

## CHAPTER 2 LICENCES AND RATINGS FOR PILOTS

### 2.1 General rules concerning pilot licences and ratings

#### 2.1.1 General licensing specifications

2.1.1.1 A person shall not act either as pilot-in-command or as co-pilot of an aircraft in any of the following categories unless that person is the holder of a pilot licence issued in accordance with the provisions of this Chapter:

- aeroplane
- airship of a volume of more than 4 600 cubic metres
- free balloon
- glider
- helicopter
- powered-lift

2.1.1.2 The category of aircraft shall be included in the title of the licence itself, or endorsed as a category rating on the licence.

2.1.1.2.1 When the holder of a pilot licence seeks a licence for an additional category of aircraft, MCAA will either:

- a) issue the licence holder with an additional pilot licence for that category of aircraft; or
- b) endorse the original licence with the new category rating, subject to the conditions of 2.1.2.

**Note.** *The requirements for category ratings are given in terms of licensing specifications for pilots and at levels appropriate to the privileges to be granted to the licence holder.*

2.1.1.3 An applicant shall, before being issued with any pilot licence or rating, meet such requirements in respect of age, knowledge, experience, flight instruction, skill and medical fitness, as are specified for that licence or rating.

2.1.1.3.1 An applicant for any pilot licence or rating shall demonstrate, in a manner acceptable to MCAA, such requirements for knowledge and skill as are specified for that licence or rating.

2.1.1.4 *Transitional measures related to the powered-lift category* Until 5 March 2015, MCAA may endorse a type rating for aircraft of the powered-lift category on an aeroplane or helicopter pilot licence. The endorsement of the rating on the licence shall indicate that the aircraft is part of the powered-lift category. The training for the type rating in the powered-lift category shall be completed during a course of approved training, shall take into account the previous experience of the applicant in an aeroplane or a helicopter as appropriate and incorporate all relevant aspects of operating an aircraft of the powered-lift category.

#### 2.1.2 Category ratings

2.1.2.1 When established, category ratings shall be for categories of aircraft listed in 2.1.1.1.

2.1.2.2 Category ratings are included in the title of the licence itself.

2.1.2.3 Any additional category rating endorsed on a pilot licence will indicate the level of licensing privileges at which the category rating is granted.

2.1.2.4 The holder of a pilot licence seeking additional category ratings shall meet the requirements of this Manual appropriate to the privileges for which the category rating is sought.

#### 2.1.3 Class and type ratings

2.1.3.1 Class ratings shall be established for aeroplanes certificated for single-pilot operation and shall comprise:

- a) single-engine, land;
- b) single-engine, sea;
- c) multi-engine, land;
- d) multi-engine, sea.

**Note.** *The provisions of this paragraph do not preclude the establishment of other class ratings within this basic structure.*

2.1.3.1.1 Reserved

2.1.3.2 Type ratings will be established for:

- a) aircraft certificated for operation with a minimum crew of at least two pilots;
- b) helicopters and powered-lifts certificated for single pilot operation except where a class rating has been issued under 2.1.3.1.1; and
- c) any aircraft whenever considered necessary by MCAA.

**Note1.** *Where a common type rating is established, it shall be only for aircraft with similar characteristics in terms of operating procedures, systems and handling.*

**Note2.** *Requirements for class and type ratings for gliders and free balloons have not been determined.*

2.1.3.3 When an applicant demonstrates skill and knowledge for the initial issue of a pilot licence, the category and the ratings appropriate to the class or type of aircraft used in the demonstration shall be entered on the licence.

2.1.4 Circumstances in which class and type ratings are required

2.1.4.1 MCAA having issued a pilot licence will not permit the holder of such licence to act either as pilot-in-command or as co-pilot of an aeroplane, an airship, a helicopter or a powered-lift unless the holder has received authorization as follows:

- a) the appropriate class rating specified in 2.1.3.1; or
- b) a type rating when required in accordance with the provisions of 2.1.3.2.

2.1.4.1.1 When a type rating is issued limiting the privileges to act as co-pilot, or limiting the privileges to act as pilot only during the cruise phase of the flight, such limitation shall be endorsed on the rating.

2.1.4.2 For the purpose of training, testing, or specific special purpose non-revenue, non-passenger carrying flights, special authorization may be provided in writing to the licence holder by MCAA in place of issuing the class or type rating in accordance with 2.1.4.1. This authorization shall be limited in validity to the time needed to complete the specific flight.

2.1.5 Requirements for the issue of class and type ratings

2.1.5.1 *Class rating* The applicant shall have demonstrated a degree of skill appropriate to the licence in an aircraft of the class for which the rating is sought.

