom F28, 280 and 480, all model series;

(viii) Eurocopter AS 350, AS 355 and EC 130, all model series;

(ix) Eurocopter SA 330, AS 332 and EC 225, all model series;

(x) Eurocopter SE 313/3130, SE 316/3160 and SA 313 through 319 (Alouette II / Lama / Alouette III), all model series;

(xi) Eurocopter SA 360, SA/AS 365 and EC 155, all model series;

(xii) Eurocopter BK 117 and EC 145, all model series;

(xiii) Eurocopter BO 105, all model series;

(xiv) Hiller 12E and 12ET, all model series;

(xv) Hughes/Schweizer Models 269, 300, 330 and 333, all model series;

(xvi) McDonnell Douglas/Hughes 500(369), 520, 530 and 600, all model series;

(xvii) McDonnell Douglas MD 900, 901 and 902 Explorer, all model series;

(xviii) Sikorsky S 55 and S 55T, all model series;

(xix) Sikorsky S 58 and S 58T, all model series;

(xx) Sikorsky S 61 and S 62, all model series;

(xxi) Sikorsky S 70, all model series; and

(xxii) Sikorsky S 76, all model series.

(b) Candidates who do not qualify for zero flight time training shall, within 30 days of completion of the FFS training, accomplish the following training items in a helicopter-

(i) interior and exterior helicopter pre-flight checks;

(ii) ground handling for PICs only, unless the helicopter provides full steering capability from the SIC flight crew station and company procedures permit the SIC to conduct taxi operations;

(iii) hovering, normal take-off, visual circuit (where possible) and landing;

(iv) a simulated engine failure procedure after take-off (at safe altitude and airspeed);

(v) a simulated engine inoperative landing; and

(vi) a normal missed approach.

(c) In addition to those items of training required in paragraphs (5)(b) and (c), training in an approved Level C FFS shall include-

(i) manoeuvring of the helicopter on the ground;

(ii) crosswind take-offs and landings to 100% of the published crosswind component;

(iii) a visual training programme in the flight simulator to ensure VFR flight skills, covering scenarios of dusk and night with variable weather and visibilities. This programme shall include the following-

(aa) normal and crosswind take-offs, visual circuits and landings with variable wind, runway illusion and surface conditions;

(bb) engine inoperative approach and landing;

(cc) engine failure procedures during take-off and missed approach;

(dd) no-electronic glideslope approach and landing;

(ee) approaches and landings with flight control failures and abnormalities; and

(ff) where the flight crew member is authorised to perform circling manoeuvres, a full circling approach from an instrument approach to circling minima for initial and recurrent training; and

(iv) a simulated line flight comprising at least 2 sectors (one as pilot flying and another as pilot not flying).

(d) If a Level C flight simulator has differences in performance, systems or flight deck layout and configuration from the operator's helicopter, additional training on these differences shall be provided either in the helicopter or a training device that is representative of the operator's actual helicopters and is approved for use by the Executive Director.

(e) In addition to the training prescribed in a Level C training programme using a level C FFS, the pilot proficiency check prescribed in Schedule One of TS 127.03.8 shall be completed.

(9) Level D Training Programme for Pilots

(a) An operator with an approved Level D training programme using an approved Level D FFS is permitted zero flight time training.

(b) In addition to the training required for a Level C programme with the exception of the helicopter training requirements, the following FFS training shall be carried out at an appropriate point in the training programme-

(i) A VFR training programme in the Level D flight simulator of at least 4 hours per crew (2 hours as pilot flying and 2 hours of pilot not flying) is required, to ensure visual flight skills to cover either day or dusk and night with variable weather and visibility scenarios. This programme shall include the following and may be accomplished as a single training session or dispersed throughout the schedule of lesson plans-

(aa) normal and crosswind take-offs, and visual circuits and landings, with variable wind, runway illusion and surface conditions;

(bb) engine inoperative approach and landing;

(cc) engine failure procedures during take-off and missed approach;

(dd) no visual aids approaches and landings; and

(ee) approaches and landings with flight control failures and abnormalities.

(c) Simulated line flights of at least 2 operational sessions (as pilot flying and 2 operational sessions as pilot not flying) are required. Pilot flying duties shall be carried out from the appropriate seat.

(d) If a Level D flight simulator has differences in performance, systems, or flight deck layout and configuration from the operator's helicopter, additional training on these differences shall be provided either in the helicopter or a training device that is representative of the operator's actual helicopters and is approved for use by the Executive Director.

(e) In addition to the training prescribed in a Level D training programme using a level D FFS, the pilot proficiency check prescribed in Schedule One of TS 127.03.8 shall be completed.

(10) Level E - Helicopter-only Flight Training Programme

(a) Any simulated failure of helicopter systems shall only take place under operating conditions which do not jeopardize safety of flight.

(b) The training programme shall include and be in accordance with all flight profiles published by the manufacturer, when such profiles are published, including SOPs for normal, abnormal and emergency operation of the helicopter systems and components with the following-

(i) use of checklists including interior and exterior pre-flight checks;

(ii) manoeuvring of the helicopter on the ground or on water (if applicable);

(iii) aspects of flight crew co-operation, command and co-ordination;

(iv) hover, normal take-off, visual circuit, approach and landing;

(v) simulated helicopter and cargo fire on the ground and while airborne;

(vi) simulated engine fire and failure;

(vii) briefings on effects of airframe and engine icing and anti-ice operation;

(viii) take-off, landing and flight with the critical engine simulated inoperative, and engine inoperative performance capabilities;

(ix) approach and landing;

(x) simulated hydraulic, electrical and other system failures;

(xi) simulated flight control failures and degraded states of operation, while in-flight, and during take-off and landing (as applicable);

(xii) simulated failure of navigation and communication equipment;

(xiii) simulated pilot incapacitation - recognition and response;

(xiv) steep turns and other flight characteristics (as applicable for initial and upgrade only);

(xv) helicopter performance for hover-in- or out-of-ground-effect, climb, cruise, holding, descent and landing;

(xvi) normal and performance limited take-offs;

(xvii) take-off data calculations;

(xviii) simulated rejected take-off procedures;

(xix) briefing on crew and passenger evacuation procedures; and

(xx) other specialised equipment, where applicable.

(c) Where the operator is authorised for VFR flight at night or flight in IMC, the training programme shall also include flight planning and instrument flight procedures with the following-

(i) departure, en route, holding and arrival; and

(ii) all types of instrument approaches and missed approaches in simulated minimum visibility conditions, including circling approaches, where applicable, using all levels of automation available, as applicable.

(d) In addition to the training prescribed in an helicopter-only training programme, the pilot proficiency check prescribed in Schedule Two of TS 127.03.8 shall be completed.

7. Operational training

(1) On initial multi pilot helicopter assignment or upgrade, operational training shall be conducted over parts of the operator's route structure which are typical of those over which the flight crew will be expected to fly.

(2) Operational training is required for flight crew members who have not qualified and served in the same capacity on the same group of helicopters and for pilots upgrading to PIC on any helicopter.

Note: The grouping of helicopters referred to here are as described in the Note to section 6(8)(a) of this TS.

(3) During operational training, a flight crew member shall be given the minimum flight times and sectors specified in the operator's operations manual while performing the duties appropriate to the crew station. Operational training is calculated by a combination of flight hours and flight sectors. A flight sector is considered as any flight consisting of a take-off, en route segment of not less than 30 nautical miles and an approach and landing. The required number of flying hours and sectors may be completed during proving or ferry flights or during normal line operations and apply to the PIC and where applicable, the SIC.

(4) Initial operational training shall be conducted under the supervision of a training pilot during which time the PIC and SIC shall perform their duties in their respective position, with the training pilot occupying the opposite pilot operating position.

(5) The following areas, as applicable, shall be covered during operational training and noted in records as having been completed. Those items that cannot be covered as a natural occurrence during the line flying operations shall be treated as discussion items. In as much as practicable these discussions shall occur during flight time when in the opinion of the training pilot such discussions can be carried out without undue distraction to the pilots under supervision.

(a) Command of the helicopter-

(i) crew management and discipline;

(ii) responsibilities of the PIC and other flight crew members;

(iii) responsibilities of the cabin crew, if applicable; and

(iv) briefing of crew members.

(b) Helicopter and equipment-

(i) MEL policy and procedures;

(ii) Certificate of Airworthiness and other helicopter documentation;

(iii) deferred defects;

(iv) maintenance release;

(v) manuals and log books;

(vi) flight data recorder and cockpit voice recorder, if applicable; and

(vii) emergency exits and emergency equipment on board, to the extent applicable.

(c) Dispatch:

(i) personnel, hours of operation, operational control;

(ii) operator's flight and duty period scheme; and

(iii) operator fuel policy.

(d) Helicopter servicing and ramp safety-

(i) fuelling procedures and weather implications;

(ii) load security;

(iii) ground equipment and handling;

(iv) operator's helicopter de-icing policy and procedures; and

(v) helicopter parking.

(e) Reporting for duty.

(f) Licence requirements.

(g) Helicopter library.

(h) Departure delays due to unforeseen circumstances.

(i) Pre-flight safety and crew briefings.

(j) Starting engines.

(k) After-start checks.

(l) Pre-flight checks and securing cabin.

(m) (Hover-)taxiing

(n) Rejected take-off.

(o) Departure sequence-

(i) lookout; and

(ii) after take-off checks.

(p) Climb procedures.

(q) Cruise:

(i) fuel management and checks; and

(ii) en route diversion.

(r) Approach Procedures:

(i) organisation and briefing of approach;

(ii) descent; and

(iii) pre-landing check and cabin security.

(s) Landing and taxiing-

(i) surface conditions; and

(ii) after landing checks.

(t) Shutdown.

(u) Flight and maintenance logs and records.

(v) Defect recording and clearing.

(w) Emergency procedures:

(i) hi-jack, bomb threat procedures;

(ii) helicopter evacuation;

(iii) aerodrome emergency services; and

(iv) engine inoperative procedures.

8. Differences and familiarisation training

(1) Where the operator intends to assign a flight crew member to variant types, the operator shall determine whether the pilot shall be provided differences or familiarisation training.

(2) Where significant differences exist within the operator's fleet of helicopters, or variants of helicopters or between the helicopter operated and the training device approved for use, the helicopter type technical and flight training syllabus shall contain such differences training.

(3) Where only minor differences exist within the operator's fleet of helicopters, or variants of helicopters, or between the helicopters operated and the training device approved for use, the helicopter familiarisation training appropriate to the differences shall be given and recorded in the crew member's training file.

(4) Differences and familiarisation training shall include, as a minimum, a knowledge examination following the ground training. The requirement for a skills test will be determined by the Executive Director based upon an assessment of the degree of the differences.

9. Upgrade training on initial upgrade

Where an operator wishes to appoint a person who is currently proficient as a SIC on a type of helicopter as a PIC on that type, such person shall undergo-

(a) upgrade training and checking to include the following-

(i) successfully complete simulator manoeuvres training and training as a PIC in all areas of helicopter handling that are specific to the PIC seat position;

(ii) command and decision making;

(iii) successfully complete specialised operations qualification training (e.g. lower take-off limits, etc.);

(iv) successfully complete on that type of helicopter the initial PPC conducted by a NCAA inspector or an approved DFE; and

(v) initial operational training for a PIC followed by a operational check.

(b) Where a SIC has never upgraded to PIC on the class or category of helicopter to be flown and whose SIC proficiency has expired within the preceding 24 months, such SIC shall complete a technical ground training course consisting of a helicopter system review on that helicopter type prior to or as part of the upgrade training programme.

(c) Prior to or included in the training required by paragraph (1)(a) above, pilots who have not held a valid SIC PPC on the helicopter type for a period greater than 24 months shall be given a complete initial helicopter type training course: Provided that a reduction in the ground training and minimum flight hours required may be granted by the Executive Director based on the experience of the flight crew member on that helicopter type.

10. Pilot qualification to operate in either pilot's seat

(1) A PIC whose duties also require him or her to carry out the duties of pilot-flying and pilot-not-flying from both flight crew stations shall complete additional training. This additional training shall be accomplished from the SIC crew position and include at least two landings during completion of the following-

(a) an engine failure during take-off;

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

(c) one engine inoperative landing;

Note: The preceding engine-out exercises are not applicable to single-engine helicopters.

(d) Category II or Category III operations, if applicable; and

(e) operation of the normal and emergency checklist as pilot-not-flying.

(2) The training required by paragraph (1) shall be completed upon initial assignment and every 12 months thereafter unless the pilot has completed all of the training elements specified in the training programme during normal line operations within the preceding 12 month period prior to operating from a seat for which he or she is not qualified.

(3) The checks referred to in paragraph (1) above may be accomplished during a normal PPC.

(4) A record of the training completed and/or operational means of qualifying to act from either flight crew station shall be maintained in the pilot's training file.

11. Regaining qualification training for pilots - where recency has not been maintained

The following shall be completed for pilots who have not maintained, for a period between 90 and 180 days, their recency qualifications in accordance with regulation 91.02.4:

(a) a briefing on changes that have occurred to the helicopter or its operation since the pilot's last flight;

(b) training in a helicopter or FFS that includes not less than 3 take-offs and landings and, for multi-engine helicopters, a simulated engine failure in hover, a simulated engine failure on the missed approach (if applicable) and an engine-out landing; and

(c) an operational check consisting of at least two sectors during which the candidate shall complete all take-offs and landings.

12. Regaining qualification training - after PPC expiry for pilots

(1) Where a pilot's recency requirements have not been maintained in accordance with regulation 91.02.4 and that pilot's PPC has expired for less than 6 months the following shall be completed to regain type qualification-

(a) all the requirements specified in section 11 of this TS; and

(b) any recurrent training, including a PPC, that may have come due during the absence from flying duties.

(2) Where the PPC referred to in paragraph (1) above has expired from between 6 and 24 months, inclusive, the following shall be completed to regain type qualification-

(a) all the requirements of section 11 of this TS;

(b) a technical ground training course consisting of a helicopter system review and FTD training, where applicable; and

(c) a PPC as specified in this TS.

(3) Where the PPC has expired for a period greater than 24 months a complete initial helicopter type training course shall be carried out: Provided that a reduction in the ground training and minimum flight hours required may be granted by the Executive Director based on the experience of the flight crew member on that helicopter type.

13. ACAS or ACAS II training including ACAS II cyclic training

(1) ACAS training is applicable to at least the PIC where the helicopter is required to be operated with an approved, serviceable airborne collision avoidance system (ACAS).

(2) An ACAS training programme shall ensure that on completion the pilot is able to demonstrate proficiency in the following-

(a) knowledge of ACAS II concepts, systems and procedures; and

(b) cognitive, procedural and motor skills necessary to properly respond to ACAS advisories.

(3) There are no formal ACAS evaluation requirements for flight testing and examination. An ACAS instructor shall accomplish evaluation of ACAS objectives during training.

(4) A pilot shall complete ACAS initial training in respect of each helicopter type for which he or she is rated in which is carried ACAS equipment.

(5) ACAS initial training may be provided as a stand-alone module of ground and flight training or may be integrated with other initial, differences or upgrade ground and flight training programmes.

(6) An operator may contract with another operator, or with an ATO approved to operate a helicopter for instrument flight instruction, to provide the ACAS initial training to its flight crew, provided such contract is in accordance with the provisions specified in TS 127.03.3.

(7) An operator shall certify in the pilot's file that the ACAS training and checking has been accomplished to a satisfactory standard.

(8) ACAS renewal training

(a) ACAS renewal training-

(i) shall be integrated with recurrent flight training during proficiency training or line-orientated flight training; and

(ii) ground training shall be provided as a stand-alone module and should address any significant issues identified by line operating experience, system changes, procedural changes or unique characteristics such as the introduction of new helicopter display systems or operations in airspace where high numbers of traffic advisories (TA) and resolution advisories (RA) have been reported.

(b) Routine ACAS operations shall be included in all evaluation environments and testing officers should include ACAS as a routine discussion item.

(c) A pilot completes ACAS renewal training when:

(i) an ACAS instructor certifies in the pilot's logbook that the pilot has completed ACAS renewal training conducted by the operator as part of its approved training programme or an ATO approved to operate helicopter for instrument flying training; or

(ii) a NCAA flying inspector certifies in the pilot's logbook that the pilot has completed ACAS renewal training prescribed by the NCAA.

(d) An ACAS instructor is deemed to have completed ACAS renewal training when the instructor conducts ACAS initial training or ACAS renewal training.

(9) ACAS cyclic training

(a) A pilot completes a session of ACAS cyclic training when a check pilot certifies in the pilot's logbook that the pilot has successfully completed a training session.

(b) A pilot is deemed to have completed-

(i) ACAS initial training on the first occasion that the pilot completes a session of ACAS cyclic training; and

(ii) ACAS renewal raining on the second or a subsequent occasion that the pilot completes a session of ACAS cyclic training.

(c) A check pilot is deemed to have completed ACAS renewal training when the check pilot conducts ACAS cyclic training.

(10) ACAS training programme requirements

(a) Each ACAS curriculum shall ensure the equipment manufacturers recommended training and testing requirements are carried out in the manner prescribed by such manufacturer.

(b) In any case a pilot's ability to demonstrate system and procedural concepts shall be included in the initial, recurrent and where applicable, the regaining competency testing.

14. Other courses of training as deemed appropriate by the Executive Director

(1) Regulation 127.03.4(1)(m) makes provision for the Executive Director to determine, in consideration of the type of operation being conducted or applied for, it would be prudent to expand a training programme to include other courses of study he or she may require an operator to establish and maintain additional training.

(2) Provided that an operator is authorised to conduct the following specialised operations, the associated courses are considered to be necessary to ensure safety of flight during operations-

(a) all weather operations;

(b) transportation of dangerous goods (DG);

(c) RNAV;

(d) GNSS; and

(e) simultaneous operations on parallel or near-parallel instrument runways - ILS/Precision Runway Monitor (PRM) and Localiser Type Directional Aid (LDA)/PRM - Simultaneous Offset Instrument Approaches (SOIA) Training.

(3) Other courses that may be considered necessary to ensure safety of flight operations may include but not be limited to:

(a) MEL training;

(b) operations in ground icing conditions, if applicable;

(c) one-engine Inoperative ferry flight training;

(d) CFIT; and

(e) other relevant subjects identified from time to time.

127.03.6 TYPE AND DIFFERENCES TRAINING

An operator who wishes to operate helicopters in which the carriage of one or more cabin crew members is required in term of their certification shall submit to the Executive Director for his or her approval a complete training programme, based on the training programme for cabin crew members in Part 121 of the Regulations, adopted to the type of helicopters to be used. Such training programme shall include operators inducting training, re-currency training, and requalification training.

127.03.11 TRAINING OF PERSONNEL OTHER THAN FLIGHT AND CABIN CREW

A. LOAD MASTERS AND WINCH OPERATORS

An operator shall provide load masters and winch operators with at least the following training-

(1) company induction training upon initial hire;

(2) initial and annual recurrent type training on each helicopter in which the person will be operating;

(3) where applicable, differences or familiarisation training;

(4) if the operator is authorised to carry dangerous goods, dangerous goods training or, if not so authorised, dangerous goods awareness training;

(5) training in the policies and procedures associated with their assigned tasks;

(6) for loadmasters, theoretical and practical training in mass and balance calculations, load planning, the use of the equipment used in loading a helicopter and any other training deemed necessary for the loadmaster to carry out his or her duties; and

(7) for winch operators, theoretical and practical training as necessary to carry out his or her duties.

B. FLIGHT OPERATIONS OFFICERS

Notes:

1. Any reference to "equivalent course of studies" in this TS means that credit may be given for previous training received towards a pilot licence but that additional training may be required.

2. For persons without any formal training, credit may be given based on relevant experience but is subject to a knowledge assessment by the NCAA or a NCAA-approved person.

1. Qualifications of Flight Operations Officer instructors and examiners

(1) An operator shall not assign any person to provide and no person shall provide any generic or operator-specific flight operations officer (FOO) training required in terms of Division Four of Subpart 3, unless such person-

(a) has successfully completed a FOO generic course of studies or an acceptable equivalent course of studies and received certification from the approved training organisation having conducted the training; and

(b) has successfully completed the operator-specific FOO training and received a certificate of competency issued by the operator in terms of this technical standard.

(2) An operator shall not assign and no person shall act as a FOO examiner unless such person-

(a) is the holder of a current FOO certificate of competency appropriate to their assigned duties;

(b) has completed the FOO training referred to in subparagraph (a) appropriate to their assigned duties, and

(c) has been certified by the operator to act as a FOO examiner for those types of operational control systems and helicopters listed in the certification.

2. Qualifications of a Flight Operations Officer (FOO)

(1) No person may be assigned to FOO duties, except under adequate supervision, unless such person-

(a) in the case of a new hire FOO, has-

(i) completed the generic training outlined in section 3 or an acceptable equivalent course of studies;

(ii) completed the operator-specific training required by section 4; and

(iii) been issued a certification of competence by the operator indicating the operational control system(s) and company helicopter(s) authorised; or

(b) has undergone the operator's specific FOO training and demonstration of competence within the 12 months preceding such assignment: Provided-

(i) the FOO's training file provides evidence of the completion of the training and demonstration of competence approved by that operator; and

(ii) the FOO has been issued a certification of competence issued by the operator indicating the operational control system/s and company helicopters authorised.

(2) Where a FOO has previously undergone the generic training prescribed in section 3, the validity of which has not lapsed, the requirements of paragraph (1)(a)(i) above are deemed to have been met.

(3) No operator shall assign a FOO to duty when such person has not acted in that capacity-

(a) for a period of six months, unless such person has undergone a briefing on changes to procedures or other changes in the operational control system (OCS) that have occurred since the person last served;

(b) for a period of one to two years, unless such person has undergone the recurrent course of studies;

(c) for a period of greater than 2 years, unless such person has undergone the initial course of studies of the company-specific training and has successfully completed the appropriate check; and

(d) for a period of 5 years since completion of the generic operations officer training, unless such person has acted as a FOO for at least 6 months in the preceding 24 months, unless such person-

(i) has undergone refresher training based upon the generic course; and

(ii) has completed the company-specific training and has successfully completed the appropriate check.

3. Flight Operations Officer Generic Training

(1) The following subjects form the basis for generic training-

(a) air law - rules and regulations relevant to a FOO, appropriate air traffic services practices and procedures;

(b) helicopter general knowledge-

(i) principles of operation of helicopter powerplants, systems and instruments;

(ii) operating limitations of helicopters and powerplants; and

(iii) minimum equipment list;

(c) flight performance calculation, planning procedures and loading-

(i) effects of loading and mass distribution on helicopter performance and flight characteristics; mass and balance calculations;

(ii) operational flight planning; fuel consumption and endurance calculations; alternate aerodrome selection procedures; en route cruise control; extended range operation;

(iii) preparation and filing of air traffic services flight plans; and

(iv) basic principles of computer-assisted planning systems;

(d) human performance - human performance relevant to dispatch duties;

(e) meteorology:

(i) aeronautical meteorology; the movement of pressure systems; the structure of fronts, and the origin and characteristics of significant weather phenomena which affect take-off, en-route and landing conditions; and

(ii) interpretation and application of aeronautical meteorological reports, charts and forecasts; codes and abbreviations; use of, and procedures for obtaining, meteorological information;

(f) navigation - principles of air navigation with particular reference to instrument flight;

(g) operational procedures-

(i) use of aeronautical documentation;

(ii) operational procedures for the carriage of freight and dangerous goods;

(iii) procedures relating to helicopter accidents and incidents;

(iv) emergency in-flight procedures; and

(v) procedures relating to unlawful interference and sabotage of aircraft;

(h) principles of flight - principles of flight relating to the appropriate category of helicopter; and

(i) radio communication - procedures for communicating with helicopter and relevant ground stations.