2.1.5.2 *Type rating as required by 2.1.3.2 a).* The applicant shall have:

- a) gained, under appropriate supervision, experience in the applicable type of aircraft and/or flight simulator in the following:
  - normal flight procedures and manoeuvres during all phases of flight;
  - abnormal and emergency procedures and manoeuvres in the event of failures and malfunctions of equipment, such as powerplant, systems and airframe;
  - where applicable, instrument procedures, including instrument approach, missed approach and landing procedures under normal, abnormal and emergency conditions, including simulated engine failure;
  - procedures for crew incapacitation and crew coordination including allocation of pilot tasks; crew cooperation and use of checklists;

**Note** Attention is called to 2.1.8.1 on the qualifications required for pilots giving flight training.

- b) demonstrated the skill and knowledge required for the safe operation of the applicable type of aircraft, relevant to the duties of a pilot-in-command or a co-pilot as applicable; and
- c) demonstrated, at the airline transport pilot licence level, an extent of knowledge acceptable to MCAA, on the basis of the requirements specified in 2.6.1.2.

**Note.** See the Manual of Procedures for Establishment and Management of a State's Personnel Licensing System (Doc 9379) for guidance of a general nature on cross-crew qualification and cross-credit.

2.1.5.3 Type rating as required by 2.1.3.2 b) and c) The applicant shall have demonstrated the skill and knowledge required for the safe operation of the applicable type of aircraft, relevant to the licensing requirements and piloting functions of the applicant.

2.1.6 Use of a flight simulation training device for acquisition of experience and demonstration of skill.

The use of a flight simulation training device for acquiring the experience or performing any manoeuvre required during the demonstration of skill for the issue of a licence or rating shall be approved by MCAA, which will ensure that the flight simulation training device used is appropriate to the task.

2.1.7 Circumstances in which an instrument rating is required

A person holding a Maldivian licence shall not act either as pilot-in-command or as co-pilot of an aircraft under instrument flight rules (IFR) unless such holder has received proper authorization from MCAA. Proper authorization shall comprise an instrument rating appropriate to the aircraft category.

**Note** The instrument rating is included in the airline transport pilot licence — aeroplane or powered-lift category, multi-crew pilot licence, and commercial pilot licence — airship category. The provisions of 2.1.7 do not preclude the issue of a licence having the instrument rating as an integral part thereof.

2.1.8 Circumstances in which authorization to conduct instruction is required (refer CAR 9.21-9.23)

2.1.8.1 A person holding a Maldivian licence shall not carry out flight instruction required for the issue of a pilot licence or rating, unless such holder has received proper authorization from MCAA. Such authorization shall comprise:

- a) a flight instructor rating on the holder's licence; or
- b) the authority to act as an agent of an approved organization authorized by MCAA to carry out flight instruction; or
- c) a specific authorization granted by MCAA.

2.1.8.2 A person shall not carry out instruction on a flight simulation training device required for the issue of a pilot licence or rating unless such person holds or has held an appropriate licence or has appropriate flight training and flight experience and has received proper authorization from MCAA.

2.1.9 Crediting of flight time

2.1.9.1 A student pilot or the holder of a pilot licence is entitled to be credited in full with all solo, dual instruction and pilot-in-command flight time towards the total flight time required for the initial issue of a pilot licence or the issue of a higher grade of pilot licence.

2.1.9.2 The holder of a pilot licence, when acting as co-pilot at a pilot station of an aircraft certificated for operation by a single pilot but required by MCAA to be operated with a co-pilot, will be entitled to be credited with not more than 50 per cent of the co-pilot flight time towards the total flight time required for a higher grade of pilot licence. MCAA may authorize that flight time be credited in full towards the total flight time required if the aircraft is equipped to be operated by a co-pilot and the aircraft is operated in a multi-crew operation.

- 2.1.9.3 The holder of a pilot licence, when acting as co-pilot at a pilot station of an aircraft certificated to be operated with a co-pilot, shall be entitled to be credited in full with this flight time towards the total flight time required for a higher grade of pilot licence.
- 2.1.9.4 The holder of a pilot licence, when acting as pilot-in-command under supervision, shall be entitled to be credited in full with this flight time towards the total flight time required for a higher grade of pilot licence.
- 2.1.10 Limitation of privileges of pilots who have attained their 60th birthday and curtailment of privileges of pilots who have attained their 65th birthday
- 2.1.10.1 A person holding a Maldivian licence shall not act as pilot-in-command of an aircraft engaged in commercial air transport operations if the licence holders have attained their 60th birthday or, in the case of operations with more than one pilot where the other pilot is younger than 60 years of age, their 65<sup>th</sup> birthday.
- 2.1.10.2 A person holding a Maldivian licence shall not act as co-pilot of an aircraft engaged in commercial air transport operations if the licence holders have attained their 65th birthday.