(2) Practical Training.

The applicant shall have served under the supervision of a FOO or, in the case of an operator having only one FOO, a suitably qualified person designated by the person responsible for flight operations or approved by the Executive Director, for at least 90 working days within the six months immediately preceding the application.

4. Operator-specific flight operations officer training - general

(1) The operator shall establish and maintain approved ground training programmes for FOOs in its employ whether on a full-time or part-time basis or are otherwise engaged under the provisions of contractual services approved by the Executive Director for that operator.

(2) Each training programme shall be published in the operations manual referred to in regulation 127.04.2.

(3) Each training curriculum shall be appropriate to the employee's duties and in consideration of the type and complexity of the Operational Control System (OCS) approved for the operator.

(4) Each FOO or flight follower trainee shall receive operator-specific training as outlined in the applicable curriculum.

5. Flight operations officer training

The operator-specific FOO training programme shall be published as individual syllabi in terms of initial, recurrent, transition, flight familiarisation and regaining competency training based upon the following-

(a) initial training is a course of studies given to each new hire and covers the complete initial company induction syllabus and complete helicopter type training syllabus as relating to the person's assigned duties. Initial training and the related examinations shall be reviewed and revised from time to time and at any time new information becomes relevant to the OCS as the result of operational or safety management system (SMS) feedback;

(b) recurrent training shall occur every 12 months and include new material that may have been added to the initial course of studies or new information resulting from operational experience that may affect the efficiency, effectiveness or safety of the operator's OCS;

(c) transition training is training provided for any FOO to make a transition from one type of helicopter type or variant to another except where the Executive Director allows such helicopters or variants to be grouped together as, an helicopter type;

(d) flight familiarisation is training provided to each FOO for the purpose of ensuring an enhanced knowledge of the operational practices of a flight in progress and the manner of interfacing with the flight watch system; and

(e) regaining competency is training provided to a FOO when such person has not acted in the capacity for which they have been trained.

6. Operator's company induction syllabus for initial training

The content of a company induction training programme for a FOO shall include-

(a) the operations manual system covering pertinent information dealing with-

(i) manual structure including all manuals providing need to know information for dispatchers and the amendment procedures for such manual system;

(ii) company management organisation and how the OCS interfaces with management;

(iii) duties and responsibilities of those exercising operational control of flight following services;

(iv) operators approved for categories A or B operational control system, a full description of the system so approved;

(v) specific domestic and foreign rules and regulations significant to the operator by virtue of its type and area of operation giving emphasis on regulatory differences from the Namibia regulations;

(vi) dispatch release policy;

(vii) procedures for the resolution of conflict between the dispatcher and the PIC;

(viii) flight following services and provision of information to a flight;

(ix) local weather patterns and tendencies;

(x) operator's fuel policy;

(xi) dispatch interface with the operator's SMS;

(xii) dispatch interface with the operator's QA programme;

(xiii) details of the operator's security programme;

(xiv) details of the maintenance release policy;

(xv) details of the operator's emergency response plan including OCS participation in overdue or missing helicopters;

(xvi) handling a declaration of an emergency;

(xvii) operational weather minima;

(xviii) the approved types of operational flight plans and flight planning procedures;

(xix) crew resource management training including human factors, risk analysis and error management training;

(xx) dangerous goods training as applicable;

(xxi) details of the operator's load control procedures;

(xxii) details of the operator's communication equipment and policies including communication failure procedures;

(xxiii) details of the operator's official reporting systems;

(xxiv) surface contamination training where the operator operates into areas where surface contamination is known to exist; and

(xxv) company policy with respect to the dissemination of information relating to-

(aa) weather specials, severe or weather phenomena;

(bb) notams; or

(cc) security measures;

(b) details of the air operator certificate and operations specifications including-

(i) Part A General provisions;

(ii) Part B En route authorisations and limitations including special authorities;

(iii) Part C Aerodrome authorisations and limitations;

(iv) Part D Maintenance;

(v) Part E Mass and balance;

(vi) Part F Interchange of equipment operations; and

(vii) Part G Helicopter leasing operations; and

(c) any other subject area the Executive Director deems to be pertinent.

7. Helicopter type specific training - FOO

(1) An operator shall provide to each FOO a course of studies relating to each type of helicopter over which operational control is to be exercised by such person.

(2) The helicopter course shall be named by the helicopter type and where a variant or helicopter group is represented, the course title shall be so revised.

(3) Each helicopter type specific course shall provide a systems overview appropriate to the duties of a FOO. In addition, a detailed description in the normal, abnormal, emergency and supplementary procedures,

including the related limitations and how those limitations may impact the decisions and assistance rendered by the person responsible for flight following.

(4) Where the helicopter is authorised to be operated in accordance with an MEL, those systems so authorised shall be discussed with reference to the appropriate ATA number of the MEL.

(5) Each course shall be based upon the helicopter manufacturer's AFM and SOPs, if applicable, as adopted by the operator.

(6) The helicopter technical training syllabus must include a description of at least the following-

(a) Helicopter General-

(i) exterior features;

(ii) interior features;

(iii) weights and dimensions; and

(b) Electrical System - general overview to ensure the FOO has acquired a working knowledge of what consequences may result from a variety of failures of the systems and how assistance could be rendered;

(c) Fuel System-

(i) general;

(ii) fuelling and defueling procedures;

(iii) fuelling with passengers on board and special considerations during foul weather; and

(iv) fuel consumption in terms of endurance and range;

(d) Power Plant-

(i) general overview with emphasis placed upon limitations and their impact upon flight dispatch procedures/decisions; and

(ii) each FOO must acquire a knowledge of normal, abnormal and emergency procedures sufficient to know how certain malfunctions shall be handled and the appropriate level of urgency to be placed upon a flight experiencing problems with its power plants;

(e) Pneumatic System-

(i) general understanding sufficient to intervene on occasions where normal systems are not functioning normally or not available;

(ii) air sources;

(iii) distribution; and

(iv) external cart;

(f) Ice and Rain Protection-

(i) engine anti-ice;

(ii) rotor and airframe anti-ice;

(iii) normal operation;

(iv) limitations; and

(v) knowledge of the capabilities of the helicopters in icing conditions that they oversee;

(g) Air Conditioning - general overview of the consequences of failure of the system as related to altitude, range and safety/health issues;

(h) Hydraulic Power - general description and the impact of failure on helicopter performance;

(i) Landing Gear - general description and dispatch considerations in the event of failure or malfunction;

(j) Avionics:

(i) general; and

(ii) navigation and communication equipment and company adopted procedures relating to navigation and communication; and

(k) Performance-

(i) general;

(ii) flight planning;

(iii) take-off performance;

(iv) enroute performance;

(v) landing performance;

(vi) abnormal operations/non-standard configurations; and

(vii) MEL/CDL considerations.

8. Flight familiarisation training - FOO

(1) An operator shall provide to each FOO flight familiarisation training every 12 months as an observer occupying a flight deck observer seat during not less than one flight sector. The flight deck seat should provide the FOO with the ability to hear all voice communications.

(2) Flight familiarisation must commence at the dispatch centre and the observer given the opportunity to receive the briefing and to witness how this information is used for the different phases of the flight.

(3) Flight familiarisation shall be recorded and signed by the observer and the pilot-in-command.

C. OTHER EMPLOYEES AND SERVICE AGENT TRAINING

1. Security training for ground personnel

(1) An operator shall provide security training for the purpose of heightening overall security awareness within the ground operating personnel whose function is essential to flight operations. Ground personnel considered significant to helicopter operations would include but not be limited to-

(a) personnel designated as dangerous goods packing, shipping or loading of dangerous materials;

(b) service counter personnel;

(c) personnel designated as cargo, mail or baggage handlers;

(d) catering personnel;

(e) service personnel whose function would require coming into contact with or have access to an helicopter or its loading or service bays;

(f) maintenance personnel; or

(g) personnel who man stores handling anything that is designated for, or is likely to be placed on a helicopter.

(2) The training required by paragraph (1) shall be designed to acquaint appropriate employees with preventive measures and techniques in relation to passengers, baggage, cargo, mail, equipment, stores and supplies intended for carriage on a helicopter so that they contribute to the prevention of acts of sabotage or other forms of unlawful interference.

127.03.12 CHECKING, CERTIFICATION, TRAINING AND VALIDITY PERIODS

1. Checking - Flight crew members

(1) Upon completion of the applicable ground and flight training in accordance with TS 127.03.4, and following upgrade training, each flight crew member shall successfully demonstrate his or her proficiency by undergoing the appropriate skills test as described in Schedules One or Two of this TS and where deemed necessary, a combination of such tests.

(2) In addition, each flight crew member of a multi-pilot helicopter shall successfully complete an operational check following initial or upgrade operational training and annually thereafter. Such operational check shall be completed by a company training pilot and the results of the check recorded in the crew member's training records. An operational check is to consist of an assessment of the flight crew member's ability to conduct safe operations over a representative route of the operator's route structure.

(3) Except as provided in paragraph (4), in the case of flight crew members operating single-engine helicopters, each pilot shall, upon completion of the required flight training, demonstrate his or her competency by undergoing a competency check conducted by the operator's Chief Pilot or a company training pilot.

(4) In the case of a flight crewmember trained to operate a single-engine helicopter under IFR shall undergo a pilot proficiency check (PPC) and instrument skills tests in a manner described in Schedule Two as applicable to single-engine helicopters.

(5) A record of each check required by this TS shall be retained on the flight crew member's training record.

(6) Line checks – by suitably qualified company check pilots nominated by the operator and approved by the Authority. A line check is to consist of an assessment of the flight crew member's ability to conduct safe operations over a representative route of operator's route structure or aerial work operations.

2. Checking - Cabin crew members

(1) Each cabin crew member shall, upon completion of the training indicated below, successfully complete the knowledge examinations and checks as outlined herein:

(a) following operator induction training, an examination of the subjects;

(b) following initial training, an examination covering the subjects referred to in CAR 64.02.2, as applicable;

(c) following type and differences training, an examination on the subjects covered during training;

(d) following recurrent training, an examination on the subjects covered during training; and

(e) following initial and recurrent training, an in-flight competency check.

(2) A cabin crew member in-flight check shall be completed by a designated examiner.

(3) Line checks – by suitably qualified company check cabin crew nominated by the operation and approved by the Authority.

3. Checking and certification - load masters and winch operators

(1) Upon completion of any initial and recurrent type training, each load master and winch operator shall successfully demonstrate his or her knowledge and proficiency through the completion of a theoretical and practical examination administered by the operator.

(2) The operator shall establish the checking requirements following differences or familiarisation training which, in no case, shall be less than a knowledge test of the subject matter.

(3) Upon successful completion of any theoretical or practical check, the person's training records shall be annotated to indicate such person's competence as a load master or winch operator, as appropriate.

(4) Line checks – by suitably qualified company check load master or winch operator nominated by the operation and approved by the Authority.

4. Checking and certification - flight operations officers

Flight operations officers are subject to the following checking and certification requirements-

(a) examinations shall be administered to each flight operations officer (FOO) trainee at least at the completion of each phase of training syllabus as appropriate to the type of training undertaken. A FOO trainee shall not progress to a higher level of training until he or she has achieved a passing grade on each examination. All examinations shall be to a depth that ensures a high degree of comprehension has been demonstrated and shall be administered following initial, transition, regaining qualifications or recurrent training;

(b) for initial certification and thereafter on an annual basis, each FOO shall undergo a competency check. The applicant shall have successfully demonstrated the ability to-

(i) make an accurate and operationally acceptable weather analysis from a series of daily weather maps and weather reports; provide an operationally valid briefing on weather conditions prevailing in the general neighbourhood of a specific air route; forecast weather trends pertinent to air transportation with particular reference to destination and alternates;

(ii) determine the optimum flight path for a given segment, and create accurate manual and/or computer generated flight plans;

(iii) provide operating supervision and all other assistance to a flight in actual or simulated adverse weather conditions, as appropriate to the duties of the holder of a FOO certificate; and

(iv) assist in accordance with established procedures in an emergency or overdue helicopter;

(c) the FOO check report shall be retained on the FOO's training file;

(d) each FOO who has successfully completed the operator-specific training programme shall receive a certificate of competency. Such certificate of competency shall be retained on the FOO's training file; and

(e) Line checks – by suitably qualified company check cabin crew nominated by the operation and approved by the Authority.

Note: *Blank copies of the report referred to in subparagraph (c) and the certificate in subparagraph (d) are available from the NCAA.*

5. Validity periods

(1) Except as noted in the respective TS, the following training and checking anniversaries shall apply-

(a) for flight crew members-

(i) training shall be valid to the first day of the thirteenth month following the month in which the training took place;

(ii) a PPC is valid to-

(aa) for pilots operating multi-pilot helicopters, except as provided in sub-subparagraph (iii) below, the first day of the seventh month following the month the PPC took place; or

(bb) for pilots operating single-pilot helicopters VFR operatioins the first day of the thirteenth month following the month the PPC took place;

(iii) where an operator is approved to conduct an advanced qualification training programme on specific helicopter types, such approvals allow for the PPC on those types to be valid to the first day of the thirteenth month following the month in which the PPC took place; and

(iv) an operational check is valid until the first day of the thirteenth month following the month the operational check took place;

(b) for cabin crew members-

(i) training shall be valid to the first day of the thirteenth month following the month in which the training took place;

(ii) examinations and competency checks are valid to the first day of the thirteenth month following the month the examination or check took place;

(c) for other than flight and cabin crew members-

(i) for load masters, winch operators and flight operations officers, training and checks are valid to the first day of the thirteenth month following the month the training or check took place; and

(ii) for all others, training and checks are valid to the first day of the twenty-fifth month following the month the training or check took place.

(2) In the case of flight crew members, any two PPCs that are similar in nature and occur within 4 months of each other shall not alone satisfy the requirements of section 5(1)(a)(ii)(aa) above.

(3) Where any check or required training is renewed within the last 60 days of its validity period, its validity period is extended by 6, 12 or 24 months, as appropriate.

(4) The Executive Director may extend the validity period of a PPC, a cabin attendant or FOO competency check, an operational check or any training by up to 30 days where the Executive Director is satisfied that the application is justified and that aviation safety is not likely to be compromised: Provided the request for extension is submitted prior to the expiration of the check or training.

(5) Completion of a check or training requirement at any time during the periods specified in paragraph (3) or (4) above shall be considered as completed in the month due for calculation of the next due date.

127.04.2 OPERATIONS MANUAL

1. Structure of operations manual

(1) An operator operating in terms of CAR 127.01.1 shall ensure that the main structure of the operations manual is as follows:

Part A: General

This part must comprise all non-type-related operational policies, instructions and procedures needed for a safe operation and must comply with all relevant CAR.

Part B: Helicopter operating matters

This part must comprise all type-related instructions and procedures needed for a safe operation. It must take account of the different types of helicopters or variants used by the operator.

Part C: Route and aerodrome instructions and information

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

Part D: Training

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

(2) An operator must ensure that the contents of the operations manual are in accordance with section 2 of this technical standard and relevant to the area and type of operation.

(3) An operator must ensure that the detailed structure of the operations manual is approved by the Executive Director.

2. Contents of operations manual

2.1. PART A: General

2.1.1. Administration and control of operations manual

(1) An operations manual must contain certain statements and provisions for the manual administration and control and include at least the following-

(a) a statement that the manual is intended to comply with all applicable acts, regulations and associated technical standards and with the terms and conditions of the applicable operating certificate and operations specifications attached thereto;

(b) a statement that where any person is confronted with an operational situation not contemplated by the operations manual, such person will be expected to act in accordance with his or her most conservative discretion. Furthermore, where any part of the manual is considered to be repugnant to any provision referred to in subparagraph (a), such person shall comply with the respective legal statute and report the discrepancy to the Operations Manager by the quickest means possible;

(c) a statement that the manual contains operational instructions that are to be complied with by the relevant personnel;

(d) a list and brief description of the various parts, their contents, applicability and use;

(e) explanations and definitions of terms and words needed for the use of the manual;

(f) provisions for the issuance of an operations manual in separate parts corresponding to specific aspects of operations, provided in accordance; and

(g) a brief description of the operator's manual system that lists all operational and technical manuals developed or adopted by the operator for the purpose of ensuring operations personnel have been provided all information necessary for the performance of their duties. Such description must also indicate which of such manuals will be available on board a helicopter during flight time.

(2) System of amendment and revision-

(a) who is responsible for the issuance and insertion of amendments and revisions;

(b) a record of amendments and revisions with insertion dates and effective dates;

(c) in the interests of aviation safety, a statement that provides for the rapid dissemination of operational information with a system of priorities governing the implementation process;

(d) handwritten amendments and revisions are not permitted except in situations requiring immediate amendment or revision in the interests of aviation safety;

(e) a description of the system for the annotation of pages and their effective dates;

(f) a list of effective pages;

(g) annotation of changes (on text pages and, as far as practicable, on charts and diagrams);

(h) temporary revisions; and

(i) a description of the distribution system for the manuals, amendments and revisions.

2.1.2. Organisation and responsibilities

(1) Organisational structure

A description of the organisational structure including the general organogram and operations department organogram. The organogram must depict the relationship between the Operations Department and the other Departments of the organisation. In particular, the subordination and reporting lines of all Divisions, Departments etc., which pertain to the safety of flight operations, shall be shown.

(2) Nominated post-holders

The name of each nominated post-holder responsible for flight operations, the safety management system, the maintenance system, flight crew training and ground operations. A description of their function and responsibilities shall be included.

(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 CAR.

(4) Authority, duties and responsibilities of the pilot-in-command

A statement defining the authority, duties and responsibilities of the pilot-in-command.

(5) Duties and responsibilities of crew members other than the pilot-in-command.

A statement defining the duties and responsibilities of crew members other than the pilot-in-command.

2.1.3. Operational control and supervision

(1) Supervision of the operation by the operator

A description of the system for supervision of the operation by the operator. This must show how the safety of flight operations and the qualifications of personnel are supervised. In particular, the procedures related to the following items shall be described-

(a) Licence and qualification validity;

(b) competence of operations personnel; and

(c) control, analysis and storage of records, flight documents, additional information and data.

(2) System of promulgation of additional operational instructions and information

A description of any system for promulgating information which may be of an operational nature but is supplementary to that in the operations manual. The applicability of this information and the responsibilities for its promulgation shall be included.

(3) Operational control

A description of the procedures and responsibilities necessary to exercise operational control with respect to flight safety.

2.1.4. Safety management system (SMS)

A description of the organisation of, roles and responsibilities of the personnel employed in, and policies and procedures associated with the safety management system. The description of the SMS may be contained in a separate manual depending upon the size and complexity of the operator.

2.1.5. Quality management system (QMS)

A description of the organisation of, roles and responsibilities of the personnel employed in, and policies and procedures associated with the QMS, which is normally integrated with the SMS. The description of the QMS may be contained in the SMS manual or a quality management manual (QMM) depending upon the size and complexity of the operator.

2.1.6. Flight crew composition

(1) Flight crew composition

An explanation of the method for determining flight crew compositions taking account of the following-

(a) the type of helicopter being used;

(b) the area and type of operation being undertaken;

(c) the phase of the flight;

(d) the minimum flight crew requirement and flight duty period planned;

(e) experience (total and on type), recency and qualification of the flight crew members; and

(f) the designation of the pilot-in-command.

(2) Designation of the pilot-in-command

The rules applicable to the designation of the pilot-in-command.

(3) Flight crew incapacitation

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

2.1.7. Qualification requirements

(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 shall be given to the helicopter type, kind of operation and composition of the flight crew.

(2) Cockpit crew

(a) Pilot-in-command

(b) Second-in-command, if applicable

(c) Pilot-under-supervision

(d) Operation on more than one type or variant.

(3) Cabin crew

(a) Senior cabin crew member

(b) Cabin crew member

(i) Required cabin crew member

(ii) Additional cabin crew member and cabin crew member during familiarisation flights.

(c) Operation on more than one type or variant.

(4) Training, checking and supervision personnel

(a) For flight deck crew

(b) For cabin crew.

(5) Other operations personnel.

2.1.8. Flight crew health precautions

The relevant regulations and guidance to flight crew members concerning health including-

(a) alcohol and other intoxicating liquor;

(b) narcotics;

(c) drugs;

(d) sleeping tablets;

(e) pharmaceutical preparations;

(f) immunisation;

(g) scuba diving;

(h) blood donation;

(i) meal precautions prior to and during flight;

(j) sleep and rest; and

(k) surgical operations.

Note: *See Document NAM-CATS 67.*

2.1.9. Flight time limitations

(1) Flight time and duty period limitations and rest requirements

A description of the flight time and duty period limitations and rest requirements prescribed in TS 127.02.12 as applicable to the operation.

(2) Exceedances of flight time and duty period limitations and/or reductions of rest periods

Conditions under which flight time and duty period may be exceeded or rest periods may be reduced and the procedures used to report these modifications.

2.1.10. Operating procedures

(1) Flight preparation instructions

As applicable to the operation-

(a) a description of the method of determination and application of minimum altitudes including-

(i) a procedure to establish the minimum altitudes/flight levels for VFR flights; and

(ii) a procedure to establish the minimum altitudes/flight levels for IFR flights;

(b) criteria for determining the usability of aerodromes;

(c) the method for establishing heliport operating minima for IFR flights in accordance with TS 91.07.5. Reference shall 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;

(d) en route operating minima for VFR flights or VFR portions of a flight and, where single-engine helicopters are used, instructions for route selection with respect to the availability of surfaces which permit a safe forced landing;

(e) presentation and application of aerodrome and en route operating minima, including the increase of aerodrome operating minima in case of degradation of approach or aerodrome facilities;

(f) explanatory material on the decoding of MET forecasts and MET reports relevant to the area of operations, including the interpretation of conditional expressions;

(g) the methods by which the quantities of fuel and oil to be carried, are determined and monitored in flight. This section must also include instructions on the measurement and distribution of the fluid carried on board. Such instructions must 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 helicopter's power plants. The system for maintaining fuel and oil records must also be described;

(h) Mass and centre of gravity

The general principles of mass and centre of gravity including:

(i) definitions;

(ii) methods, procedures and responsibilities for preparation and acceptance of mass and centre of gravity calculations;

(iii) the policy for using either standard and/or actual masses;

(iv) the method for determining the applicable passenger, baggage and cargo mass;

(v) the applicable passenger and baggage masses for various types of operations and helicopter type;

(vi) general instruction and information necessary for verification of the various types of mass and balance documentation in use;

(vii) last minute changes procedures;

(viii) specific gravity of fuel, and oil; and

(ix) seating policy/procedures;

(i) procedures and responsibilities for the preparation and submission of the air traffic service flight plan. Factors to be considered include the means of submission for both individual and repetitive flight plans;

(j) procedures and responsibilities for the preparation and acceptance of the operational flight plan. The content and use of the operational flight plan shall be described including samples of the operational flight plan formats in use;

(k) operator's flight folio;

(l) the responsibilities and the use of the operator's flight folio shall be described, including samples of the format used. A technical log may be used in place of a flight folio, if it contains the required information; and

(m) list of documents, forms and additional information to be carried.

(2) Ground handling instructions

As applicable to the operation-

(a) a description of fuelling procedures, including-

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

(ii) refuelling and defueling when passengers are embarking, on board or disembarking; and

(iii) precautions to be taken to avoid mixing fuels;

(b) a description of the handling procedures to be used when allocating seats and embarking and disembarking passengers and when loading and unloading the helicopter. Further procedures, aimed at achieving safety whilst the helicopter is on the apron, must also be given. Handling procedures must include-

(i) disembarking of persons;

(ii) sick passengers and persons with reduced mobility;

(iii) transportation of inadmissible passengers, deportees or persons in custody;

(iv) permissible size and weight of hand baggage;

(v) loading and securing of items in the helicopter;

(vi) special loads and classification of load compartments;

(vii) positioning of ground equipment;

(viii) operation of helicopter doors;

(ix) safety on the apron, including fire prevention, blast and suction areas;

(x) start-up, apron departure and arrival procedures;

(xi) servicing of helicopters;

(xii) documents and forms for helicopter handling;

(xiii) multiple occupancy of helicopter seats; and

(xiv) management of all ground handling functions, including but not limited to the following passenger services

(aa) baggage services

(bb) cabin services

(cc) weight and balance control;

(dd) ground support equipment;

(ee) fuel services; and

(ff) ramp operations.

(c) 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, except medical patients under proper care, are refused embarkation;

(d) a description of the de-icing and anti-icing policy and procedures for helicopters on the ground. These must include descriptions of the types and effects of icing and other contaminants on helicopters whilst stationary during ground movements and during take-off. In addition, a description of the fluid types used shall be given including-

(i) proprietary or commercial names;

(ii) characteristics;

(iii) effects on helicopter performance;

(iv) hold-over times; and

(v) precautions during usage.

(3) Flight procedures

As applicable to the operation-

(a) 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.

(b) a description of all navigation procedures relevant to the type(s) and area(s) of operation and equipment required to operate therein.

Consideration shall be given to-

(i) standard navigation procedures including policy for carrying out independent cross-checks of keyboard entries where these affect the flight path to be followed by the helicopter;

(ii) RNP, MNPS and POLAR navigation and navigation in other designated areas;

(iii) RNAV;

(iv) in-flight re-planning; and

(v) procedures in the event of system degradation;

(c) circumstances in which a radio listening watch in maintained;

(d) instructions on-

(i) the use of normal checklists and the timing of such use;

(ii) departure contingency procedures;

(iii) altimeter setting procedures;

(iv) altitude alerting system procedures;

(v) the conduct of instrument approaches and the conditions required to commence or to continue an instrument approach;

(vi) CRM procedures at night or in IMC;

(e) TAWS procedures;

(f) policy and procedures for the use of ACAS;

(g) policy and procedures for in-flight fuel management;

(h) procedures for operating in, and/or avoiding and/or recording and reporting of special, routine and non-routine meteorological observations during any phase of flight and potentially hazardous atmospheric conditions including:

(i) thunderstorms;

(ii) icing conditions;

(iii) turbulence;

(iv) windshear;

(v) jetstreams

(vi) volcanic ash clouds

(vii) heavy precipitation;

(viii) sand storms;

(ix) mountain waves;

(x) significant temperature inversions; and

(xi) space weather events.

(i) wake turbulence separation criteria, taking into account helicopter types, wind conditions and runway location;

(j) the requirements for flight crew members to occupy their assigned stations or seats during the different phases of flight or whenever deemed necessary in the interests of aviation safety;

(k) the requirements for flight crew members and passengers to use safety belts and/or harnesses during the different phases of flight or whenever deemed necessary in the interests of aviation safety;

(l) the conditions for the admission to the flight deck of persons other than the flight crew;

(m) the conditions and procedures for the use of vacant flight crew seats;

(n) procedures to be followed in the event of incapacitation of flight crew members in flight. Examples of the types of incapacitation and the means for recognising them, shall be included;

(o) procedures covering-

(i) cabin preparation for flight, in-flight requirements and preparation for landing including procedures for securing cabin and galleys;

(ii) procedures to ensure that passengers are seated where, in the event that an emergency evacuation is required, they may best assist and not hinder evacuation from the helicopter;

(iii) procedures to be followed during passenger embarkation and disembarkation; and

(iv) procedures in the event of fuelling with passengers on board or embarking and disembarking;

(p) the contents, means and timing of passenger briefing in accordance with CAR 91.07.20;

(q) lists of the survival and emergency equipment required for each route or area of operation and the procedures to ensure such equipment has been inspected and/or is functioning properly prior to departure;

(r) information and instructions relating to the interception of civil aircraft including-

(i) procedures for pilots-in-command of intercepted aircraft; and

(ii) visual signals for use by intercepting and intercepted aircraft; and

(s) procedures for the use of head-up displays (HUD), enhanced vision systems (EVS) and night vision goggles, as applicable.

(4) All weather operations

(5) Use of the minimum equipment and configuration deviation list(s)

(6) Development and use of standard operating procedures (SOPs)

(7) With respect to non-revenue flights, procedures and limitations for-

(a) training flights;

(b) test flights;

(c) delivery flights;

(d) ferry flights;

(e) demonstration flights; and

(f) positioning flights,

including the kind of persons who may be carried on such flights.

(8) Oxygen requirements

(a) An explanation of the conditions under which oxygen shall be provided and used.

(b) The oxygen requirements specified for-

(i) flight deck crew;

(ii) cabin crew; and

(iii) passengers.

(9) Instructions on the carriage of the operator's employees.

2.1.11. Dangerous goods and weapons

(1) Information, instructions and general guidance on the conveyance of dangerous goods including-

(a) operator's policy on the conveyance of dangerous goods;

(b) guidance on the requirements for acceptance, labelling, handling, stowage and segregation of dangerous goods;

(c) procedures for responding to emergency situations involving dangerous goods;

(d) duties of all personnel involved as referred to in Part 92; and

(2) The conditions under which weapons, munitions of war and sporting weapons may be carried.

2.1.12. Security

(1) Security instructions and guidance of a non-confidential nature which must include the 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 must also be included.

(2) A description of preventative security measures and training.

Note: *Parts of the security instructions and guidance may be kept confidential*.

2.1.13. Handling of aviation accidents and incidents

Procedures for the handling, notifying and reporting of aviation accidents and incidents. This section must include-

(a) definitions of aviation accidents and incidents and the relevant responsibilities of all persons involved;

(b) the description of which operator departments, authorities or other institutions have to be notified by which means and in which sequence in case of an aviation accident;

(c) special notification requirements in the event of an aviation accident or incident when dangerous goods are being carried;

(d) a description of the requirements to report specific aviation accidents and incidents;

(e) the forms used for reporting and the procedure for submitting them to the relevant authority must also be included; and

(f) if the operator develops additional safety related reporting procedures for its own internal use, a description of the applicability and related forms to be used; and

(g) an operator to establish procedures for the retention of flight recorder records and flight recorders in safe custody pending their disposition to the accident or incident investigating team.

2.1.14. Rules of the air

Rules of the air including-

(a) visual and instrument flight rules;

(b) territorial application of the rules of the air;

(c) communication procedures including COM-failure procedures;

(d) information and instructions relating to the interception of Namibia and foreign registered civil helicopters;

(e) the circumstances in which a radio listening watch is to be maintained;

(f) signals;

(g) time system used in operation;

(h) ATC clearances, adherence to flight plan and position reports;

(i) visual signals used to warn an unauthorised helicopter flying in or about to enter a restricted, prohibited or danger area;

(j) procedures for pilots observing an aviation accident or receiving a distress transmission;

(k) the ground/air visual codes for use by survivors, description and use of signal aids; and

(l) distress and urgency signals.

2.2. PART B: Helicopter operating matters - type related

Taking account of the differences between types and variants of types under the following headings-

2.2.1. General information and units of measurement

General information (e.g. helicopter dimensions), including a description of the units of measurement used for the operation of the helicopter type concerned and conversion tables.

2.2.2. Limitations

A description of the certified limitations and the applicable operational limitations including-

(a) certification status;

(b) passenger seating configuration for each helicopter type including a pictorial presentation;

(c) types of operation that are approved (e.g. IFR/VFR, CAT II/III, flights in known icing conditions, etc.);

(d) flight crew composition;

(e) mass and centre of gravity;

(f) speed limitations;

(g) flight envelope(s);

(h) wind limits;

(i) performance limitations for applicable configurations;

(j) airframe contamination; and

(k) system limitations.

2.2.3. Normal procedures

The normal procedures and duties assigned to the flight crew, the appropriate check-lists, the system for use of the checklists and a statement covering the necessary coordination procedures between cockpit crew and cabin crew. The following normal procedures and duties shall be included-

(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) instrument approach;

(j) visual approach and circling;

(k) missed approach;

(l) normal landing; and

(m) post landing.

2.2.4. Abnormal and emergency procedures

The abnormal and emergency procedures and duties assigned to the flight crew, the appropriate check-lists, the system for use of the check-lists and a statement covering the necessary coordination procedures between flight crew and cabin crew. The following abnormal and emergency procedures and duties shall be included-

(a) flight crew incapacitation;

(b) fire and smoke drills;

(c) exceeding structural limits such as overweight landing;

(d) lightning strikes;

(e) distress communications and alerting ATC to emergencies;

(f) engine failure;

(g) system failures;

(h) guidance for diversion in case of serious technical failure;

(i) ground proximity warning;

(j) ACAS warning;

(k) windshear;

(l) emergency landing/ditching; and

(m) emergency evacuation.

2.2.5. Performance

(1) Performance data shall be provided in a form in which it can be used without difficulty.

(2) Performance material which provides the necessary data for compliance with the performance requirements prescribed in Subpart 8 of CAR must be included to allow the determination of helicopter climb performance with all engines operating to enable the PIC to determine the climb gradient that can be achieved during the departure phase for the existing take-off conditions and intended take-off technique, where applicable.

(3) Supplementary data covering flights in icing conditions, in consideration of any certificated performance related to an allowable configuration, or configuration deviation, shall be included.

(4) If performance data, as required for the appropriate performance class, is not available in the approved aircraft flight manual (AFM), then other data acceptable to the Executive Director shall be included. Alternatively, the operations manual 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.

(5) Additional performance data, where applicable, including-

(a) effect of equipment on level flight (fuel consumption, speed and range), including-

(i) hoist installation;

(ii) sliding doors, whether open or closed;

(iii) ski installation;

(iv) float installation;

(v) emergency float installation; and

(vi) sand filter installation; and

(b) effects on flights conducted under the provisions of the CDL.

2.2.6. Flight planning

(1) Data and instructions necessary for pre-flight and in-flight planning including factors such as speed schedules and power settings. Where applicable, procedures for engine(s)-out operations. Flights to isolated aerodromes shall be included.

(2) The method for calculating fuel needed for the various stages of flight in accordance with TS 127.07.10.

2.2.7. Mass and balance

Instructions and data for the calculation of the mass and balance including-

(a) calculation system (e.g. index system);

(b) information and instructions for completion of mass and balance documentation, including manual and computer generated types;

(c) limiting masses and centre of gravity of the various versions; and

(d) dry operating mass and corresponding centre of gravity or index.

2.2.8. Loading

Procedures and provisions for loading and securing the load in the helicopter.

2.2.9. Configuration deviation list (CDL)

The company approved procedures for the use of a CDL, if provided by the manufacturer, taking account of the helicopter types and variants operated including procedures to be followed when a helicopter is being despatched under the terms of its CDL.

2.2.10. Minimum equipment list (MEL)

The company approved procedures for the use of a MEL taking account of the helicopter types and variants operated and the type(s)/area(s) of operation.

2.2.11. Survival and emergency equipment including oxygen

(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 lists(s) must also be included.

(2) The procedure for determining the amount of oxygen required and the quantity that is available. The flight profile and number of occupants shall be considered. The information provided shall be in a form in which it can be used without difficulty.

2.2.12. Emergency evacuation procedures

(1) Instructions for preparation for emergency evacuation including flight crew coordination and emergency station assignment.

(2) A description of the duties of all crew members for the rapid evacuation of a helicopter and the handling of the passengers in the event of a forced landing, ditching or other emergency.

2.2.13. Helicopter systems

A description of the helicopter systems, related controls and indications and operating instructions.

2.3. PART C: Route and aerodrome instructions and information

Instructions and information relating to communications, navigation and aerodromes including minimum flight levels and altitudes for each route to be flown and operating minima for each aerodrome 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) landing site data and aerodrome facilities;

(e) approach, missed approach and departure procedures including noise abatement procedures;

(f) COM-failure procedures;

(g) search and rescue facilities in the area over which the helicopter is to be flown;

(h) a description of the aeronautical charts that shall 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 COM/NAV procedures including holding; and

(k) aerodrome categorisation for flight crew competence qualification; and

(l) clarification and acceptance of ATC clearances, particularly where terrain clearance is involved.

2.4. PART 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 must include-

(a) for flight deck crew, all relevant items prescribed in Part 61 and Subpart 3 of Part 127;

(b) for cabin crew, all relevant items prescribed in Part 64 and Subpart 3 of Part 127;

(c) for operations personnel concerned, including flight crew members-

(i) all relevant items prescribed in Part 92; and

(ii) all relevant items regarding operator security;

(d) operations personnel other than flight crew members, and all relevant items pertaining to their duties as specified in TS 127.03.1.

(3) Procedures-

(a) for training and checking;

(b) to be applied in the event that personnel do not achieve or maintain the required standards; and

(c) 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 flights.

(4) Description of documentation to be stored and storage periods.

127.04.3 AIRCRAFT OPERATING MANUAL

1. Aircraft operating manual contents

The aircraft operating manual (AOM) required for compliance with this regulation shall be designed with human factors principles in mind and contain the following information for each type of helicopter operated. Where there are significant differences in equipment and procedures between helicopters of the same type operated, the AOM shall show the registration mark of the helicopter to which it is applicable-

(a) table of contents;

(b) list of effective pages;

(c) amending procedure;

(d) preamble;

(e) the normal, abnormal and emergency procedures relating to the helicopter;

(f) details of the helicopter system;

(g) the checklists and standard operating procedures (SOPs) to be used by the flight crew members; and

(h) the helicopter performance data and limitations specified in the aircraft flight manual (AFM). Such information shall be clearly identified as AFM data.

2. Standard operating procedures content

SOPs contain the detailed procedures to be followed by flight crew members in the conduct of helicopter operations with particular emphasis on the interaction between crew members (crew resource management). SOPs shall not be contrary to any information or procedure included in the AFM. Required information, if contained in another publication carried on board the helicopter during flight, need not be repeated in the SOP. The SOP shall include, as a minimum, the following as applicable to the operation:

(a) communications;

(b) crew coordination;

(c) use of check lists;

(d) standard briefings;

(e) standard calls;

(f) Aerodrome procedures;

(g) battery/APU/GPU engine starts;

(h) (hover-)taxi;

(i) rejected take-off;

(j) take-off and climb;

(k) cruise;

(l) descent;

(m) approaches IMC, visual, VFR, and circling;

(n) landing;

(o) missed approaches and balked landings procedures;

(p) rotor stall recovery;

(q) fuelling with passengers on board;

(r) refuelling with engine(s) running (hot refuelling);

(s) use of on board navigation and alerting aids;

(t) mass and balance control procedures;

(u) check lists;

(v) emergencies:

(i) planned and unplanned;

(ii) pilot incapacitation;

(iii) two-challenge rule in the case of a multi-crew operation;

(iv) bomb threat and hijacking;

(v) engine fire/failure/shutdown/idling;

(vi) autorotation;

(vii) other engine malfunctions;

(viii) tail rotor failure;

(ix) hydraulic failure;

(x) fire, internal/external;

(xi) smoke removal;

(xii) any inadvertent encounter with moderated to severe in-flight icing.

127.04.5 OPERATIONAL FLIGHT PLAN

1. Operational flight plan - General

(1) The operational flight plan (OFP) may be in any format at the operator's discretion: Provided the content meets the requirements of this TS.

(2) Based on the type of flight being undertaken, an operator shall prepare one of the following types of OFPs-

(a) for IFR flights, except as provided in subparagraph (b), a formal OFP containing all the items listed in section 2 of this TS;

(b) for VFR or IFR short positioning flights, a short-form 18-item OFP containing those items indicated by an asterisk in the list in section 2 of this TS; or

(c) for local test flights, flight tests, training or other non-commercial local flights where passengers are not carried, an informal OFP, being either an ATC flight plan or other flight following document as appropriate to the flight. Documents developed as the result of this subparagraph shall also be retained in accordance with regulation 127.04.4(4).

2. Items in operational flight plan

(1) The minimum required content of an (OFP) is as follows but each field shall be considered as applicable to the type of flight, the type of helicopter and the type of operational control system to which the OFP applies.

Note: *Asterisks by an item indicates information required for the OFP short form as provided in section 1(2) of this TS.*

(a) *operator's name;

(b) *date and ETD at points of departure and ETA at destinations;

(c) *helicopter registration;

(d) * ;

(e) *helicopter type and model and variant, as applicable;

(f) *flight number, as applicable;

(g) type of flight; IFR, VFR or other;

(h) *flight crew members names and assigned position;

(i) *flight operations officer's name, or PIC if pilot self-dispatch, as applicable;

(j) *number of cabin crew members and passengers on board, as amended by final load figures;

(k) *departure aerodrome;

(l) *destination aerodrome;

(m) *alternate aerodrome, as applicable, including en route alternates where required;

(n) routing to destination by successive navigational way points and a method to obtain associated tracks for each;

(o) routing to alternate aerodrome, as applicable;

(p) specification of any way points en route to satisfy special operations requirements, as applicable;

(q) *planned cruise altitudes to destination and alternate, as applicable and minimum safe altitudes along planned routes;

(r) planned cruise indicated air speed, true air speed and ground speed or wind component during cruise;

(s) winds at planned cruise altitude (expressed in terms of direction/velocity or as a component/drift angle);

(t) temperature at cruise altitude;

(u) *estimated time en route (if broken down into way point time components, a total shall be specified);

(v) time from destination to alternate, as applicable;

(w) distance to destination (if broken down into way point distance components, a total shall be specified);

(x) distance from destination to alternate, as applicable;

(y) * fuel burn en route and from destination to alternate;

(z) *fuel component breakdown required for the type of flight plan for, as applicable-

(i) taxi;

(ii) destination;

(iii) alternate;

(iv) holding reserve;

(v) en route reserve, as applicable;

(vi) contingency fuel, as applicable; and

(vii) the minimum and actual fuel on board at break release (entered by flight crew);

(aa) *mass and balance showing-

(A) total planned fuel on board;

(B) zero fuel weight; and

(C) planned maximum take-off weight and C of G location; and

(bb) *signature of pilot-in-command and the flight operations officer (FOO), as applicable, or alternate means of certifying acceptance.

(2) The format of the full OFP shall allow the crew to record the fuel state and the progress of the flight relative to the plan. The OFP may be computer-generated or produced manually, working from charts and tables, by either the FOO or the flight crew. When an OFP is prepared manually, an approved form displaying the

requisite information and providing the necessary space to make flight following entries as the flight progresses shall be used.

(3) The operator shall specify in its company operations manual how formal acceptance of the OFP by the PIC and the FOO shall be recorded.

127.04.7 RECORDS OF EMERGENCY AND SURVIVAL EQUIPMENT

1. Emergency and survival equipment list

The minimum information to be contained in an emergency and survival equipment list is prescribed in CAR 91.01.6.

127.04.8 CREW MEMBER TRAINING RECORDS

1. Training records

(1) An air service operator shall, for each person who is required to receive training in terms of Subpart 3, establish and maintain a record of-

(a) a copy of a signed personnel licence or validation of foreign licence, if applicable;

(b) if applicable, a copy of the persons current medical certificate;

(c) the dates on which a person, while in an operator's employ, successfully completed any training, pilot proficiency check, examination or other crew member skills test required in terms of Subpart 3 or obtained any qualification required in terms of Part 61, 63 or 64 or this TS;

(d) the report of any check or skills test completed;

(e) information relating to any failure of the person, while in the operator's employ, to successfully complete any training, pilot proficiency check or examination required in terms of Subpart 3 or to obtain any qualification required in terms of Part 61 or 64 or this TS;

(f) the type of helicopter or flight training equipment used for any training, pilot proficiency checks, line checks, familiarisation flights, observation flights or qualification required under this Subpart; and

(g) any certificate required to be kept in terms of Subpart 3.

(2) An operator shall maintain a system for recording the qualifications and training of instructional and examining staff, as appropriate.

(3) An operator shall retain a copy of the most recent written examination completed by each person for each type of helicopter, where applicable, for which the person has a qualification.

(4) An operator shall retain the records referred to in paragraphs (1)(c) and (d) and a record of each pilot proficiency check for at least three years.

(5) An operator shall retain any certificate referred to in paragraph (1)(g) for at least 90 days beyond the duration of its validity period.

127.04.9 MASS AND BALANCE SHEETS

1. Mass and Balance sheet

(1) The mass and balance sheet must contain the following information-

(a) The helicopter registration and type;

(b) the flight identification number and date;

(c) the identity of the pilot-in-command;

(d) the identity of the person who prepared the document;

(e) the dry operating mass and the corresponding CG of the helicopter;

(f) the mass of the fuel at take-off and the mass of trip fuel;

(g) the mass of consumables other than fuel;

(h) the components of the load including passengers, baggage, freight and ballast;

(i) the take-off mass, landing mass and zero fuel mass;

(j) the load distribution;

(k) the applicable helicopter CG positions; and

(l) the limiting mass and CG values.

(2) The person superintending the loading of a helicopter must certify that the load distribution is in accordance with the requirements prescribed in the operations manual or flight manual and that the maximum certificated mass has not been exceeded.

(3) The mass and balance sheet shall be signed by the pilot-in-command unless the mass and balance sheet is sent to the helicopter by electronic data transfer.

When the mass and balance sheet is sent to the helicopter by electronic data transfer, a copy of the final mass and balance sheet, as accepted by the pilot-in-command, shall be available on the ground.

127.05.8 LIFE JACKETS AND OTHER FLOTATION DEVICES

(1) The contents of life rafts are listed in TS 91.04.25.

(2) The following items need to be added in respect of helicopters operated in terms this regulation

(i) a life raft repair kit;

(ii) an inflation pump;

(iii) a bailing bucket;

(iv) a signalling mirror;

(v) a police whistle;

(vi) a raft knife;

(vii) a day marker or equivalent.

127.05.9 SURVIVAL SUIT

Reserved

127.05.14 FLIGHT RECORDERS

1. Flight Data Recorders

(1) The data obtained from a flight data recorder shall be obtained from aircraft sources which enable accurate correlation with information displayed to the flight crew and shall be correlated to the recorded cockpit audio.

(2) Parameters

(a) The parameters for helicopters are-

(i) a Type IVA FDR shall be capable of recording, as appropriate to the helicopter, at least the 48 parameters in the table in subparagraph (j);

(ii) a Type IV FDR shall be capable of recording, as appropriate to the helicopter, at least the first 30 parameters in the table in subparagraph (j);

(iii) a Type V FDR shall be capable of recording, as appropriate to the helicopter, at least the first 15 parameters in the table in subparagraph (j); and

(iv) Helicopter age and requirements are provided in Table A1.

Note: the following requirements shall apply with effect from 1 January 2024 and shall replace the requirements of subsection (2)(a)(i), (ii) and (iii).

TABLE A1

HELICOPTER AND REQUIREMENTS

Weight of Aircraft	Condition	Parameters
All helicopters with a MTOW of over 3 175kg.	Individual Certificate of Airworthiness first issued on or after 1 January 2016	An FDR shall record the first 48 parameters of the table listed in (2)(h)
All helicopters of Certified take –off mass of over 7000kg or having a passenger seating configuration of more than nineteen	Individual Certificate of Airworthiness first issued on or after 1 January 1989	An FDR shall record the first 30 parameters of the table listed in (2)(h)
All helicopters of a maximum certificated take-off mass of over 3 175 kg to 7 000 kg (3 175 kg – 7000 kg)	Individual Certificate of Airworthiness first issued on or after 1 January 1989	An FDR shall record the first 15 parameters of the table listed in (2)(h)
All turbine-engine helicopters of a maximum certificated take-off mass of over 2 250kg, up to and including 3 175 kg	The application for type certification was submitted to a contractingstate on or after 1 January 2018	(a) An FDR shall record the first 48 parameters of the table listed in (2)(h) (b) A Class C AIR or AIRS which should record at least the flight path and speed parameters displayed to the pilot, as defined in Appendix 4 Table (2)(i) (c) An ADRS which shall record the first 7 parameters listed in Table (2)(i)
All helicopters of a maximum certificated take-off mass of 3 175kg or less	The individual Certificate of Airworthiness is first issued on or after 1 January 2018	(a) An FDR shall record the first 48 parameters listed in Table (2)(h) (b) A Class C AIR or AIRS which should record at least the flight path and speed parameters displayed to the pilot, as defined in Appendix (2)(i) (c) An ADRS which shall record the first 7 parameters listed in Table (2)(i)
All helicopters of a maximum certificated take-off mass of over 3 175kg	Application for type certificate is submitted to a contracting state on or after 1 January 2023	FDR record shall record the at least the first 53 parameters listed in Table (2)(h)
All helicopters of a maximum certificated take-off mass of over 3 175kg	Individual certificate of airworthiness is first issued on or after 1 January 2023	FDR record shall record the at least the first 53 parameters listed in Table (2)(h)

(b) The parameters that satisfy the requirements for FDRs are listed in the subparagraphs below. The number of parameters to be recorded shall depend on helicopter complexity. The parameters without an asterisk (*) are mandatory parameters which shall be recorded regardless of helicopter complexity. In addition, the parameters designated by an asterisk (*) shall be recorded if an information data source for the parameter is used by helicopter systems or the flight crew to operate the helicopter. However, other parameters may be substituted with due regard to the helicopter type and the characteristics of the recording equipment.

(c) The following parameters satisfy the requirements for flight path and speed-

(i) pressure altitude;

(ii) indicated airspeed or calibrated airspeed;

(iii) total or outside air temperature;

(iv) heading (primary flight crew reference);

(v) normal acceleration;

(vi) lateral acceleration;

(vii) longitudinal acceleration (body axis);

(viii) time or relative time count;

(ix) navigation data* (drift angle, wind speed, wind direction, latitude/longitude, groundspeed*); and

(x) radio altitude*.

(d) The following parameters satisfy the requirements for attitude-

(i) pitch attitude;

(ii) roll attitude; and

(iii) yaw or sideslip angle;*

(e) The following parameters satisfy the requirements for engine power-

(i) power on each engine: free power turbine speed (Nf), engine torque, engine gas generator speed (Ng), cockpit power control position;

(ii) rotor: main rotor speed, rotor brake;

(iii) main gearbox oil pressure*;

(iv) gearbox oil temperature*: main gearbox oil temperature, intermediate gearbox oil temperature, tail rotor gearbox oil temperature;

(v) engine exhaust gas temperature (T4)*; and

(vi) turbine inlet temperature (TIT)*.

(f) The following parameters satisfy the requirements for configuration-

(i) landing gear or gear selector position*;

(ii) fuel contents*; and

(iii) ice detector liquid water content*.

(g) The following parameters satisfy the requirements for operation-

(i) hydraulics low pressure;

(ii) warnings;

(iii) primary flight controls - pilot input and/or control output position: collective pitch, longitudinal cyclic pitch, lateral cyclic pitch, tail rotor pedal, controllable stabilator, hydraulic selection;

(iv) marker beacon passage;

(v) each navigation receiver frequency selection;

(vi) AFCS mode and engagement status*;

(vii) stability augmentation system engagement*;

(viii) indicated sling load force*;

(ix) vertical deviation*: ILS glide path, MLS elevation, GNSS approach path;

(x) horizontal deviation*: ILS localizer, MLS azimuth, GNSS approach path;

(xi) DME 1 and 2 distances*;

(xii) altitude rate*;

(xiii) helicopter health and usage monitor system (HUMS)*: engine data, chip detectors, channel; and

(xiv) timing, exceedance discretes, broadband average engine vibration.

(h) The measurement range, recording interval and accuracy of parameters on installed FDR equipment on helicopters shall meet the specifications in the following table-

TABLE C1

PARAMETERS FOR HELICOPTER FLIGHT DATA RECORDER TABLE

Serial #	Parameter	Applicability	Measure range	Recording intervals	Accuracy limits	Recording resolution
1	Time (UTC when available, otherwise relative time countor GNSS time sync)		24 hours	4	±0.125% /h	1 s
2	Pressure altitude		–300 m (–1 000 ft) to maximum certificated altitude of aircraft +1 500 m (+5 000 ft)	1	±30 m to ±200m (±100 ft to ±700ft)	1.5 m (5 ft)
3	Indicated airspeed		As the installedpilot display measuring system	1	±3%	1 kt
4	Heading		360°	1	±2°	0.5°
5	Normal acceleration		–3 g to +6 g	0.125	±0.09 g excluding a datum error	0.004 g

Serial #	Parameter	Applicability	Measure range	Recording intervals	Accuracy limits	Recording resolution
					of ±0.045 g	
6	Pitch attitude		±75° or 100% ofuseable range whichever isgreater	0.5	±2°	0.5°
7	Roll attitude		±180	0.5	±2°	0.5°
8	Radio transmission keying		On-off (one discrete)	1	—	—
9	Power on each engine		Full range	1 (per engine)	±2%	0.1% of full range
10	Main rotor speed Rotor brake		50–130% Discrete	0.51	±2% —	0.3% of full range
11	Pilot input and/or control surface position — primary controls (collective pitch, longitudinalcyclic pitch, lateral cyclic pitch, tail rotor pedal)		Full range	0.5 (0.25 recommended)	±2% unless higher accuracy uniquely required	0.5% of operating range
12	Hydraulics, each system (low pressure and selection)		Discrete	1	—	—
13	Outside air temperature		Sensor range	2	±2°C	0.3°C
14*	Autopilot/ autothrottle/AFCS mode and engagement status		A suitable combination of discretes	1	—	—
15*	Stability augmentation system engagement		Discrete	1	—	—
16*	Main gearbox oil pressure		As installed	1	As installed	6.895 kN/m2 (1 psi)
17*	Main gearbox oil temperature		As installed	2	As installed	1°C
18	Yaw rate		±400 /second	0.25	±1.5% maximum range excluding datumerror of ±5%	2°/s
19*	Sling load force		0 to 200% ofcertified load	0.5	±3% of maximu mrange	0.5% for maximum certifiedload
20	Longitudinal acceleration		±1 g	0.25	±0.015 g excluding a datum error of ±0.05 g	0.004 g
21	Lateral acceleration		+-1g	0,25	±0.015 g excluding a datum error of ±0.05 g	0.004 g

Serial #	Parameter	Applicability	Measure range	Recording intervals	Accuracy limits	Recording resolution
22*	Radio altitude		–6 m to 750 m (–20 ft to 2 500ft)	1	±0.6 m (±2 ft) or ±3% whicheveris greater below 150 m (500 ft) and ±5% above 150m (500 ft)	0.3 m (1 ft) below 150 m (500 ft), 0.3 m (1 ft) + 0.5% of full range above 150 m (500 ft)
23*	Vertical beam deviation		Signal range	1	±3%	0.3% of full range
24*	Horizontal beam deviation		Signal range	1	—	0.3% of full range
25	Marker beacon passage		Discrete	1	—	—
26	Warnings		Discrete(s)	1	—	—
27	Each navigation receiver frequency selection		Sufficient to determine selected frequency	4	As installed	—
28*	DME 1 and 2 distances		0–370 km (0–200 NM)	4	As installed	1 852 m (1 NM)
29*	Navigation data (latitude/longitude, ground speed, drift angle, wind speed,wind direction)		As installed	2	As installed	As installed
30*	Landing gear and gear selector position		Discrete	4	—	—
31*	Engine exhaust gas temperature (T4)		As installed	1	As installed	
32*	Turbine inlet temperature (TIT/ITT)		As installed	1	As installed	
33*	Fuel contents		As installed	4	As installed	
34*	Altitude rate		As installed	1	As installed	
35*	Ice detection		As installed	4	As installed	
36*	Helicopter health and usage monitor system		As installed	_	As installed	
37	Engine control modes		Discrete	1	—	_
38*	Selected barometric setting (pilot and co-pilot)		As installed	64 (4 recommended)	As installed	0.1 mb (0.01 in Hg)
39*	Selected speed (all pilot selectable modes of operation)		As installed	1	As installed	Sufficient to determine crew selection
40*	Selected speed (all pilot selectable modes of operation)		As installed	1	As installed	Sufficient to determine crew selection
41*	Selected Mach (all pilot selectable modes of operation)		As installed	1	As installed	Sufficient to determine crew selection
42*	Selected vertical speed (all pilot selectable modes of operation)		As installed	1	As installed	Sufficient to determine crew selection

Serial #	Parameter	Applicability	Measure range	Recording intervals	Accuracy limits	Recording resolution
43*	Selected heading (all pilot selectable modes of operation)		As installed	1	As installed	Sufficient to determine crew selection
44*	Selected flight path (all pilot selectable modes of operation)		As installed	1	As installed	Sufficient to determine crew selection
45*	Selected decision height		As installed	4	As installed	Sufficient to determine crew selection
46*	EFIS display format (pilot and co-pilot)		Discrete(s)	4	—	—
47*	Multi-function/ engine/alertsdisplay format		Discrete(s)	4	—	—
48*	Event marker		Discrete	1	—	—
49*	GPWS/TAWS/GCAS status (selection of terrain display mode including pop-up displaystatus) and (terrain alerts, both cautions and warnings, and advisories) and (on/off switch position) and (operational status)	Application for type certificationis submitted to a Contracting Stateon or after 1 January 2023	Discrete(s)	1	As installed	
50*	TCAS/ACAS (traffic alert and collision avoidance system) and (operational status)	Application for type certificationis submitted to a Contracting State on or after 1 January 2023	Discrete(s)	1	As installed	
51*	Primary flight controls – pilot input forces	Application for type certificationis submitted to a Contracting Stateon or after 1 January 2023	Full range	0.125 (0.0625 recommended)	± 3% unless higher accuracyis uniquely required	0.5% of operating range
52*	Computed centre of gravity	Application for type certificationis submitted to a Contracting Stateon or after 1 January 2023	As installed	64	As installed	1% of full range
53*	Helicopter computed weight	Application for type certificationis submitted to a Contracting State on or after 1 January 2023	As installed	64	As installed	1% of full range

Note: The following requirements shall apply with effect from 1 January 2024.

TABLE D1

AIRCRAFT DATE RECORDING SYSTEMS

PARAMETERS GUIDANCE CHARACTERISTICS FOR AIRCRAFT DATA RECORDING SYSTEMS

N°	Parameter name	Parameter category	Minimum recordingrange	Maximum recording interval in seconds	Minimum recording accuracy	Minimum recording resolution	Remarks
1	Heading: (a) Heading (Magnetic or True) (b) Yaw rate		±180° ±300°/s	1 0.25	±2° ±1% + drift of 360°/h	0.5° 2°/s	*Heading is preferred, if not available, yaw rate shall be recorded
2	Pitch: (a) Pitch attitude (b) Pitch rate		±90° ±300°/s	0.25 0.25	±2° ±1% + drift of 360°/h	0.5° 2°/s	*Pitch attitude is preferred, if not available, pitch rate shall be recorded
3	Roll: (a) Roll attitude (b) Roll rate		±180° ±300°/s	0.25 0.25	±2° ±1% + drift of 360°/h	0.5° 2°/s	*Roll attitude is preferred, if not available, roll rate shall be recorded
4	Positioning system (a) Time (b) Latitude/Longitude (c) Altitude (d) Ground speed (e) Track		24 hours Latitude: ±90° Longitude: ±180° –300 m (–1 000 ft) to maximum certificate d altitude of aircraft +1 500 m (5 000 ft) 0-1 000 kt 0-360°	1 2 (if available) 2 (if available) 2 (if available) 2 (if available)	±0.5° As installed (0.00015° recommended) As installed (±15 m (±50 ft) recommended) As installed (±5 kt recommended) As installed (±2t	0.1° 0.00005° 1.5m(5 ft) 1 kt	UCT time preferred where available Shall be recorded if readily available

N°	Parameter name	Parameter category	Minimum recordingrange	Maximum recording interval in seconds	Minimum recording accuracy	Minimum recording resolution	Remarks
	(f) Estimate error		Available range	2 (if available)	recommended) As installed	0.5 ° As installed	
5	Normal acceleration		–3 g to + 6g	0.25 (0.125 if available)	As installed (±0.09 g excluding a datum error of ±0.05 g recommended)	0.004 g	
6	Longitudinal acceleration		±1 g	0.25 (0.125 if available)	As installed (±0.015 g excluding a datum error of ±0.05 g recommended)	0.004 g	
7	Lateral acceleration		±1 g	0.25 (0.125 if available)	As installed (±0.015 g excluding a datum error of ±0.05 g recommended)	0.004 g	
8	External static pressure (or pressure altitude)		34.4 hPa (1.02 in-Hg) to 310.2 hPa (9.16 in-Hg) or available sensor range	1	As installed (±1 hPa (0.3 in-Hg) or ±30 m (±100 ft) to ±210 m (±700 ft) recommended)	0.1 hPa (0.03 in-Hg) or 1.5 m (5 ft)	
9	Outside air temperature (or total air temperature)		–50° to +90°C or available sensor range	2	As installed (±2°C recommended)	1°C	
10	Indicated air speed		As the installed pilot display measuring system or available sensor range	1	As installed (±3% recommended)	1 kt (0.5 kt recommend ed)	
11	Main rotor speed (Nr)		50% to 130% or available sensor range	0.5	As installed	0.3% of full range	
12	Engine RPM (*)		Full range including	Each engine each second	As installed	0.2% of full range	*For piston-engine

N°	Parameter name	Parameter category	Minimum recordingrange	Maximum recording interval in seconds	Minimum recording accuracy	Minimum recording resolution	Remarks
			overspeed condition				helicopters
13	Engine oil pressure		Full range	Each engine each second	As installed (5% of full range recommended)	2% of full range	
14	Engine oil temperature		Full range	Each engine each second	As installed (5% of full range recommended)	2% of full range	
15	Fuel flow or pressure		Full range	Each engine each second	As installed	2% of full range	
16	Manifold pressure (*)		Full range	Each engine each second	As installed	0.2% of full range	*For piston-engine helicopters
17	Engine thrust/power/ torque parameters required to determine propulsive thrust/power*		Full range	Each engine each second	As installed	0.1% of full range	*Sufficient parameters e.g. EPR/N1 or torque/Np as appropriate to the particular engine shall be recorded to determine power. A margin for possible overspeed should be provided. Only for turbine-engine helicopters.
18	Engine gas generator speed (Ng) (*)		0–150%	Each engine each second	As installed	0.2% of full range	*Only for turbine-engine helicopters
19	Free power turbine speed (Nf) (*)		0–150%	Each engine each second	As installed	0.2% of full range	*Only for turbine-engine helicopters
20	Collective pitch		Full range	0.5	As installed	0.1% of full range	
21	Coolant temperature (*)		Full range	1	As installed (±5°C recommended	1°C	*Only for piston-engine helicopters
22	Main voltage		Full range	Each engine each second	As installed	1 Volt	

N°	Parameter name	Parameter category	Minimum recordingrange	Maximum recording interval in seconds	Minimum recording accuracy	Minimum recording resolution	Remarks
23	Cylinder head temperature (*)		Full range	Each cylinder each second	As installed	2% of full range	*Only for piston-engine helicopters
24	Fuel quantity		Full range	4	As installed	1% of full range	
25	Exhaust gas temperature		Full range	Each engine each second	As installed	2% of full range	
26	Emergency voltage		Full range	Each engine each second	As installed	1 Volt	
27	Trim surface position		Full range or each discrete position	1	As installed	0.3% of full range	
28	Landing gear position		Each discrete position*	Each gear every two seconds	As installed		*Where available, record up-and-locked and down-and-locked position
29	Novel/unique aircraft features		As required	As required	As required	As required	

2. Cockpit Voice Recorders

(1) A CVR shall start automatically to record the helicopter moving under its own power and continue to record, until the termination of the flight when the helicopter is no longer capable of moving under its own power; and

(2) A CVR, if possible, shall start to record the cockpit checks prior to engine start at the beginning of the flight, until the cockpit checks immediately following engine shutdown at the end of the flight.

(3) A CVR shall record on four separate channels or more, with reference to a time scale-

(a) voice communications transmitted from or received on the flight deck or in the cockpit by radio;

(b) the aural environment of the flight deck or cockpit, including without interruption, the audio signals received from each microphone in use;

(c) voice communications of flight crew members on the flight deck or in the cockpit using the interphone system of the helicopter, if installed;

(d) voice or audio signals identifying navigation or approach aids introduced into a headset or speaker;

(e) voice communications of flight crew members on the flight deck or crew members in the cockpit using the public address system of the helicopter, if installed; and

(f) in the case of a helicopter which is not required to be equipped with a flight data recorder, the parameters necessary to determine main rotor speed.

(4) To aid in voice and sound discrimination, microphones in the cockpit are to be located in the best position for recording voice communications originating at the pilot and co-pilot stations and voice communications of other crew members on the flight deck when directed to those stations. This can best be achieved by wiring suitable boom microphones to record continuously on separate channels.

(5) Performance requirements

(a) The CVR shall be capable of recording on at least four channels simultaneously. To ensure accurate time correlation between channels, the CVR shall record in an inline format. If a bi-directional configuration is used, the in-line format and channel allocation shall be retained in both directions.

(b) The preferred channel allocation is as follows-

(i) Channel 1 - co-pilot headphones and live boom microphone;

(ii) Channel 2 - pilot headphones and live boom microphone;

(iii) Channel 3 - area microphone; and

(iv) Channel 4 - time reference plus the third and fourth crew members' headphone and live microphone, if applicable.

Notes:

1. *Channel 1 is located closest to the base of the recording head.*

2. *The preferred channel allocation presumes use of current conventional magnetic tape transport mechanisms, and is specified because the outer edges of the tape have a higher risk of damage than the middle. It is not intended to preclude use of alternative recording media where such constraints may not apply.*

(c) The CVR, when tested by methods approved by the appropriate certificating authority, will be demonstrated to be suitable for the environmental extremes over which it is designed to operate.

(d) Means shall be provided for an accurate time correlation between the FDR and CVR.

(6) An operator of an helicopter equipped with a CVR for which an independent power source is required, shall ensure-

(a) that such power source is exclusive to the CVR and the cockpit area microphone components; and

(b) that such power source will automatically engage and provide ten minutes of operation whenever helicopter power to the recorder ceases, either by normal shutdown or by any other loss of power to the recorder.

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

3. Flight Recorders

(1) Flight recorders comprise four systems:

(a) a flight data recorder (FDR);

(b) a cockpit voice recorder (CVR);

(c) an airborne image recorder (AIR); and

(d) a data link recorder (DLR).

Note: *Image and data link information may be recorded on either the CVR or the FDR.*

(2) Lightweight flight recorders for helicopters comprise two systems-

(a) an airborne image recording system (AIRS); and

(b) a data link recording system (DLRS).

(3) FDR, CVR, AIRS and DLRS performance requirements and industry crashworthiness and fire protection specifications shall meet those specified in the EUROCAE ED-112, Minimum Operational Performance Specification (MOPS) for Crash Protected Airborne Recorder Systems, or equivalent documents.

Note: *Equivalent documents for flight recorders include:*

(a) US FAA AC 20-141A Digital Flight Data Recorders;

(b) ARINC 542A;

(b) ARINC 573-717;

(c) ARINC 717; and

(d) ARINC 647A.

(4) Installation of flight recorder systems

Flight recorders shall meet the prescribed crashworthiness and fire protection specifications and are to be installed so that-

(a) the probability of damage to the recordings is minimised in order that the recorded information may be preserved, recovered and transcribed. To meet this requirement it should be located as far aft as practicable;

(b) each unit receives its electrical power from a bus that provides the maximum reliability for operation of the recorder without jeopardizing service to essential or emergency loads;

(c) there is an aural or visual means for pre-flight checking that the recorder is operating properly;

(d) if the recorder system has a bulk erasure device, the installation shall be designed to prevent operation of the device during flight time or crash impact; and

(e) a means shall be provided for an accurate time correlation between the recorder systems functions.

(5) Each flight recorder container installed in the helicopter shall-

(a) be bright orange or bright yellow;

(b) have reflective tape affixed to the external surface to facilitate its location under water; and

(c) have an approved underwater location device on or adjacent to each container which is secured in such a manner they are not likely to be separated during crash impact.

(6) Where a flight recorder is installed, it shall not-

(a) be a source of danger in itself;

(b) prejudice the proper functioning of any essential service; and

(c) in anyway reduce the serviceability or airworthiness of the helicopter in which it is installed, even if the flight recorder fails to function.

(7) Inspections of flight recorder systems

(a) Prior to the first flight of the day, a check of the built-in test features on the flight deck for each installed flight recorder shall be conducted.

(b) Annual inspections shall be carried out as follows-

(i) the read-out of the recorded data from the flight recorder shall confirm that the recorder operates correctly for the nominal duration of the recording;

(ii) the analysis of the flight recorder shall evaluate the quality of the recorded data to determine whether the bit error rate is within acceptable limits and to determine the nature and distribution of the errors;

(iii) a complete flight from the flight recorder shall be examined in engineering units to evaluate the validity of all recorded parameters. Particular attention should be given to parameters from sensors dedicated to the recorder. Parameters taken from the helicopter's electrical bus system need not be checked if their serviceability can be detected by other helicopter systems;

(iv) the read-out facility should have the necessary software to accurately convert the recorded values to engineering units and to determine the status of discrete signals;

(v) an annual examination of the recorded signal for the CVR, or the recorded images on an AIR, should be carried out by re-play of the CVR or AIR recording. While installed in the helicopter, the CVR or AIR should record test signals from each helicopter source and from relevant external sources to ensure that all required signals meet intelligibility standards; and

(vi) where practicable, during the annual examination a sample of in-flight recordings of the CVR or AIR should be examined for evidence that the intelligibility of the signal is acceptable.

(c) Flight recorder systems shall be considered unserviceable if there is a significant period of poor quality data, unintelligible signals or if one or more of the mandatory parameters is not recorded correctly.

(d) When requested, a report of the annual inspection shall be made available to the Executive Director for monitoring purposes.

(e) Calibration of the FDR system-

(i) the FDR system should be recalibrated at least every five years to determine any discrepancies in the engineering conversion routines for the mandatory parameters and to ensure that parameters are being recorded within the calibration tolerances; and

(ii) when the parameters of altitude and airspeed are provided by sensors that are dedicated to the FDR system, a recalibration shall be performed as recommended by the sensor manufacturer but in no case longer than every two years.

4. Data link recorders

(1) The following shall apply to helicopter equipped with a data link recorder (DLR).

(2) DLRs are used to capture data link communications to and from an helicopter. Data link communications may be recorded on an FDR, CVR or a separate recorder.

(3) Where the helicopter's flight path is authorised or controlled through the use of data link messages, all data link messages, both uplinks (to the helicopter) and downlinks (from the helicopter), shall be recorded on the helicopter. As far as practicable, the time the messages were displayed to the flight crew and the time of the responses shall to be recorded.

(4) Sufficient information to derive the content of the data link communications message and, whenever practical, the time the messages were displayed to or generated by the flight crew shall be recorded.

(5) Messages applying to the applications listed below shall be recorded. Applications without the asterisk (*) are mandatory applications which shall be recorded regardless of the system complexity. Applications with an (*) are to be recorded only as far as is practicable given the architecture of the system:

Item No.	***Application Type***	***Application Description***	***Recording Content***
(a)	Data link initiation	This includes any applications used to log on to or initiate data C-link service. In future, this will include air navigation system (FANS-1/A) and the aeronautical telecommunication network (ATN). These are ATS facilities notification (AFN) and context management (CM) respectively	C
(b)	Controller pilot communication	This includes an application used to exchange requests, Communication clearances, instructions, and reports between the flight crew and controllers on the ground. In FANS-1/A and ATN, this includes the CPDLC application. It also includes applications used for the exchange of oceanic (OCL) and departure clearances DCL as well as data link delivery of taxi clearances.	C

(c)	Addressed surveillance	This includes any surveillance application in which the automatic dependent surveillances-contract (ADS-C) ground sets up contracts for delivery of surveillance data. In FANS-1/A and ATN, this includes the ADS-C application. Where parametric data are reported within the message they shall be recorded unless data from the same source are recorded on the FDR.	C*
(d)	Flight information	This includes any service used for delivery of flight information to specific aircraft. This includes, for example, data link aviation weather report service (D-METAR), data link-automatic terminal service (D-ATIS), digital Notice to Airmen(D-NOTAM) and other textual data link services.	C
(e)	Aircraft broadcast surveillance	This includes elementary and enhanced surveillance systems, as well as automatic dependent surveillance - broadcast (ADS-B) output data. Where parametric data sent by the aeroplane are reported within the message they shall be recorded unless data from the same source are recorded on the FDR.	M*
(f)	Aeronautical operational control data	shall include any application transmitting or receiving control data used for aeronautical operational control purposes.	M*

Notes:
Key:

C: means Complete contents recorded.

M: means information that enables correlation to any associated records stored separately from the aeroplane.

*: Applications to be recorded only as far as is practicable given the architecture of the system.

Note: *A Class B AIR could be a means for recording data link communications applications messages to and from the helicopters where it is not practical or is prohibitively expensive to record those data link communications applications messages on FDR or CVR.*

127.06.2 APPLICATION FOR THE ISSUANCE OR AMENDMENT OF AN AIR OPERATOR CERTIFICATE AND OPERATIONS SPECIFICATIONS

1. Application for operating certificate

(1) The form and manner referred to in CAR 127.06.2 on which application is made for the issuance or amendment of an air operator certificate (AOC) or operations specifications is referred to in this TS as the certification process. This process is designed to address the following certification actions-

(a) initial certification of an operator in terms of this Part;

(b) revision to any existing AOC or operations specification issued in terms of this Part;

(c) corrective certification action of an existing AOC or operations specification where deficiencies have been discovered through the continuing safety oversight programme, or where appropriate; or

(d) any other certification action requested by an operator, operating or desiring to operate in terms of this Part.

(2) The process used to accomplish any certification activity entails the applicant successfully completing the five phases of certification. An application may not progress where any phase is not completed satisfactorily. On this issue an applicant is cautioned of the need to review regulation 127.06.3(3). The five phases of certification are comprised of-

(a) the pre-application phase;

(b) the formal application phase;

(c) the documentation review phase;

(d) the demonstration and inspection phase; and

(e) the certification phase.

(3) As part of the certification process an applicant shall complete and submit the following as a minimum-

(a) for operators of an international commercial operation, a statement of compliance (SOC) document, which is the means by which the operator ensures him or herself and the Executive Director that the company will comply with all applicable regulatory requirements;

Note: *See paragraph (6) for more information on the SOC.*

(b) a number of application forms, depending upon the type of authority being applied for, which are intended to provide evidence of qualification for the specific authorities requested. The number and type of forms required vary with the size, scope and complexity of the proposed operation and are at the discretion of the certification officer; however, all will be made available to the applicant;

(c) copies of all required manuals; and

(d) payment of the application fee required by regulation 127.06.2(1) shall be non-refundable unless otherwise approved by the Executive Director.

(4) The applicant must submit to any inquiry or investigation, referred to in regulation 127.06.3(1), as deemed necessary in support of the application and to the certification audit referred to in regulation 127.06.5(1).

(5) With respect to the SOC, for each operator or applicant-

(a) a SOC is required whether applying for international authority;

(b) the SOC shall be in the form of a complete listing of all parts of the regulations, including technical standards, as applicable to the operation the applicant is proposing, with space for the applicant to show how each regulation applicable to him or her has been met through specific reference to the operator's operations, maintenance or other required manuals;

(c) the SOC shall be updated by operators to reflect amended regulatory requirements or if the references showing the means of compliance in the SOC change as a result of amendments to the operator's manuals; and

(d) the Executive Director may require the completion of a SOC by an operator at any time deemed necessary in the interest of public safety.

2. Required management positions

(1) An operator shall employ its chief executive officer and person responsible for flight operations or aircraft, and air safety officer on a full time basis to ensure proper control and supervision of its personnel and operation. An operator may employ on a full time basis or contract the remaining managers as listed in sub-regulation 127.06.2(5); however, if contracted, they shall devote sufficient time to the operator to ensure they can adequately discharge their duties. The operator shall designate the functions to be fulfilled by each of its managers. Section 3 of this TS states the minimum qualifications and responsibilities of the incumbents. The responsibilities listed in section 3 for the incumbent of any position may be assigned to another position as provided in paragraph (3),

(2) The application forms for the required managerial positions will be reviewed to ensure the minimum qualifications are met. The assessment process may involve the use of quizzes or interviews to establish the suitability of each nominee. Where a nominee is known within NCAA, the Executive Director may approve such nominee without the need for further assessment.

(3) An operator may use whatever title deemed necessary for its managers and may assign some of the responsibilities for a given position to another person or persons or the responsibilities of more than one position to one person; however, all the responsibilities noted in section 3 shall be assigned to a nominated manager and such assignment clearly identified in the operations manual. Furthermore, every person assigned any responsibility associated with a required position shall also meet the qualification requirements associated with the responsibilities assigned.

(4) An operator shall develop a method of ensuring that, in the absence of a responsible manager for any reason, all the responsibilities of that manager are assigned to another individual. Such individual shall meet the qualifications required for the responsibilities assigned except that the knowledge requirements may be

demonstrated to the operator rather than the Executive Director. Any assignment issued for a period greater than 30 days shall be acceptable to the Executive Director.

3. Approved positions, minimum qualifications and responsibilities

(1) Chief Executive Officer (CEO)

(a) Qualifications

The CEO shall not have had any conviction or administrative sanction under the Act or these Regulations which, in the view of the Executive Director, was sufficiently serious to render such person not fit and proper to exercise the responsibilities of such position.

(b) Responsibilities

The CEO shall-

(i) have full authority for all human resources;

(ii) have authority for major financial decisions;

(iii) have direct responsibility for the conduct of the company's affairs; and

(iv) have final responsibility for all safety and security issues.

(2) Person Responsible for Flight Operations (PRFO)

(a) Qualifications

The PRFO shall, as a minimum-

(i) hold or have held the pilot licence and ratings appropriate to the helicopters being operated or demonstrate adequate knowledge of the operation of such helicopters;

(ii) have acquired not less than 3 years supervisory experience in the flight operations department of an operator whose flight operations are similar in size and scope or acceptable alternative experience;

Notes-

1. In determining similar size of flight operations, the grouping of operators is based upon the following categories-

(a) helicopters having a maximum certificated passenger seating capacity of 0 up to and including 10;

(b) helicopters having a maximum certificated passenger seating capacity of 10 or more up to and including19; and

(c) helicopters having a maximum certificated passenger seating capacity of more than 19.

2. *The PRFO of an operator acquiring larger helicopters or increasing the complexity of its operations may continue in such position: Provided-*

   (a) the operator is not acquiring helicopters more than 1 category higher than presently operated; and

   (b) he or she becomes conversant with the new helicopter or new operations, as applicable, within 3 months of the change.

3. *A PRFO leaving an operator to take a PRFO position with another operator having a fleet of larger helicopters may do so: Provided-*

   (a) the new operator does not operate helicopters more than 1 category higher than those with which the PRFO has experience;

   (b) he or she had at least 3 years experience as the PRFO of the operator having smaller helicopters; and

   (c) he or she demonstrates adequate knowledge of the helicopters and flight operations of the new operator prior to acting in the position.

(iii) demonstrate knowledge to the Executive Director of the content of the operations manual, the operator's air operator certificate and operations specifications, as well as those provisions of the regulations and technical standards necessary to carry out his or her duties and responsibilities to ensure safety; and

(iv) not have had any conviction or administrative sanction under the Act or these Regulations which, in the view of the Executive Director, was sufficiently serious to render such person not fit and proper to exercise the responsibilities of such position.

(b) Responsibilities

The PRFO is responsible for safe flight operations, in particular-

(i) the control of operations and operational standards of all helicopters operated;

(ii) the identification of operations coordination functions which impact on operational control (e.g. maintenance, crew scheduling, load control, equipment scheduling);

(iii) the supervision, organisation, manning and efficiency of the following-

   (aa) flight operations;

   (bb) cabin safety;

   (cc) crew scheduling and rostering; and

   (dd) training programmes;

(iv) the timely resolution of safety issues;

(v) the contents of the operator's operations manual;

(vi) the supervision of and the production and amendment of the operations manual;

(vii) liaison with the regulatory authority on all matters concerning flight operations, including any variations to the operator's AOC;

(viii) liaison with any external agencies which may affect the operator's operations;

(ix) ensuring that the operator's operations are conducted in accordance with current regulations, standards and the operator's policy;

(x) ensuring that crew scheduling complies with flight and duty time regulations and that all crew members are kept informed of any changes to the regulations and standards;

(xi) the receipt and actioning of any aeronautical information affecting the safety of flight;

(xii) the dissemination of helicopter safety information, both internal and external, in conjunction with the safety management system;

(xiii) the qualifications of flight and cabin crews;

(xiv) the maintenance of a current operations library;

(xv) the professional standards of the flight crews under his/her authority, and in particular-

Note: *The following responsibilities are often delegated to a chief pilot, if appointed*.

(aa) developing standard operating procedures for inclusion in the AOM;

(bb) developing and/or implementing all required approved training programmes for the operator's flight crews;

(cc) issuing directives and notices to the flight crews as required;

(dd) the operational suitability and requirements of all aerodromes and routes served by the operator;

(ee) the processing and actioning of any flight crew reports; and

(ff) the supervision of flight crews.

(3) Person Responsible for Aircraft (PRA)

(a) Qualifications

The PRA shall, as a minimum-

(i) have or have held an aircraft maintenance engineer (AME) licence, issued in terms of Part 66, or:

(aa) at least have training and experience that may qualify the individual to obtain an AME licence;

(bb) hold or have held a pilot licence and ratings appropriate to the helicopters being operated or demonstrate adequate knowledge of the maintenance of such helicopters; or

(cc) hold an engineering degree in aeronautics, electrical, mechanical or avionics or other studies relevant to aircraft maintenance with 5 years' experience in the aviation domain after obtaining that qualification;

(ii) have at least two years experience in an executive position within aviation, or at least as a Quality Assurance Manager within the aviation domain;

(iii) have worked directly with the NCAA for at least one year and have not been the Quality Manager of the assigned maintenance organisation; and

(iv) not have had any conviction or administrative sanction under the Act or these Regulations which, in the view of the Executive Director, was sufficiently serious to render such person not fit and proper to exercise the responsibilities of such position.

(b) Responsibilities

The PRA is responsible for safe helicopter operations, in particular-

(i) is responsible for all maintenance and control;

(ii) ensures that company aircraft are maintained in an airworthy condition;

(iii) ensures that all inspections, repairs and component changes are accomplished in accordance with the manufacturer's approved procedures;

(iv) ensures compliance with maintenance procedures, airworthiness directives, service bulletins, service letters and the regulations;

(v) ensures all maintenance technicians are trained and current on the types of aircraft for which approved;

(vi) ensures that all maintenance technicians are certified and supervised according to the requirements specified in the Regulations;

(vii) is responsible for the production and amendment of the policy and procedures manual or maintenance control manual, as applicable;

(viii) coordinates with maintenance contracting agencies when maintenance activities are being performed on the operator's helicopters

(ix) provides the operations manager with the current airworthiness status of the helicopters and the forecast down times to facilitate maintenance scheduling and insure timely deferral or correction of helicopter discrepancies;

(x) maintains a close liaison with manufacturer's representatives, parts supply houses, repair facilities and the NCAA;

(xi) makes available to maintenance personnel the necessary overhaul manuals, service bulletins, service letters, airworthiness directives, applicable sections of the MCM/MPM and any other required technical data;

(xii) maintains all necessary work records and logbooks, including certification in the helicopter permanent maintenance records that the helicopter is approved for return to service;

(xiii) maintains the mass and balance records for all helicopters; and

(xiv) completes all required reports and submits them to the operations manager for forwarding to the NCAA.

(4) Air Safety Officer (ASO)

(a) Qualifications

The ASO shall, as a minimum, have-

(i) broad operational knowledge in the functions of the organisation or similar type of organisation;

(ii) completed an approved safety management system (SMS) course;

(iii) at least 2 years of experience closely involved in the management of an aviation safety programme, SMS or quality assurance programme;

(b) Responsibilities

The ASO is responsible for the operator's SMS and in particular-

(i) the establishment and maintenance of a reporting system to ensure the timely collection of information related to potential hazards, incidents and accidents that may adversely affect safety;

(ii) the identification of latent hazards and carry out risk management analyses of those hazards;

(iii) the investigation, analysis and identification of the root cause of all hazards or the contributing factors of incidents and accidents identified under the SMS to ensure the operator has adequate mitigation in place;

(iv) the establishment and maintenance of a safety data system, either by electronic or by other means, to monitor and analyse trends in hazards, incidents and accidents;

(v) the maintenance of a continuous monitoring system that evaluates the results of corrective actions with respect to hazards, incidents and accidents;

(vi) the monitoring of the concerns of the civil aviation industry in respect of safety and their perceived effect on the operator;

(vii) the co-ordination of the organisation's aviation safety programme and all related safety matters;

(viii) co-operation with the training section with regard to safety training of flight, cabin and ground crews, as applicable;

(ix) the supervision of aircraft handling regarding matters related to safety in co-operation with ground support services;

(x) the investigation of all incidents and accidents involving the organisation's aircraft, equipment and property, including fire and emergency procedures, not undertaken in accordance with Part 12;

(xi) the actioning and distribution of accident, incident and other occurrence reports;

(xii) the co-ordination with security personnel to ensure all aspects of security regarding the organisation's aircraft;

(xiii) the development and maintenance of a mandatory occurrence reporting scheme;

(xiv) the establishment of an emergency plan in the event of an accident, which includes the actions to be followed by relevant personnel;

(xv) in concert with the person responsible for quality, the maintenance of a quality assurance programme within the organisation; and

(xvi) the realisation of other duties which include-

(aa) promulgation of flight safety bulletins to all staff within the organisation;

(bb) conducting meetings with all relevant personnel regarding safety matters;

(cc) maintenance of safety equipment;

(dd) safety audits; and

(ee) occupational health and safety.

(5) Quality Assurance Manager (QAM)

(a) Qualifications

The QAM shall, as a minimum, have-

(i) grade 12 school level or equivalent;

(ii) certificate/s or diploma in quality management; and

(iii) at least 5 years experience in implementation and maintenance of quality management systems.

(b) Responsibilities

The QAM is responsible for ensuring that the operator’s quality assurance programme is properly established, implemented and maintained and in particular-

(i) the monitoring of compliance with, and the adequacy of, the procedures required to ensure safe operational practices and airworthy aircraft;

(ii) the monitoring of activity in flight operations, maintenance, crew training and ground operations, to ensure that the standards required by the Executive Director, and any additional requirements defined by the operator, are being met; and

(iii) any additional tasks that may be assigned with respect to the financial and non-operational efficiency aspects of the company.

(6) Security Manager (SM)

(a) Qualifications

The SM shall, as a minimum, have-

(i) broad operational knowledge in the functions of the organisation or similar type of organisation;

(ii) completed an approved aviation security course or other course related to aviation security; and

(iii) at least 2 years of experience closely involved in the field of security or a combination of experience in aviation and training in security acceptable to the Executive Director.

(b) Responsibilities

The SM is responsible for ensuring that the operator's security programme is properly established, implemented and maintained and in particular-

(i) the monitoring of compliance with, and the adequacy of, the procedures established to ensure the security of the operator's facilities, aircraft and personnel through an inspection/audit programme;

(ii) the provision of training in all matters related to security either directly or through the operator's training department;

(iii) the identification of threats to aviation security, notification to the appropriate authority of such threats and the development of countermeasures to combat those threats, if applicable; and

(iv) liaising with aerodrome security personnel and other law enforcement authorities with respect to security matters.

127.06.3 CONSIDERATION OF AN APPLICATION FOR THE ISSUANCE OF AN AIR OPERATOR CERTIFICATE OR OPERATIONS SPECIFICATIONS

1. Document format and layout

The format and content of all Namibia air operator certificates (AOCs) and associated operations specifications (OpsSpecs) shall be as prescribed by Appendix 6, to Annex 6, Part 1 of the ICAO Annexes.

2. Contents of an Air Operator Certificate

Each AOC shall contain at least the following information-

(a) the State of the Operator and the issuing authority;

(b) the AOC number and its expiration or valid to date or other means to indicate its validity;

(c) the operator's name, trading name (if different) and address of the principal place of business;

(d) the date of issue and the name, signature and title of the authority representative; and

(e) the location, in a controlled document carried on board, where the contact details of operational management can be found.

Note: *For the purposes of establishing a controlled document to provide the information required by paragraph (e) an operator's operations manual is considered a good means of compliance provided it is contained in a Part of the operations manual required to be carried on board the operator's helicopters at all times*.

3. Contents of an Operations Specification

Operations specifications are issued in different parts and contain the following information as applicable to the authority being granted by the operations specification:

(a) telephone number;

(b) AOC number;

(c) business name of the operator including "doing business as" (dba), where applicable;

(d) date of issue of the operations specification;

(e) helicopter makes, types and models to which the specification applies;

(f) areas and types of operations approved; and

(g) special limitations, authorisations and approvals.

Note: *For more information with respect to the AOCs or associated operations specifications an operator/applicant should contact the Certification Division of the Namibia Civil Aviation Authority*.

127.06.5 SAFETY AND SECURITY INSPECTIONS AND AUDITS

1. Classifications of findings or non-compliance

(1) NCAA for oversight in accordance with TS shall have a system to analyse findings for their safety significance.

(2) A level 1 finding shall be issued by the Authority when any significant noncompliance is detected with the applicable requirements of Civil Aviation Act, 2016, NAM-CARS and NAM-CATS, with the organisation's procedures and manuals or with the terms of an approval, certificate, specialised operation authorisation or with the content of a declaration which lowers safety or seriously hazards flight safety or security.

(a) The level 1 findings shall include:

(i) failure to give the Authority access to the facilities of the organisation during normal operating hours and after two written requests;

(ii) obtaining or maintaining the validity of the organisation certificate or specialised operations authorisation by falsification of submitted documentary evidence;

(iii) evidence of malpractice or fraudulent use of the organisation certificate or specialised operations authorisation; and

(iv) the lack of an accountable manager.

(3) A level 2 finding shall be issued by the Authority when any non-compliance is detected with the applicable requirements of NAMCARS and NAMCATS, with the organisation's procedures and manuals or with the terms of an approval, certificate, specialised operation authorisation or with the content of a declaration which could lower safety or hazard flight safety or security.

(4) A level 3 finding shall be issued by the Authority when a non-compliance or finding is identified which may not necessarily lower safety or hazard flight safety or security on its own. It is the responsibility of the approval holder to rectify and shall not necessitate a follow-up inspection. The approval holder is required to notify the Authority when rectification has been effected. These findings are normally administrative in nature. Generally, a response containing corrective actions shall be received within 14 working days and no later.

(5) An observation shall be issued by the Authority when a practice or condition that indicates a trend that could lead to a future non-compliance is identified. It is highly recommended that an operator shall respond to the observation.

(6) When a finding is detected during oversight or by any other means, the Authority shall, without prejudice to any additional action required by NAMCARS and NAMCATS, communicate the finding to the organisation in writing and request corrective action to address the non-compliance(s) identified. Where relevant, the Authority shall inform the State in which the aircraft is registered.

(a) In the case of level 1 findings, the Authority shall take immediate and appropriate action to prohibit or limit activities, and if appropriate, it shall take action to revoke the certificate, specialised operations authorisation or specific approval or to limit or suspend it in whole or in part, depending upon the extent of the level 1 finding, until successful corrective action has been taken by the organisation.

(b) In the case of level 2 findings, the Authority shall:

(i) grant the organisation a corrective action implementation period appropriate to the nature of the finding that in any case initially shall not be more than three months. At the end of this period, and subject to the nature of the finding, the competent authority

may extend the three-month period subject to a satisfactory corrective action plan agreed by the A authority; and

(ii) assess the corrective action and implementation plan proposed by the organisation and, if the assessment concludes that they are sufficient to address the noncompliance(s), accept these.

(c) Where an organisation fails to submit an acceptable corrective action plan, or to perform the corrective action within the time period accepted or extended by the competent authority, the finding shall be raised to a level 1 finding and action taken as laid down in (4)(1).

(d) The Authority shall record all findings it has raised or that have been communicated to it in accordance with point (e) and, where applicable, the enforcement measures it has applied, as well as all corrective actions and date of action closure for findings.

(7) Without prejudice to any additional enforcement measures, when the Authority identifies any non-compliance with the applicable requirements of its Regulations and its Standards by an organisation certified by, or authorised by or declaring its activity to the authority of another Member State, it shall inform that competent authority of that State and provide an indication of the level of finding.

.127.07.2 APPLICATION FOR FOREIGN AIR OPERATOR PERMIT OR AMENDMENT OF FOREIGN AIR OPERATOR PERMIT

1. Form of application

The form referred to in CAR 127.07.2, in which application must be made for the issuing of a foreign air operator permit, or an amendment thereof, are found on NCAA website under Forms and Applications.

127.07.3 ASSESSMENT OF APPLICATION AND ISSUE OF PERMIT

1. Form of permit

The form referred to in CAR 127.07.3(4), on which a foreign air operator permit is issued, are found on NCAA website under Forms and Applications.

127.07.7 RENEWAL OF PERMIT

1. Form of application

The form in which an application for the renewal of a foreign air operator permit must be made, are found on NCAA website under Forms and Applications

127.08.1 ROUTES AND AREAS OF OPERATION AND AERODROME FACILITIES

1. Use of Offshore Alternates

The following are the requirements associated with using offshore alternates-

(a) the offshore alternates shall be used only after a point of no return (PNR). Prior to a PNR, onshore alternates shall be used;

(b) mechanical reliability of critical control systems and critical components shall be considered and taken into account when determining the suitability of the alternates;

(c) one-engine inoperative performance capability shall be attainable prior to arrival at the alternate;

(d) to the extent possible, deck availability shall be guaranteed; and

(e) weather information must be reliable and accurate.

2. Destination Alternate Aerodrome Planning Minima

(1) Except as provided in paragraph (2), an operator shall meet the applicable planning minima specified in the following table in order to select an aerodrome as a destination alternate, when required-

Approach and landing	Ceiling	Visibility conditions provisions
Aerodromes supporting instrument approach and landing operations, but not supporting straight-in approach and landing operations to at least two runway ends.	Applicable aerodrome operating minima plus an increment of 400ft	Applicable aerodrome operating minima plus an increment of 1 500m
Aerodromes supporting straight-in approach operation suitable runway supporting an instrument and landing to different runways.	Applicable aerodrome operating minima plus an increment of 200ft	Applicable aerodrome operating minima plus an increment of 800m
Aerodromes supporting a minimum of two instrument approach and landing operations to different suitable runways, at least one shall be CAT II or III.	For CAT II operations at least 300ft For CAT III operations at least 200ft	For CAT II operations, a prevailing visibility corresponding to at least an RVR of 1 200m For CAT III operations, a prevailing visibility corresponding to at least an RVR of 550m

Note: *The term "different suitable runways" may denote either two or more separate runways or a single runway with a straight-in instrument approach and landing procedure to each end of the runway.*

(2) The criteria specified in paragraph (1) need not be complied with: Provided alternative selection criteria are submitted by the operator that are developed as a result of a safety risk assessment, based on the operator's SMS programme, which provide a level of safety equivalent to that in paragraph (1) and are approved by the Executive Director.

127.08.9 REFUELLING AND DEFUELLING WITH PASSENGERS ON BOARD

1. A helicopter shall not be refuelled, rotors stopped or turning, when

(a) passengers are embarking or disembarking; or

(b) when oxygen is being replenished;

2. If the helicopter is refuelled with passengers on board, rotors stopped or turning, it shall be properly attended by sufficient qualified personnel ready to initiate and direct an evacuation of the helicopter by the most practical, safe and expeditious means available. In order to achieve this:

(a) helicopter ground power generators or other electrical ground power supplies are not being connected or disconnected;

(b) combustion heaters installed on the helicopter such as integral cabin heaters are not operated;

(c) a constant two-way communication is maintained by the helicopter's inter-communication system or other suitable means between the ground crew supervising the refuelling and the qualified personnel on board the helicopter;

(d) weather-mapping radar equipment in the helicopter is not operated unless in accordance with the manufacturer's approved helicopter flight manual where the manual contains procedures for use of the radar equipment during fuelling;

(e) helicopter batteries are not being removed or installed;

(f) helicopter-borne APUs which have an efflux discharging into the zone are not started after filler caps are removed or fuelling connections are made;

(g) if an auxiliary power unit is stopped for any reason during fuelling it shall not be restarted until the flow of fuel has ceased and there is no risk of igniting fuel vapours; however, the APU may be operated in accordance with the manufacturer's approved helicopter flight manual if the manual contains procedures for starting the APU during fuelling;

(h) electric tools or similar tools likely to produce sparks or arcs are not being used;

(i) photographic equipment is not used within 3 metres of the fuelling equipment or the fill or vent points of the helicopter fuel systems;

(j) the flight crew shall ensure that the passengers are briefed on what actions to take if an incident occurs during refuelling; and

Note. – Caution needs to be exercised when using radios for this purpose due to the potential for stray currents and radio-induced voltages.

(k) during an emergency shutdown procedure, the flight crew shall ensure that any personnel or passengers outside the helicopter are clear of the rotor area.

3. fuelling is immediately suspended when there are lightning discharges within 8 km of the aerodrome;

4. a helicopter is fuelled in accordance with manufacturer's procedures for that type of helicopter;

5. a helicopter emergency lighting system is armed or on, if applicable;

6. "No Smoking" signs on board the helicopter are illuminated, if installed;

7. procedures are established to ensure that passengers do not smoke, operate portable electronic devices or otherwise produce sources of ignition;

8. at least the entry door through which the passengers embarked is designated as the evacuation exit during fuelling and is open;

9. the designated evacuation exits during fuelling are identified by helicopter type and published in the operator's operations manual and are clear and available for immediate use by passengers and crew members if an evacuation is required;

10. the operator has procedures in place to ensure that there is a ready escape route from each designated evacuation exit during fuelling;

11. a member of the flight crew or a person designated by the operator who has received training in fuelling operations with passengers on board shall be in attendance and identified to the passengers as the person responsible for cabin safety during the fuelling procedures;

12. the emergency exit shall be opposite to where the refuelling or defueling is taking place;

13. doors on the refuelling side of a helicopter remain closed where possible, unless these are the only suitable exits;

14. doors on the non-refuelling side of the helicopter remain open, weather permitting, unless otherwise specified by the RFM;

15. fire-fighting facilities of the appropriate scale must be positioned so as to be immediately available in the event of a fire;

16. if the presence of fuel vapour is detected inside the helicopter, or any other hazard arises during refuelling, fuelling shall be stopped immediately;

17. the ground or deck area beneath the exits intended for emergency evacuation shall be kept clear;

18. seat belts shall be unfastened to facilitate rapid egress;

19. with rotors turning, only ongoing passengers shall remain on board;

20. a helicopter shall not be refuelled with AVGAS (aviation gasoline) or wide-cut type fuel or a mixture of these types of fuel, when passengers are on board; and

21. a helicopter shall not be defueled at any time when:

    (i) passengers remain on board; or

    (ii) passengers are embarking or disembarking; or

    (iii) oxygen is being replenished.

127.08.10 FUEL POLICY

1. VFR Flight

The fuel and oil carried shall, in the case of VFR operations, be at least the amount sufficient to allow the helicopter-

(a) to fly to the aerodrome to which the flight is planned;

(b) to fly thereafter for a period of 20 minutes at best-range speed; and

(c) to have an additional amount of fuel, sufficient to provide for the increased consumption on the occurrence of any of the potential contingencies specified in section 3.

2. IFR Flight

The fuel and oil carried shall, in the case of IFR operations, be at least the amount sufficient to allow the helicopter-

(a) when an alternate is not required, to fly to and execute an approach, and a missed approach, at the aerodrome to which the flight is planned, and thereafter-

(i) to fly 30 minutes at holding speed at 1 500 ft above the destination aerodrome under standard temperature conditions and approach and land; and

(ii) to have an additional amount of fuel, sufficient to provide for the increased consumption on the occurrence of any of the potential contingencies specified in section 3;

(b) when an alternate is required, to fly to and execute an approach, and a missed approach, at the aerodrome to which the flight is planned, and thereafter-

(i) to fly to the alternate specified in the flight plan; and then

(ii) to fly for 30 minutes at holding speed at 1 500ft above the alternate under standard temperature conditions, and approach and land; and

(iii) to have an additional amount of fuel, sufficient to provide for the increased consumption on the occurrence of any of the potential contingencies specified in section 3; and

(c) when the destination is isolated or no suitable alternate is available, as provided in regulation 127.07.1(8)(b), sufficient fuel shall be carried to enable the helicopter to fly to the destination to which the flight is planned and thereafter for a period that will, based on geographic and environmental considerations, enable a safe landing to be made.

3. Contingency fuel

At the planning stage, not all factors which could have an influence on the fuel consumption to the destination aerodrome can be foreseen. Therefore, contingency fuel is carried to compensate for items that may be reasonably anticipated such as-

(1) deviations of an individual helicopter from the expected fuel consumption data;

(2) deviations from forecast meteorological conditions; and

(3) deviations from planned routings and/or cruising levels/altitudes.

127.08.11 IMC OR NIGHT FLIGHT WITHOUT A SECOND-IN-COMMAND

1. General

This technical standard states the provisions for the operation of a helicopter with passengers on board in flight in instrument meteorological conditions (IMC) or at night without a second-in-command.

Note: *The term "single-pilot IFR" will be used to denote a pilot authorised to fly in IMC or at night without a second-in-command.*

2. Helicopter/equipment requirements

In addition to the equipment required by Subpart 5 of Part 127, a helicopter involved in a single-pilot operation in IMC or at night shall be equipped with-

(a) an auto-pilot or other means that is capable of operating the helicopter controls to maintain flight and manoeuvre the helicopter about the lateral and longitudinal axes;

(b) a headset with a boom microphone or equivalent and a transmit button on the cyclic or collective stick; and

(c) a chart holder that is placed in an easily readable position and a means of illumination for the chart holder.

3. Pilot qualification, training and proficiency requirements.

(1) An operator may not conduct single-pilot IMC or night flight operations unless the PIC, within the preceding 90 days, has completed the following single-pilot training in the helicopter, a FSTD or a combination of helicopter and FSTD-

(a) if flight in IMC is to be undertaken:

(i) at least two instrument departures, under simulated or actual IMC which shall include at least one simulated engine failure after take-off in a simulator or under simulated IMC;

(ii) a minimum of five approaches consisting of at least two precision or non-precision approaches;

(iii) in a multi-engine helicopter:

(aa) at least one missed approach during which an engine failure is introduced;

(bb) at least one engine-out approach; and

(cc) at least three landings from approaches, one of which shall be with an engine out; and

(b) if night flight is to be undertaken, five take-offs and landings at night.

Notes:

1. Only a FSTD that is representative of the helicopter to be flown, including navigation systems and flight deck layout, shall be approved for use.

2. Training shall include use of the autopilot with and without the introduction of abnormal and emergency conditions.

3. Any engine-out training done in the helicopter must be simulated.

4. Single engine helicopters are not subject to the engine-out training requirements.

(2) Before any pilot may be recommended for a pilot proficiency check (PPC) to be carried out in the single-pilot environment as outlined in paragraph (4), such pilot shall receive specialised training in the operator's approved procedures for single-pilot IFR operations.

(3) The PPC shall be in the helicopter type or variant flown unless the operator has been approved for helicopter grouping for training and PPC purposes, in which case the sequencing of the PPCs shall be as provided in such approval and shall be conducted so as to include at least the following-

(a) knowledge of the regulatory and company operating procedures relating to single-pilot IMC/night flight;

(b) knowledge of the operations and limitations of the system, referred to in section 2(a) above;

(c) performance of normal and emergency procedures as a single pilot without assistance;

(d) passenger briefings as required by this Subpart including emergency briefings and cabin preparation for emergency evacuation; and

(e) demonstration of the use of the system, referred to in section 2(a) above.

(4) Where a pilot successfully completes a single-pilot IFR proficiency check the pilot's licence or other document provided for that purpose shall be endorsed for single-pilot IFR.

4. Special conditions and procedures.

(1) An operator must publish in its operations manual specific procedures with respect to the operation of its helicopters in IMC or at night without a second-in-command including the need to carry a copy of its authority to transport passengers in IMC or at night without a second-in-command.

(2) All flights operated in accordance with IFR shall be conducted at or below the altitude at which the pilot is not required by these Regulations to be using continuous oxygen.

(3) A pilot's single-pilot IFR proficiency may be transferred to another operator: Provided-

(a) the proficiency validity has not yet expired;

(b) the helicopters to be operated are of the same type and variant on which the current PPC was conducted;

(c) the pilot has received training to ensure the pilot is familiar and competent in all procedures used by the operator; and

(d) the operator is authorised in its operations specification to transport persons in helicopters in IMC without a second-in-command.

127.08.18 OPERATIONS WITH HEAD-UP DISPLAYS, VISION SYSTEMS OR NIGHT VISION GOGGLES

1. Introduction

(1) This TS provides guidance for the approval for use of automatic landing systems, head-up displays (HUD), equivalent displays, vision systems (EVS) and Night Vision Goggles' (NVG) intended for installation and operational use in helicopters engaged in line operations. These systems and hybrid systems may be installed and operated to enhance situational awareness or to obtain an operational credit such as lower minima for take-off, approach or landing operations. HUD and EVS may be installed separately or together as part of a hybrid system. Use of these systems during instrument flight or at night and any operational credit gained from their use requires approval from the Executive Director.

Note: *"Vision systems" is a generic term referring to the existing systems designed to provide images, i.e. EVS, SVS and CVS.*
Note: *Automatic landing system-helicopter is an automatic approach using airborne systems which provide automatic control of the flight path, to a point aligned with the landing surface, from which the pilot can transition to a safe landing by means of natural vision without the use of automatic control.*

(2) No pilot may use a HUD, EVS or NVG in flight unless such pilot has received the training and checking specified in this TS.

(3) No operator shall permit anyone to use a HUD, EVS or NVG in flight under IFR in a helicopter so equipped unless the helicopter has been approved for such flight as specified in this TS.

2. Head-up displays

(1) HUD may be used -

(a) to supplement conventional flight deck instrumentation; or

(b) as a primary flight display if certified for this purpose.

(2) An air service operator who has been approved to use an HUD may -

(a) operate with reduced visibility or reduced RVR; or

(b) replace the guidance of certain ground facilities such as touchdown zone or centre line lights.

(3) The functions of an HUD may be provided by a suitable equivalent display: Provided that the appropriate airworthiness approval has been obtained for such a display.

(4) Ground training in the use of the HUD shall be accomplished at an approved training organisation (ATO). The training shall address all flight operations for which the HUD, or equivalent display is used.

(5) Flight training of at least two hours shall be accomplished using a helicopter or flight simulation training device (FSTD) equipped with the same type of HUD to be used in the helicopter. The training shall consist of normal, abnormal and emergency use of the equipment throughout all flight phases, a variety of take-off and approach conditions and shall include -

(a) pilot seat adjustment to attain and maintain appropriate viewing angles and verification of HUD operating modes;

(b) operations during critical flight events (ACAS TA/RA, upset and wind shear recovery, engine or system failure, etc.);

(c) crew co-ordination, monitoring and verbal call-out procedures for single HUD installations with head-down monitoring for pilot-not-equipped with HUD and head-up monitoring for pilot-equipped with HUD;

(d) crew co-ordination, monitoring and verbal call-out procedures for dual HUD installations with use of the HUD by the pilot flying the helicopter and either head-up or head-down monitoring by the other pilot; and

(e) use during low visibility operations, including taxi, take-off, instrument approach and landing in both day and night conditions. This training shall include the transition from head-down to head-up and head-up to head-down operations.

3. Vision systems

(1) Vision systems can display electronic real-time images of the actual external scene achieved through the use of image sensors such as. CVS, or display synthetic images, which are derived from the on-board avionics systems. Vision systems can also consist of a combination of these two systems, called combined vision systems. The information from vision systems may be displayed head-up or head-down. Such system may display electronic real-time images of the external scene using the EVS component of the system. Operational credit may be granted to vision systems which are appropriately qualified.

(2) Light emitting diode (LED) lights may not be visible to infrared-based vision systems. Operators of such vision systems must acquire information about the LED implementation programmes at aerodromes where they intend to operate.

(3) The use of EVS-

(a) shall allow the pilot to view an image of the external scene obscured by darkness or other visibility restrictions;

(b) shall allow acquisition of an image of the external scene earlier than with natural, unaided vision, hence providing for a smoother transition to references by natural vision;

(c) may improve situational awareness;

(d) may qualify for operational credit if the information from the vision system is presented to the pilots in a suitable way and the necessary airworthiness approval and specific approval from the Executive Director has been obtained for the combined system; and

(e) enable pilots to detect other aircraft on the ground, terrain or obstructions on or adjacent to runways or taxiways.

(4) For an operator who wishes to use EVS in IFR flight, EVS ground training shall be accomplished at an ATO or as part of an approved training programme. The programme shall include, as a minimum, the following-

(a) an understanding of the system characteristics and operational constraints;

(b) normal procedures, controls, modes and system adjustments;

(c) EVS limitations;

(d) failure modes of the EVS and the impact of the failure modes or limitations upon crew performance, in particular, for two-pilot operations; and

(e) any effects that weather, such as low ceilings and visibilities, may have on the performance of an EVS.

(5) For an operator who wishes to use EVS in IFR flight, flight training shall be accomplished using a helicopter or FSTD equipped with the same type of EVS to be used in the helicopter. The training shall consist of normal, abnormal and emergency use of the equipment throughout all flight phases, a variety of approaches and take-off conditions and shall include -

(a) enhanced vision display during low visibility operations, including (hover-) taxi, take-off, instrument approach and landing and system use for instrument approach procedures in both day and night conditions;

(b) crew co-ordination and monitoring procedures and pilot call-out responsibilities;

(c) transition from enhanced imagery to visual conditions during the runway visual acquisition; and

(d) rejected landing due to loss of visual cues of the landing area, touchdown zone or rollout area.

4. HUD and vision systems approval

(1) For operations with an automatic landing system, an HUD or an equivalent display, a vision system or a hybrid system the following requirements shall be met -

(a) an operator shall obtain operational and airworthiness approval for the use of a HUD, EVS or NVG for IFR or at night;

(b) for enhanced situational awareness, the installation and operational procedures shall ensure that EVS and NVG operations do not interfere with normal procedures or the operation or use of other helicopter systems;

(c) HUD, EVS or NVG as applicable, installed in aircraft in the State of Manufacture shall meet the airworthiness requirements of such State. Provided an owner or operator can submit evidence of meeting the requirements of the State of Manufacture, airworthiness approval for the use of the HUD, EVS or as applicable, in that helicopter shall be given;

(d) prior to installing a HUD. EVS or as applicable, as a retrofit, an owner or operator shall contact the authority to determine the airworthiness requirements associated with its approval for use;

(e) an airworthiness approval issued to an operator for a helicopter shall be valid for any other helicopter of the same type operated by such operator: Provided the HUD. EVS or NVG equipment, as applicable, is the same in each helicopter;

(f) an airworthiness approval issued to a helicopter type may be extended to other helicopter types: Provided the Executive Director is of the opinion that the other aircraft types have sufficient

commonality with the approved helicopter and the HUD or EVS equipment, as applicable, is the same in all the helicopters;

(g) pilots shall pass a knowledge test following the ground training and a skills test following the flight training, both of which shall be administered by the operator or an authorised person. Upon successful completion of the skills test, the operator shall record the candidate's qualification to operate with a HUD, EVS or NVG as applicable, in his or her training records;

(h) annual recurrent training in the use of a HUD. EVS or as applicable, shall be accomplished; and

(i) systems that are not used for an operational credit or otherwise critical to the aerodrome operating minima, such as vision systems used to enhance situational awareness may be used without a specific approval. The standard operating procedures for these systems shall be specified in the operations manual or an equivalent document.

Note: *Operational credit includes:*

1. *for the purpose of an approach ban, a minima below the aerodrome operating minima;*
2. *reducing or satisfying the visibility requirements; or*
3. *requiring fewer ground facilities as compensated for by airborne capabilities.*

(2) To obtain specific approval for operational credit, the vision systems compliance list shall include the information that is relevant to the specific approval requested and the registration marks of the helicopter involved. If more than one type of helicopter or fleet is included in a single application a completed compliance list shall be included for each helicopter or fleet. The following items shall be covered in a vision systems compliance list -

(a) reference documents used in compiling the submission for approval;

(b) flight manual;

(c) feedback and reporting of significant problems;

(d) requested operational credit and resulting aerodrome operating minima;

(e) operations manual entries including MEL and standard operating procedures;

(f) safety risk assessment;

(g) training programmes; and

(h) continuing airworthiness

Note: *More detailed information and guidance on automatic landing systems, HUD or equivalent displays. EVS. SVS. and CVS is contained in AIC for All-Weather Operations.*

Note: *Guidance on safety risk assessments is contained in the AIC for Safety Management System (SMS).*

127.08.19 OPERATIONS WITH ELECTRONIC FLIGHT BAGS

1. Introduction

(1) This TS provides guidance for the approval for use of installed and portable electronic flight bags (EFB).

(2) Installed EFBs may be incorporated during -

(a) an aeroplane type design;

(b) by a change to the type design; or

(c) if added by a STC.

(3) Portable EFBs are not considered to be part of the certified helicopter configuration. They do not require airworthiness approval but do require an operational approval.

2. Airworthiness approval

(1) Portable EFBs that do not require airworthiness approval-

(a) are generally commercial-off-the-shelf (COTS)-based computer systems used for helicopter operations (e.g. laptop, tablet PC);

(b) are not attached to a helicopter mounting device;

(c) are considered to be a controlled portable electronic device (PED);

Note: *A controlled PED is a PED that is subject to administrative control by the company. This will include, inter alia, tracking the location of the devices to specific helicopters or persons and ensuring that no unauthorized changes are made to the hardware, software or databases. A controlled PED will also be subject to procedures to ensure that it is maintained to the latest amendment state*.

(d) may only connect to helicopter power through a certified power source;

Note- *The EFB power source should be designed such that it may be deactivated at any time. Where there is no possibility for the flight crew to quickly remove or unplug the power to the EFB system, a clearly labelled and conspicuous means (e.g. on/off switch) should be provided. Circuit breakers are not to be used as switches; their use for this purpose is prohibited.*

(e) are normally without helicopter data connectivity except under specific conditions; and

Notes- *Data connectivity of the EFB to other helicopter systems is not authorised except if the EFB system is connected to-*

1. *a system completely isolated from the avionics/helicopter systems (e.g., EFB system connected to a transmission medium that receives and transmits data for Aircraft Administrative Communications (AAC) purposes for usage on the ground only); and*

2. *a certified data link to receive data only from helicopter systems, where the data link, through the certification process, has an approved security device to protect the helicopter systems from receiving any data from the EFB system and from the installation or use of unauthorised applications and data. Through the certification process, this data link should also have been demonstrated to protect the installed helicopter systems from adverse effects due to EFB*

system failures. Subject to the above provisions, there is no further evaluation required when connecting the EFB system to the helicopter data link port.

(f) shall be secured during critical phases of flight.

(2) Even though portable EFBs do not require an airworthiness approval as they are "non-installed equipment", EMI demonstrations, batteries/power sources, data connectivity and rapid depressurization shall be assessed if the Executive Director so determines.

(3) For EFBs other than those addressed in paragraph (1), the entire EFB, or some elements of the EFB, shall require an airworthiness approval. Elements to be subject to airworthiness approval are determined upon analysis of their interface with helicopter systems and equipment. These EFBs shall be included as part of the minimum equipment list (MEL), if applicable.

(4) EFBs integrated into the helicopter as part of its initial design or installed later as a retrofit in accordance with the requirements of the State of Manufacture shall be given approval: Provided the operator can submit evidence of having met the requirements of the State of Manufacture.

(5) For helicopters without the evidence specified in paragraph (4), an operator shall contact the NCAA to determine the airworthiness requirements associated with its approval for use prior to installing an EFB as a retrofit.

3. Operational approval

(1) An operator transitioning to a paperless flight deck (i.e., removal of charts, manuals, etc.) shall complete the requirements specified in paragraphs (2) to (6), inclusive, prior to operating with an EFB.

(2) Operational approval is contingent on the operator completing ground training for personnel using the EFB system. The programme shall include, as a minimum-

(a) an overview of the system architecture;

(b) pre-flight checks of the system;

(c) limitations of the system;

(d) the use of each operational function on the EFB;

(e) restrictions on the use of the system, including when some or all of the EFB functions are not available;

(f) the conditions, including phases of flight, under which the EFB should not be used;

(g) procedures for cross-checking data entry and computed information;

(h) human performance considerations on the use of the EFB; and

(i) additional training for new applications, new features of current applications or changes to the hardware configuration.

(3) EFB operations with no paper backup shall have a means of mitigation against the effects of a failure or malfunction of the EFB. Mitigation against EFB failure or impairment may be accomplished by a combination of-

(a) system design;

(b) separate and backup power sources for the EFB;

(c) redundant EFB applications hosted on different EFB platforms;

(d) paper products carried by selected crew members;

(e) complete set of paper backups on the flight deck; and/or

(f) procedural means.

(4) The operator shall assign responsibility for the administration and physical control of EFBs and the associated software; in particular, the activation of amendments to the hardware and software.

(5) The operator shall ensure that the EFB is protected from unauthorized intervention.

(6) The operator shall ensure that the EFB is maintained in accordance with the manufacturer's recommended programme. The operator shall establish procedures for action to be taken when an EFB is out of service unless provided for in a MEL.

(7) Prior to use of a portable EFB, an assessment shall be made of how the device will be used on the flight deck. Safe stowage, crashworthiness, security and use under normal environmental conditions, including turbulence, shall be addressed by the operator.

(8) Whether the EFB is portable or integrated with the helicopter, the operator shall carry out an assessment of the human-machine interface and aspects of crew co-ordination when using the EFB. Whenever possible the EFB/user interface should be consistent with, but not necessarily identical to, the flight deck design philosophy. The assessment should include-

(a) general considerations including flight crew member workload, integration of the EFB into the flight deck, display and lighting issues, system shutdown and system failures;

(b) physical placement issues, including stowage area, use of unsecured EFBs, design and placement of the mounting cradle;

(c) consideration of possible interference with helicopter controls, outside vision, view of other flight deck displays, oxygen mask access, egress, crew cooling and speaker sound;

(d) software considerations, including ease of access to common and time-critical system functions, consistency of symbols, terms and abbreviations, legibility of text, system responsiveness, use of colour, display of system status, error messages, management of multiple applications and use of active regions;

(e) hardware considerations, including controls and input devices and flight crew accessibility to these devices; and

(f) application-specific considerations, including organization and appearance of information, system detection of data entry errors and user interaction with applications.

(9) If an EFB generates information similar to that provided by existing flight deck systems, procedures should clearly identify-

(a) which information source will be primary;

(b) which source will be used for back-up information;

(c) under what conditions the back-up source will be used; and

(d) what actions will be taken when information provided by an EFB does not agree with that from other flight deck sources or, if more than one EFB is used, when one EFB disagrees with another.

(10) Upon receiving airworthiness approval and meeting the requirements of paragraphs (2) to (9), inclusive, the operator shall undergo a six-month self-evaluation period during which paper backups of the materials on the EFB shall be carried. The backup paper materials shall be readily available to the flight crew members during flight time.

(11) If, following the six-month evaluation period, the operator is satisfied that the equipment and procedures are adequate and the crew members, maintenance personnel and other persons involved in the use of the EFB are sufficiently trained and knowledgeable, the operator shall submit a request to the NCAA seeking approval to use the EFB.

(12) The NCAA assessment of an application to use EFBs will be based upon-

(a) confirmation that the requirements of paragraph's (2) to (9), inclusive, have been met;

(b) a demonstration of system reliability and that information provided will not be inaccurate or misleading;

(c) that the operator has established a means to carry out quality assurance approval of data content prior to installation on the EFB; and

(d) satisfactory completion of a demonstration flight using the EFB.

(13) The authorisation to use EFBs shall contain any restrictions or limitations that the Executive Director deems necessary in the interests of safety.

(14) If the EFB provides electronic displays that replace paper products formerly required for safe flight operations or is a source for other required information or displays, operations of the EFB should be described in the Operations Manual.

(15) The EFB risk assessment to assess the risks associated with the use of each EFB function shall be done in accordance with Part 140 and be performed before the beginning of the approval process (if applicable) and its results shall be reviewed on a periodic basis.

(16) The EFB management system is responsible for hardware and software version and configuration management, maintenance of EFB security and integrity in accordance with documented policies and procedures and shall have an appropriately trained designate to be responsible for the system.

127.08.20 SINGLE-ENGINE HELICOPTER IMC AND NIGHT OPERATIONS

1. Transportation of passengers or cargo in single-engine night operations

(1) The following technical standard prescribes the criteria and provisions for operating single-engine helicopters in passenger-carrying and cargo-only operations at night.

(2) An operator approved in its OpSpecs to conduct passenger-carrying operations at night is also approved to conduct cargo-only operations. The OpSpecs shall clearly specify the extent of the approval.

(3) An operator approved to conduct cargo-only operations at night is not approved to conduct passenger-carrying operations unless authorised in its OpSpecs to do so.

2. Helicopter requirements

2.1. Passenger-carrying operations

(1) A single-engine helicopter approved to carry passengers shall meet the requirements of this subsection.

(2) The following requirements relate to the helicopter engine and airframe combination:

(a) in addition to the instruments and equipment specified in Subpart 5, as applicable, the helicopter must be powered by a turbine engine;

(b) the turbine-powered engine and helicopter must be factory-built and approved at the time of issuance of the original type certificate; and

(c) the turbine-engine type and model must have demonstrated a service reliability factor equivalent to .01/1000 or less mean time between failure (MTBF) established over 100,000 operational hours.

(3) The engine and associated systems must be equipped with-

(a) a magnetic particle detection system or other equivalent means that monitors the engine, accessories gearbox and reduction gearbox, and which includes a flight deck caution indication; and

(b) a means that would permit continuing operation of the engine through a sufficient power range to safely complete the flight in the event of any reasonably probable failure of the fuel control unit.

(4) The operator must establish and maintain an engine trend monitoring programme acceptable to the Executive Director. Helicopters for which the individual certificate of airworthiness is first issued on or after 1 January 2005 shall have an automatic trend monitoring system.

2.2. Cargo-only operations

(1) A single-engine helicopter approved to carry cargo only shall meet the requirements of this subsection.

(2) In addition to the instruments and equipment specified in Subpart 5 as applicable to IFR flight, the helicopter shall be powered by-

(a) a turbine engine that meets the criteria prescribed by subsection 2.1 of this TS; or

(b) a piston engine that is equipped with a fuel injection system and meets specific performance criteria and a preventative maintenance programme acceptable to the Executive Director.

2.3. Additional requirements for single-engine night operations

(1) Where the helicopter will be operated at night without a second-in-command, the instruments and equipment required for single pilot IFR, as specified in regulation 127.08.11, shall also be met.

(2) The helicopter shall only be dispatched in accordance with its approved minimum equipment list, if applicable.

(3) The helicopter shall be equipped with-

(a) an emergency power supply, independent of the main electrical generating system, either of which is capable of sustaining essential flight instruments and electrical equipment including electrically operated de-icing or anti-icing systems;

(b) two attitude indicators which are powered separately and independently from each other;

(c) a radio altimeter;

(d) for passenger operations, passenger seats and mounts which meet dynamically-tested performance standards and which are fitted with a shoulder harness or a safety belt with a diagonal shoulder strap for each passenger seat;

(e) a landing light that is capable of adequately illuminating the touchdown area in a night forced landing;

(f) an engine fire warning system;

3. Flight crew requirements

(1) Training requirements shall be published in the operator's operations manual and must be accomplished on each specific helicopter type or variant authorised to operate at night.

(2) At least the following exercises are required to be practised as part of the approved training programme-

(a) engine fire on ground;

(b) engine failure in flight;

(c) loss of all but emergency electrical power;

(d) hydraulic and other system malfunctions, as applicable;

(e) rejected take-offs and landings;

(f) if applicable, Standard Operating Procedures (SOP) containing crew coordination;

(g) practise in engine-out autorotation scenarios; and

(h) descents and approaches to, and landings on an unprepared surface, both with and without the engine operating.

(3) In addition to the training specified in paragraph (2), each person assigned to act as a flight crew member in single engine (SE) night flight shall undergo a pilot proficiency check (PPC).

(4) The PPC referred to in paragraph (4) above shall be conducted by an authorised officer, DFE or Grade I or II flight instructor: Provided such person has, at least, accomplished the training required by this TS and a PPC on the helicopter type.

(5) Each person who successfully passes a PPC shall receive certification in his or her training records that authorises him or her to operate SE helicopters at night while transporting passengers or cargo, as applicable.

4. Special procedures requirements

(1) The operator shall publish in its operations manual special procedures for the conduct of single-engine operations while transporting passengers at night, including the minimum operating height if the ground or sea surface is not lighted and the maximum distance the helicopter is permitted to operate away from a lighted area. Such special procedures must adopt every reasonable measure to mitigate environmental or operational risks and shall include at least that the helicopter shall not be operated in known or forecast icing conditions.

(2) The Executive Director may require additional procedures, restrictions or conditions in the interests of safety.

127.08.22 OPERATIONAL CONTROL AND SUPERVISION OF FLIGHT OPERATIONS

1. Operational control and supervision

(1) An operator shall exercise operational control over its flights through its operational control system (OCS).

(2) The person responsible for flight operations shall have the ultimate decision-making authority in all matters affecting flight operations in general, and the OCS in particular, after consideration of any other factors that could impact on the execution of a flight such as financial, commercial or other non-operational considerations.

(3) The operator is responsible for putting in place communication equipment and facilities as appropriate to the operator's flight following system and ensuring such equipment is serviceable during the period of time any company flight is in progress.

(4) The pilot-in-command is responsible for the release of each flight and has the final authority as to the continuation, diversion or termination of a flight.

2. Definitions

"flight follower" means the person assigned the responsibility for flight following and such other duties as may be assigned;

"flight following" means the monitoring of a flight's progress, the provision of such operational information as may be requested by the PIC and the notification to appropriate operator and search-and-rescue authorities if the flight is overdue or missing. Meteorological information provided to the PIC by a flight follower shall not include analysis or interpretation by the flight follower unless such flight follower is a certified flight operations officer;

"flight release" means the agreement by the PIC, as witnessed by his or her signature, that the flight has been planned and is being released for flight in accordance with the provisions of the operations manual;

Note: *For an enhanced OCS utilising a flight operations officer (FOO) and flight watch system, refer to subparagraph (a) under the definition of "flight release" in TS 121.07.13 1(4) Document NAM-CATS 121*.

"flight monitoring" means monitoring all factors and conditions that might affect the operational flight plan (OFP) and which may be the responsibility of the PIC or other person assigned by the person responsible for flight operations;

"pilot self-dispatch" means a flight where the PIC has been given authority from the operations manager to exercise operational control over such flights.

3. Approval of an operational control system

(1) Each operator shall publish in its operations manual the details of its proposed OCS including pre- and post-flight procedures, flight following or flight monitoring, as applicable, and procedures to be followed in the event of missing or overdue flights and during emergency or abnormal situations. Upon approval of the operations manual, the OCS shall be deemed to have been approved by the Executive Director.

(2) An operator choosing, in order to meet its own operational needs, to dispatch its flights under an OCS that utilises a flight operations officer (FOO) for flight release and flight monitoring shall meet the requirements of a Type A operational control system as specified in *TS 121.07.13* of Document NAM-CATS 121.

(3) The Executive Director may require an operator to upgrade its OCS in order to satisfy the conditions for issue of certain operations specifications (OpSpecs).

4. Description of the required operational control system

The minimum requirements of an OCS under this Part are as follows-

(a) Responsibility and authority

Operational control is delegated to the PIC of a flight by the operations manager who retains responsibility for the day-to-day conduct of flight operations.

(b) Centres

Current information on the location of the operator's helicopters shall be maintained at the main base of operations or, where appropriate, at a sub-base of operations.

(c) Communications

The operator shall ensure that the flight crew has a means to communicate with the operator while on the ground.

(d) Personnel on duty

(i) An operator shall ensure personnel qualified in accordance with regulation 127.02.9 are available during flight time as applicable to the OCS approved for use by the company.

(ii) The operator shall clearly identify in its operations manual the duties and responsibilities of the persons responsible for flight following.

(iii) The operator shall ensure that each flight follower is trained in accordance with the requirements of its approved training programme.

(e) Flight release

(i) Flights operated under the operator's OCS are pilot self-dispatched and released in accordance with the operator's established procedures. Such procedures shall be published in the operator's operations manual.

(ii) The person responsible for the development of the operational flight plan (OFP), shall receive training in every aspect of its preparation. The OFP shall meet the requirements of TS 127.04.4 of Document NAM-CATS 127 and may be in any format at the operator's discretion but such format shall be standard and used by all flight crew.

(iii) The signature or alternative means of signifying acceptance of the OFP by the PIC shall constitute a flight release and shall certify that:

(aa) the OFP has been prepared and accepted in accordance with the procedures specified in the operations manual; and

(bb) the flight is safe to proceed.

(f) Flight monitoring and flight following

(i) An operator shall ensure that procedures are established as part of the OCS to enable it to determine if a flight is overdue or has had to divert.

(ii) Where communications facilities permit, the PIC is expected to report departures and arrivals to the person assigned to the flight following of that flight. At the very least the PIC shall notify the operator upon arrival at the final destination of a particular flight or series of flights.

(iii) The PIC, though solely responsible for flight monitoring, shall be supported by a flight following system containing the following elements:

(aa) a flight follower, qualified in accordance with Subpart 3 and knowledgeable in the operator's flight alerting procedures, on duty and able to respond to requests by the PIC for information related to the flight. Such information may include meteorological information without analysis or interpretation; and

(bb) the ability by the operator to have a means to follow the progress of each flight from its commencement to its termination, including any intermediate stops or diversions from the flight planned route.

Note: *Use of air traffic services in determining the location of a flight is adequate*.

5. Declaration and action in an emergency

(1) In an emergency situation that requires immediate decision and action, the PIC shall take any action he or she deems necessary for the safety of the helicopter and passengers.

(2) Where the assigned flight follower or operations manager becomes aware of any emergency situation that could pose a hazard to a flight in progress, he or she shall make every effort to advise the PIC of such emergency by the quickest means available. Furthermore, he or she shall-

(a) remain available to the PIC of that flight on a continuous basis until-

(i) the threat of such emergency has passed;

(ii) the PIC has made a decision and acted upon it and it has been determined that the operator's assistance is no longer required; or

(iii) the flight is handed off to another competent person who is able to be of assistance;

(b) relay required messages through third parties as necessary to communicate with the flight; and

(c) notify the nearest air traffic services unit and appropriate authority of the emergency and request such assistance as may be necessary.

(3) In the event a helicopter becomes overdue or missing, the overdue or missing helicopter procedures, as appropriate, shall be followed as prescribed in the operations manual. Such procedures shall include, as a minimum, reporting the overdue or missing helicopter to an air traffic services unit the appropriate authority.

(4) Whenever a PIC, flight follower or operations manager declares an emergency, he or she shall keep the appropriate ATC facility and dispatch centres fully informed as to the progress of the flight.

6. Flight tracking

(1) The operator shall track the position of a helicopter through automated reporting at least every 15 minutes for the portion(s) of the in-flight operation(s) that is planned in an oceanic area(s) under the following conditions:

(a) the helicopter has a MCM exceeding 7 000 kg, and a seating capacity greater than 19; and

(b) where an ATS unit obtains helicopter position information at greater than 15 minute intervals.

(2) The operator shall establish procedures, approved by the Executive Director, for the retention of helicopter tracking data to assist SAR in determining the last known position of the aircraft.

(3) Notwithstanding the provisions of subsection (1), the Executive Director may, based on the results of an approved risk assessment process implemented by the operator, allow for variations to the automated reporting intervals.

(4) The risk assessment process shall demonstrate how risks to the operation resulting from the allowable variations can be managed and shall include at least the following:

(i) capability of the operator's operational control systems and processes, including those for contacting ATS units;

(ii) overall capability of the helicopter and its systems;

(iii) available means to determine the position of, and communicate with, the helicopter;

(iv) frequency and duration of gaps in automated reporting;

(v) human factors consequences resulting from changes to flight crew procedures; and

(vi) specific mitigation measures and contingency procedures.

Note - *More detailed information and guidance on flight tracking and autonomous transmission of information on position reporting is contained in the guidance material on flight tracking*.

127.08.29 MINIMUM EQUIPMENT LISTS

(1) The operator's MEL should interface with NCAA regulatory requirements and the operator's procedures.

(2) Publication and use of an MEL is subject to the approval of the Director. Such approval shall require compliance with the requirements of NAM-CAR 127.08.29 and the following provisions-

(a) the MEL shall be designed to allow the operation of an aircraft with certain systems or equipment inoperative provided an acceptable level of safety is maintained;

(b) the MEL is not intended to provide for operation of the aircraft for an indefinite period with inoperative systems or equipment, but to permit the safe operation of an aircraft with inoperative systems or equipment within the framework of a controlled and sound programme of repairs and parts replacement. Such framework shall include limitations upon periods of unserviceability published in the MEL;

(c) operators are to ensure that no flight is commenced with multiple MEL items inoperative without determining that any interrelationship between inoperative systems or components will not result in an unacceptable degradation in the level of safety and/or undue increase in the flight crew workload;

(d) the exposure to additional failures during continued operation with inoperative systems or equipment must also be considered in determining that an acceptable level of safety is being maintained. The MEL may not deviate from requirements of the flight manual limitations section, emergency procedures or other airworthiness requirements unless the appropriate airworthiness authority or the flight manual provides otherwise;

(e) systems or equipment accepted as inoperative for a flight should be placarded where appropriate, and all such items should be noted in the aircraft technical log to inform the flight crew and maintenance personnel of the inoperative system or equipment;

(f) for a particular system or item of equipment to be accepted as inoperative, it may be necessary to establish a maintenance procedure, for completion prior to flight, to de-activate or isolate the system or equipment. It may similarly be necessary to prepre an appropriate flight crew operating procedure.

127.08.34 CARRY-ON BAGGAGE

1. Procedures for stowing of carry-on baggage

Procedures established by an operator to ensure that carry-on baggage is adequately and securely stowed shall take account of the following-

(a) each item carried in a cabin must be stowed only in a location that is capable of restraining it;

(b) mass limitations placarded on or adjacent to stowages shall not be exceeded;

(c) under seat stowage areas shall not be used unless the seat is equipped with a restraint bar and the baggage is of such size that it may adequately be restrained by this equipment;

(d) items shall not be stowed against bulkheads that are incapable of restraining articles against movement forwards, sideways or upwards and unless the bulkheads carry a placard specifying the greatest mass that may be placed there;

(e) baggage shall not be placed where it will impede access to emergency equipment; and

(f) checks shall be made before take-off, before landing and whenever the PIC illuminates the fasten seat belts sign, or otherwise so orders, to ensure that baggage is stowed where it cannot impede evacuation from the helicopter or cause injury by falling, or other movement, as may be appropriate to the phase of flight.

127.08.37 BRIEFING OF PASSENGERS

1. Standard Safety Briefing

The standard safety briefing shall consist of an oral briefing provided by a crew member or by audio or audio-visual means in at least the English language or as required by the Executive Director, which includes the following information as applicable to the helicopter, equipment and operation-

(a) prior to take-off-

(i) when, where, why and how carry-on baggage is required to be stowed;

(ii) the fastening, unfastening, adjusting and general use of safety belts or safety harnesses;

(iii) when seat backs must be secured in the upright position and tray tables must be stowed;

(iv) the location of emergency exits;

(v) the floor proximity emergency escape path lighting system;

(vi) the location, purpose of, and advisability of reading the safety features card;

(vii) the regulatory requirement to obey crew instructions regarding safety belts and no smoking or 'Fasten Seat Belt' and 'No Smoking' signs and the location of these signs;

(viii) where cabin crew members are not required, the location of any emergency equipment the passenger may have a need for in an emergency situation such as the ELT, fire extinguisher, survival equipment, including the means to access it if in a locked compartment, first aid kits and life rafts;

(ix) the use of passenger operated portable electronic devices;

(x) the location and operation of the fixed passenger oxygen system, including the location and presentation of the masks; the actions to be performed by the passenger in order to obtain the mask, activate the flow of oxygen and correctly don and secure the mask. This will include a demonstration of their location, method of donning, including the use of elastic band, and operation and instruction on the priority for persons assisting others. This briefing may be completed after take-off but prior to reaching 15 000 feet; and

(xi) the location, use of and when to inflate life jackets, including how to remove them from stowage/packaging, and a demonstration of the method of donning and inflation. This briefing may be completed after take-off but prior to the overwater portion of the flight;

(b) after take-off-

(i) that smoking is prohibited; and

(ii) the advisability of using safety-belts or safety harnesses during flight;

(c) in-flight when the "Fasten Seat Belt" sign has been turned on for reasons of turbulence-

(i) when the use of seat belts is required; and

(ii) when the level of turbulence is anticipated to exceed light, the requirement to stow carry-on baggage;

(d) prior to landing-

(i) carry-on baggage stowage requirements;

(ii) correct seat back and chair table positioning;

(iii) on flights scheduled for four hours duration or more, the location of emergency exits; and

(iv) the seat belt requirement; and

(e) after landing, prior to gate arrival-

(i) the no smoking requirement; and

(ii) that there will be guidance given with respect to:

(aa) the safest direction and most hazard-free route for passenger movement away from the helicopter following disembarkment; and

(bb) any dangers associated with the helicopter type such as pitot tube locations, propellers or engine intakes.

Note: *The safety message of the briefing may not be diluted by the inclusion of any service information, advertising or non-related comments that would affect the integrity of the safety briefing.*

2. Individual Safety Briefing

The individual safety briefing shall include-

(a) any information contained in the standard safety briefing and the safety features card that the passenger would not be able to receive during the normal conduct of that safety briefing; and

(b) additional information applicable to the needs of that person as follows-

(i) the most appropriate brace position for that passenger in consideration of his/her condition, injury, stature and/or seat orientation and pitch;

(ii) the location to place any service animal that accompanies the passenger;

(iii) for a mobility-restricted passenger who needs assistance in moving expeditiously to an exit during an emergency:

(aa) a determination of what assistance the person would require to get to an exit;

(bb) the route to the most appropriate exit;

(cc) the most appropriate time to begin moving to that exit; and

(dd) a determination of the most appropriate manner of assisting the passenger;

(iv) for a visually impaired person-

(aa) detailed information of and facilitating a tactile familiarisation with the equipment that he/she may be required to use;

(bb) advising the person where to stow his/her cane if applicable;

(cc) the number of rows of seats between his/her seat and his/her closest exit and alternate exit;

(dd) an explanation of the features of the exits; and

(ee) if requested, a tactile familiarization of the exit;

(v) for a comprehension-restricted person- while using the safety features card, pointing out the emergency exits and alternate exits to use and any equipment that he/she may be required to use;

(vi) for persons with a hearing impairment-

(aa) while using the safety features card, point out the emergency exits and alternate exits to use and any other equipment that the person may be required to use; and

(bb) communicating detailed information by pointing, face-to-face communication permitting speech reading, pen and paper, through an interpreter or through their attendant;

(vii) for a passenger who is responsible for another person on board, information pertinent to the needs of the other person, as applicable-

(aa) in the case of an infant-

(A) seat belt instructions;

(B) method of holding infant for take-off and landing;

(C) instructions pertaining to the use of a child restraint system;

(D) oxygen mask donning instructions;

(E) recommended brace position; and

(F) location and use of life preservers, as required;

(bb) in the case of any other person-

(A) oxygen mask-donning instructions;

(B) instructions pertaining to the use of a child restraint system; and

(C) evacuation responsibilities; and

(viii) for an unaccompanied minor, instructions to pay close attention to the normal safety briefing and to follow all instructions. A passenger that has been provided with an individual safety briefing need not be re-briefed following a change in crew if the crew member that provided the individual safety briefing has advised a member of the new crew of the contents of that briefing, including any information respecting the special needs of that passenger. A passenger may decline an individual safety briefing.

3. Passenger Preparation for Emergency Landing

The emergency briefing provided in the event of an emergency where time and circumstances permit shall consist of instructions pertaining to-

(a) safety belts/safety harnesses;

(b) seat backs and chair tables;

(c) carry-on baggage;

(d) safety features cards;

(e) brace position (how to brace, when to assume position, how long to remain);

(f) if applicable, life preservers;

(g) location of exits;

(h) if applicable, evacuation procedures for an occupant of a child restraint system; and

(i) the removal of any other item that may cause harm to passengers during evacuation; i.e. sharp objects, high heeled shoes, pencils, etc.

127.08.38 SAFETY FEATURES CARD

The safety features card shall contain the following information as applicable to the helicopter and equipment carried-

(a) general safety information including-

(i) smoking is prohibited on board the helicopter;

(ii) each type of safety belt or safety harness installed for passenger use, including when to use, and how to fasten, tighten and release;

(iii) where carry-on baggage must be stowed for take-off and landing and any other related requirements and restrictions pertinent to that particular helicopter; and

(b) emergency procedures and equipment including-

(i) for helicopters where cabin crew members are not carried or are otherwise exempted from being carried:

(A) location of first aid kits;

(B) location of fire extinguishers that would be accessible to the passengers;

(C) location of ELTs; and

(D) location of survival equipment and if the stowage compartment is locked, the means of access or location of the key;

(ii) passenger brace position for impact, as appropriate for each type of seat and restraint system installed for passenger use; including the brace position for an adult holding an infant;

(iii) the location, operation and method of using each emergency exit type on the helicopter, including identification of those emergency exits known to be rendered unusable in a ditching;

(iv) the safest direction and most hazard-free escape route for passenger movement away from the helicopter following evacuation;

(v) the attitude of the helicopter while floating;

(vi) location of life preservers and correct procedures for removal from stowage/packaging; donning and use of the life jacket for adult, child and infant users, including when to inflate;

(vii) location and use of life rafts;

(viii) location, removal and use of flotation devices; and

(ix) the form, function, colour and location of any floor proximity emergency escape path lighting system that is installed;

(c) the safety features card shall bear the name of the operator and the helicopter type and shall contain only safety information that is-

(i) accurate for the helicopter type and configuration in which it is carried and in respect of the equipment carried;

(ii) presented with clear separation between each instructional procedure. All actions required to complete a multi-action procedure to be presented in correct sequence and the sequence of actions to be clearly identified; and

(iii) depicted in a clear and distinct manner.

127.09.3 TAKE-OFF

1. General

(1) This technical standard prescribes the method for determining the minimum take-off flight path obstacle clearance requirements for helicopters.

(2) For the purposes of this TS, the following terms apply:

"DR" means the horizontal distance that the helicopter has travelled from the end of the take-off distance available; and

"R" means the rotor radius.

2. Class 1 and 2 helicopters - Take-off flight path

(1) The operator of a Class 1 and 2 helicopter shall ensure that the take-off flight path clears all obstacles during the climb to the en route phase of flight by a vertical margin of at least 35 feet in VFR and at least 35 feet plus 0.01 DR in IFR.

(2) An obstacle need not be considered if its lateral margin from the nearest point on the surface below the intended flight path exceeds 30m or 1.5 times the overall length of the helicopter, whichever the greater, plus is-

(a) 0.15 DR for VFR operations; or

(b) 0.30 DR for IFR operations.

(3) Obstacles may be disregarded if they are situated beyond-

(a) 7R for day operations, if it is assured that navigation accuracy can be achieved by reference to suitable visual cues during the climb;

(b) 10R for night operations, if it is assured that navigation accuracy can be achieved by reference to suitable visual cues during the climb;

(c) 300 m, if the pilot is able to maintain the required navigation accuracy through the use of navigation aids; and

(d) 900 m in all other cases.

(4) Where a change of direction of more than 15° is made, vertical obstacle clearance requirements shall be increased by 15 feet from the point at which the turn is initiated: Provided that such turn shall not be initiated before reaching a height of 100 feet above the take-off surface.

(5) When complying with the provisions of this TS, account shall be taken of-

(a) the mass of the helicopter at the commencement of the take-off;

(b) the local pressure altitude;

(c) the ambient temperature; and

(d) not more than 50 per cent of the reported head-wind component or not less than 150 per cent of the reported tail-wind component, unless otherwise approved.\

3. Class 3 helicopters - Take-off flight path

(1) The operator of a Class 3 helicopter shall ensure that, if the helicopter's performance data is insufficient to guarantee obstacle clearance, all obstacles are avoided visually during the climb until reaching a safe altitude.

REQUIREMENT FOR QUALITY MANAGEMENT SYSTEM

1. Definitions

The terms used in this technical standard have the following meaning –

(a) **"accountable manager"** means the person designated as such in CAR 121.06.2(5) and who has overall responsibility for the operation of the company;

(b) **"quality manager"** means the manager responsible for the implementation, management and monitoring of the quality system and for requesting corrective action;

(c) **"audit"** means a methodical, planned review used to determine how a business is being conducted and compares the results with how that business should have been conducted according to regulations and established procedures;

(d) **"inspection"** means the act of observing a particular event or action, to ensure that correct procedures and requirements are followed during the accomplishment of that event or action. The primary purpose of an inspection is to verify that established standards are followed during the observed event or action; and

(e) **"quality assurance (QA)"** means all those planned and systematic actions necessary to provide adequate confidence that operational and maintenance practices satisfy prescribed requirements.

2. Quality management system (QMS) requirements

The QMS shall –

(a) ensure the adequacy of operational and maintenance activities in maintaining compliance with requirements, standards and operational procedures;

(b) specify the basic structure of the quality system applicable to the operation and be structured according to the size and complexity of the operation to be monitored; and

(c) as a minimum, address the following –

(i) establishment of the objectives of the QA programme, which are to meet the following criteria –

(aa) the objectives must be written for quality;

(bb) the objectives must be specific, measureable, attainable, realistic and time-based; and

(cc) the achievement of the objectives must be measured and tracked;

Note – *The QA objectives are not simply related to safety goals but are also part of the strategic and business objectives of the organisation; for example, improve the turn-around time of the aircraft to 20 minutes on domestic flights without deviations from the standards.*

(ii) how to ensure meeting the provisions of the CAR and any other applicable regulations;

(iii) how to ensure meeting the operator's additional standards and operating procedures;

(iv) how to ensure meeting the operator's quality policy;

(v) assignment of the person or persons with the responsibility for the development, establishment and management of the quality system;

(vi) what documentation, including manuals, reports and records are required in support of the QA programme and how they are to be controlled;

(vii) the quality processes and procedures to be employed in support of the QA programme;

(viii) the establishment and implementation of a schedule of the monitoring process;

(ix) the procedures to be utilised in effecting the QA programme, including –

(aa) audit procedures;

(bb) reporting procedures; and

(cc) follow-up and corrective action procedures;

(x) the recording system; and

(xi) the training syllabus.

3. QMS policy

An air operator shall establish a formal, written quality policy statement, signed by the accountable manager, constituting a commitment by the accountable manager as to what the quality system is intended to achieve. The quality policy should –

(a) reflect the commitment to the goal of achieving and continuing with compliance with the regulatory requirements together with any additional standards specified by the operator; and

(b) reflect the accountable manager's commitment to –

(i) appoint resources to manage the system;

(ii) ensure the structure required to meet the goals is established and maintained;

(iii) establish objectives and measure their achievement; and

(iv) ensure continual improvement in the QMS.

4. Structure

(1) The accountable manager shall appoint a quality manager to manage the system and who meets the experience and qualifications requirements specified in NAM-CATS 121.06.2.

(2) The QM must have direct link to the accountable manager to discuss QMS matters when required.

(3) The roles and responsibilities of the QM and all other role players within the QMS must be defined in writing (normally job descriptions or delegation documents).

(4) QA responsibilities must be independent from all other line functions within the organisation.

(5) The structure of the organisation varies with the size and complexity of the company but in all cases, should be developed so as to properly interface with other operator departments or divisions and with external agencies with which the company is involved. Each operator will have at least an operations and a maintenance department with which the QA personnel will be required to interface.

5. Process requirements

(1) Processes are the means by which the QA goals are meant to be attained and must be documented, whether written as procedures or mapped in flow chart format, for every activity and task within the organisation (this depends upon the scope of the QMS but is normally company-wide).

(2) Depending on the complexity of the system, there could also be a distinction between high level processes, which are generic in nature, and the detailed processes needed to achieve the QA goals.

(3) The inputs, sequential steps and outputs must be shown, as well as the people responsible for these.

(4) Processes must list –

(a) the references that must be consulted in using the process;

(b) the records that must be completed as evidence of the process having been followed; and

(c) the minimum retention periods for these documents as specified in the document and records control procedures.

(5) Processes normally fall into the following categories of which quality control must be part and in which segregation of duties is a critical principle –

(a) key/core business processes critical to the company's reason for existence. In an airline it would typically be flight operations, crew training, ground operations, maintenance, safety management, etc.;

(b) support processes that are developed in support of the core processes, e.g. recruitment, procurement, etc.; and

(c) quality processes, like auditing, management review of the system, document control, records control, measurement of objectives, measurement of the ability of processes to achieve their intended results, customer satisfaction measurement, data analysis corrective action and preventive action.

6. Documentation

(1) Except as provided in paragraph (3), the QMS must be supported by a quality management manual (QMM), the contents of which shall include –

(a) the system of amendment and revision –

(i) the procedure for amending the manual, including temporary revisions;

(ii) who is responsible for the issuance and insertion of amendments and revisions;

(iii) a record of amendments and revisions with insertion dates and effective dates;

(iv) a description of the system for the annotation of pages and their effective dates;

(v) a list of effective pages; and

(vi) a description of the distribution system for the manual, amendments and revisions;

(b) the company's policy statement;

(c) the company's structure;

(d) the company's objectives;

(e) the roles, duties and responsibilities of the company's key personnel, including the accountable manager and QM. Where there is more than one QM, the mandate and specific functions of each and the interrelationship between them must be clearly identified; and

(f) the procedures/processes whether written or mapped (some companies include only high-level cross-departmental processes in the QMM and others include all processes in their QMM – they would end up with a series of manuals). Detailed manuals are normally the responsibility of the line managers but they still form part of the QMS and will fit into the QMS to meet requirements.

(2) In addition, the following documentation, usually residing in the QMM, shall be prepared and used within the QMS

(a) forms and checklists that have to be used in the execution of the processes;

(b) a list of records used in the system;

(c) a list of forms used in the system;

(d) a list of registers or software systems in use as support to the system; and

(e) a list of external documents that impact on the system (called references).

(3) The information required by paragraph (1) may be included in the company's safety management manual (SMM) or operations manual if the company's size and complexity are such that a separate manual is not required.

7. Quality Manager

(1) In the case of small/very small operators, the posts of the accountable manager and the QM may be combined. However, in such event, independent personnel should conduct the quality inspections/audits.

(2) The specific duties and responsibilities of the QM will vary in relation to the size and complexity of the company but shall be identified in the QMM or other manual, if a separate QMM is not produced.

(3) An operator may appoint separate quality managers for maintenance and for operations. Subject to the provisions of Part 145, where applicable, one of the quality managers shall have ultimate responsibility for management of the operator's whole quality system.

8. Quality assurance programme

(1) A QMS shall include a quality assurance programme that includes all planned and systematic actions necessary to provide confidence that all operations and maintenance are conducted in accordance with all applicable requirements, standards and operational procedures. When establishing a quality assurance programme, consideration should, at least, be given to the following tools and considerations –

(a) Inspection

The primary purpose of a quality inspection is to observe a particular event/action/document, etc., in order to verify whether established operational procedures and requirements are followed during the accomplishment of that event and whether the required standard is achieved. Typical subject areas for quality inspections are –

(i) actual flight operations;

(ii) ground de-icing/anti-icing;

(iii) flight support services;

(iv) load control;

(v) maintenance;

(vi) technical standards; and

(vii) training standard;

(b) Audit

As identified in its definition, an audit is an in-depth review of all or several facets of the company's operations with the goal of identifying systemic faults in those operations. Factors to consider are –

(i) audits should include quality procedures and processes covering at least the following –

(aa) a statement explaining the scope of the audit;

(bb) planning and preparation;

(cc) gathering and recording evidence; and

(dd) analysis of the evidence; and

(ii) elements which contribute to an effective audit are –

(aa) interviews or discussions with personnel;

(bb) a review of published documents;

(cc) the examination of an adequate sample of records;

(dd) the witnessing of the activities which make up the operation;

(ee) the preservation of documents and the recording of observations;

(ff) consideration of processes and procedures which interact across more than one department or functional area; and

(gg) thorough, documented audit planning.

(c) Auditors

The audit process is only as effective as the persons chosen to participate in the audit. It follows that particular care must be exercised in selecting each auditor. Some considerations are –

(i) auditors should not have any day-to-day involvement in the area of the operation and/or maintenance activity which is to be audited. An operator may, in addition to using the services of full-time dedicated personnel belonging to a separate quality department, undertake the monitoring of specific areas or activities by the use of part-time auditors;

(ii) an operator whose structure and size does not justify the establishment of full-time auditors may undertake the audit function by the use of part-time personnel from within his or her own organisation or from an external source under the terms of an agreement acceptable to the Director. In all cases, the operator should develop suitable procedures to ensure that persons directly responsible for the activities to be audited are not selected as part of the auditing team;

(iii) where external auditors are used, it is essential that any external specialist is familiar with the type of operation or maintenance conducted by the operator;

(iv) the operator's quality assurance programme should identify the persons within the company who have the experience, responsibility and authority to –

(aa) perform quality inspections and audits as part of on-going quality assurance;

(bb) identify and record any concerns or findings, and the evidence necessary to substantiate such concerns or findings;

(cc) initiate or recommend solutions to concerns or findings through designated reporting channels;

(dd) verify the implementation of solutions within specific timescales; and

(ee) report directly to the QM.

(d) Audit Scope

Operators are required to monitor compliance with the operational procedures they have designed to ensure safe operations, airworthy aircraft, and the serviceability of both operational and safety equipment. In so doing, they should as a minimum and where appropriate, monitor the following –

(i) the organisation;

(ii) plans and company objectives;

(iii) operational procedures;

(iv) flight safety;

(v) operator certification (AOC/Operations Specifications);

(vi) supervision within the organisation;

(vii) aircraft performance;

(viii) all-weather operations;

(ix) communications and navigational equipment and practices;

(x) mass, balance and aircraft loading;

(xi) instruments and safety equipment;

(xii) manuals, logs and records;

(xiii) aircraft maintenance/operations interface;

(xiv) use of the MEL;

(xv) maintenance programmes and continued airworthiness;

(xvi) airworthiness directives management;

(xvii) maintenance accomplishment;

(xviii) defect deferral;

(xix) flight crew;

(xx) cabin crew;

(xxi) operational control personnel;

(xxii) dangerous goods;

(xxiii) security;

(xxiv) training and checking; and

(xxv) safety management system.

(e) Audit Scheduling

A quality assurance programme should include a defined audit schedule and a periodic review-cycle, area by area, with consideration being given to the following factors –

(i) the schedule should be flexible and allow unscheduled audits when trends are identified. An operator should establish a schedule of audits to be completed during a specified calendar period. All aspects of the operation shall be reviewed within every period of 12 months in accordance with the programme unless an extension to the audit period is accepted by the Director;

(ii) an operator may increase the frequency of audits at his or her discretion but shall not decrease the frequency unless accepted by the Director. It is considered unlikely that an interval between audits greater than 24 months would be acceptable;

(iii) follow-up audits should be scheduled when necessary to verify that corrective action was carried out and that it was effective; and

(iv) the operator's defined audit schedule can be affected by significant changes to the management, organisation, operation or technologies, as well as changes to the regulatory requirements, resulting in the requirement for an *ad hoc* audit.

(f) Monitoring

Monitoring entails keeping abreast of the activities within the company as a part of the QA programme but also to monitor the QA activities to ensure they are adequate (monitor the monitors). Factors to consider are –

(i) the aim of monitoring within the quality system is primarily to investigate and judge its effectiveness and thereby to ensure that defined policy and operational and maintenance standards are continuously complied with. Monitoring activity is based upon quality inspections, audits, corrective action and follow-up; and

(ii) the operator should establish and publish a procedure to monitor regulatory compliance on a continuing basis. This monitoring activity should be aimed at eliminating the causes of unsatisfactory performance. Any non-compliance identified as a result of monitoring shall be communicated to the manager responsible for taking corrective action or, if appropriate, the accountable manager. Such non-compliance shall be recorded, for the purpose of further investigation, in order to determine the cause and to enable the recommendation of appropriate corrective action.

(g) Corrective Action

The quality assurance programme shall include procedures to ensure that corrective actions are taken in response to findings. These quality procedures should result in the monitoring of such actions to verify their effectiveness and having been completed. Organisational responsibility and accountability for the implementation of corrective action resides with the department cited in the report as identifying the finding. The accountable manager will have the ultimate responsibility for resourcing the corrective action and ensuring, through the quality manager, that the corrective action has re-established compliance with the standard required by the Director and any additional requirements defined by the operator. The procedures and responsibilities associated with a corrective action programme are –

(i) subsequent to the quality inspection/audit, the operator shall establish –

(aa) the seriousness of any findings and any need for immediate corrective action;

(bb) the origin of the finding;

(cc) which corrective actions are required to ensure that the non-compliance does not recur;

(dd) a schedule for corrective action;

(ee) the identification of individuals or departments responsible for implementing corrective action; and

(ff) allocation of resources by the accountable manager, where appropriate; and

(ii) the QM shall —

(aa) verify that corrective action is taken by the manager responsible in response to any finding of non-compliance;

(bb) verify that corrective action includes the elements outlined in paragraph (1)(g)(i) above;

(cc) monitor the implementation and completion of corrective action;

(dd) provide management with an independent assessment of corrective action, implementation and completion; and

(ee) evaluate the effectiveness of corrective action through the follow-up process;

(iii) corrective actions shall address short term correction of non-compliances and, long-term preventative actions based upon an analysis of root cause, including organisational factors.

(h) Follow-up

Proper follow-up is a mandatory part of the QA process. It is the responsibility of the QM to ensure that each finding of non-compliance has been resolved satisfactorily and that the resultant solution is effectively implemented, such that a re-occurrence of the situation leading to the non-compliance is not or is highly unlikely to recur. Follow-up normally requires at least an inspection of the area identified as being non-compliant but may require a more in-depth audit to ensure a satisfactory resolution of the issue.

(i) Management Evaluation

A management evaluation is a comprehensive, systematic, documented review by the management of the quality system, operational policies and procedures and should consider the following –

(i) the results of quality inspections, audits and any other indicators;

(ii) the overall effectiveness of the management organisation in achieving stated objectives;

(iii) a management evaluation should identify and correct trends and prevent, where possible, future non-conformities. Conclusions and recommendations made as a result of an evaluation shall be submitted in writing to the responsible manager for action. The responsible manager should be an individual who has the authority to resolve issues and take action; and

(iv) the accountable manager should decide upon the frequency, format and structure of internal management evaluation activities;

(v) the accountable manager and the responsible persons specified in NAM-CAR 121.06.2 (5) shall actively participate in the management evaluation.

(j) Recording

The operator shall maintain accurate, complete and readily accessible records documenting the results of the quality assurance programme. Records are essential data to enable an operator to analyse and determine the root causes of non-conformity, so that areas of non-compliance can be identified and addressed. The following records shall be retained for a period of at least five years –

(i) audit schedules;

(ii) quality inspection and audit reports;

(iii) responses to findings;

(iv) corrective-action reports;

(v) follow-up and closure reports; and

(vi) management evaluation reports.

(2) An operator may decide to sub-contract out certain activities to external agencies for the provision of services. The QA programme must include an examination of such sub-contractors. Considerations with respect to sub-contracting are –

(a) sub-contracts may include provision of –

(i) ground de-icing/anti-icing;

(ii) maintenance;

(iii) ground handling;

(iv) flight support (including performance calculations, flight planning, navigation database and dispatch and flight following);

(v) training; and

(vi) manual preparation.

(b) The ultimate responsibility for the product or service provided by the sub-contractor always remains with the operator. A written agreement should exist between the operator and the sub-contractor, clearly defining the safety-related services and quality to be provided. The sub-contractor's safety-related activities relevant to the agreement should be included in the operator's quality assurance programme. The operator should ensure that the sub-contractor has the necessary authorisation/approval, when required, and commands the resources and competence to undertake the task. If the operator requires the sub-contractor to conduct an activity that exceeds the sub-contractor's authorisation/approval, the operator is responsible for ensuring that the sub-contractor's quality assurance takes account of such additional requirements.

(3) Complex quality systems could be inappropriate for operators with fewer than 20 full-time equivalent persons on staff. Such operators should consider the following when establishing a QA programme –

(a) the effort required to draw up the manuals and quality procedures and implement the QMS required for a complex system may stretch the operator's resources. It is therefore accepted that such operators would tailor their quality systems to suit the size and complexity of their operation and allocate resources accordingly;

(b) it may be appropriate to develop a quality assurance programme that employs a checklist. The checklist should have a supporting schedule that requires completion of all checklist items within a specified timescale, together with a statement acknowledging completion of a periodic review by top management. An occasional independent review of the checklist content and achievement of the quality assurance should be undertaken; and

(c) the operator may decide to use internal or external auditors or a combination of the two. In these circumstances it would be acceptable for external specialists and/or qualified organisations to perform the quality audits on behalf of the quality manager. If the independent quality audit function is being conducted by external auditors, the audit schedule should be shown in the relevant documentation.

Note – *Whatever sub-contract arrangements are made, the operator retains the ultimate responsibility for the quality system, especially the completion and follow-up of corrective actions.*

(4) A QA programme shall include a training programme that provides the following –

(a) for those responsible for managing the quality system, training covering at least –

(i) an introduction to the concept of the quality system;

(ii) quality management;

(iii) the concept of quality assurance;

(iv) quality manuals;

(v) audit techniques;

(vi) reporting and recording; and

(vii) the way in which the quality system will function in the organisation;

(b) for those involved in the inspection or audit functions, training covering at least –

(i) an introduction to the concept of the quality system;

(ii) the concept of quality assurance;

(iii) reporting and recording; and

(iv) audit techniques; and

(c) a briefing to the remainder of the employees, appropriate to their level of responsibility, consisting of background information about the QA programme and their role in maximising safety and efficiency in the organisation. The allocation of time and resources should be governed by the size and complexity of the operation concerned.