**Note** *Attention is drawn to 1.2.5.2.3 on the validity period of Medical Assessments for pilots over the age of 60 who are engaged in commercial air transport operations.*

## **2.2 Student pilot**

- 2.2.1 A student pilot shall meet the following requirements.
- (a) Be at least 16 years of age for other than the operation of a glider or balloon.
  - (b) Be at least 14 years of age for the operation of a glider or balloon.
  - (c) *Aeronautical knowledge.* A student pilot must demonstrate satisfactory aeronautical knowledge on a knowledge test that meets the requirements of this paragraph:
    - (1) The test must address the student pilot's knowledge of:
      - (i) Applicable sections of the CAR;
      - (ii) Airspace rules and procedures for the airport where the solo flight will be performed; and
      - (iii) Flight characteristics and operational limitations for the make and model of aircraft to be flown.
    - (2) The student's authorised instructor must:
      - (i) Administer the test; and
      - (ii) At the conclusion of the test, review all incorrect answers with the student before authorising that student to conduct a solo flight.
- 2.2.2 A student pilot will not fly solo unless under the supervision of, or with the authority of, an authorised flight instructor.
- 2.2.2.1 A student pilot shall not fly solo in an aircraft on an international flight unless by special or general arrangement between the Contracting States concerned.
- 2.2.3 Medical fitness  
A student pilot shall not fly unless that student pilot holds a current Class 2 Medical Assessment.

## **2.3 Private pilot licence**

- 2.3.1 General requirements for the issue of the licence appropriate to the aeroplane, airship, helicopter and powered-lift categories
- 2.3.1.1 *Age*  
The applicant shall be not less than 17 years of age.

2.3.1.2 *Knowledge*

The applicant shall have demonstrated a level of knowledge appropriate to the privileges granted to the holder of a private pilot licence and appropriate to the category of aircraft intended to be included in the licence, in at least the following subjects:

*Air law*

- a) rules and regulations relevant to the holder of a private pilot licence; rules of the air; altimeter setting procedures; appropriate air traffic services practices and procedures;

*Aircraft general knowledge for aeroplanes, airships, helicopters and powered-lifts*

- b) principles of operation and functioning of powerplants, systems and instruments;
- c) operating limitations of the relevant category of aircraft and powerplants; relevant operational information from the flight manual or other appropriate document;
- d) for helicopters and powered-lifts, transmission (power trains) where applicable;
- e) for airships, physical properties and practical application of gases;

*Flight performance, planning and loading*

- f) effects of loading and mass distribution on flight characteristics; mass and balance calculations;
- g) use and practical application of take-off, landing and other performance data;
- h) pre-flight and en-route flight planning appropriate to private operations under VFR; preparation and filing of air traffic services flight plans; appropriate air traffic services procedures; position reporting procedures; altimeter setting procedures; operations in areas of high-density traffic;

*Human performance*

- i) human performance including principles of threat and error management;

**Note.** *Guidance material to design training programmes on human performance, including threat and error management, can be found in the Human Factors Training Manual (Doc 9683).*

*Meteorology*

- j) application of elementary aeronautical meteorology; use of, and procedures for obtaining, meteorological information; altimetry; hazardous weather conditions;

*Navigation*

- k) practical aspects of air navigation and dead-reckoning techniques; use of aeronautical charts;

*Operational procedures*

- l) application of threat and error management to operational performance;

**Note** *Guidance material on the application of threat and error management is found in the Procedures for Air Navigation Services — Training (PANS-TRG, Doc 9868), Chapter 3, Attachment C, and in Part II, Chapter 2, of the Human Factors Training Manual (Doc 9683).*

- m) altimeter setting procedures;
- n) use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations;
- o) appropriate precautionary and emergency procedures, including action to be taken to avoid hazardous weather, wake turbulence and other operating hazards;
- p) in the case of helicopters, and if applicable, powered lifts, settling with power; ground resonance; retreating blade stall; dynamic rollover and other operating hazards; safety procedures, associated with flight in VMC;

*Principles of flight*

- q) principles of flight;

*Radiotelephony*

- r) communication procedures and phraseology as applied to VFR operations; action to be taken in case of communication failure.

2.3.1.3 *Skill*

The applicant shall have demonstrated the ability to perform as pilot-in-command of an aircraft within the appropriate category of aircraft, the procedures and manoeuvres described in 2.3.3.2 or 2.3.4.2.1 or 2.3.5.2 or 2.3.6.2 with a degree of competency appropriate to the privileges granted to the holder of a private pilot licence, and to:

- a) recognize and manage threats and errors;

**Note.** *Guidance material on the application of threat and error management is found in the Procedures for Air Navigation Services — Training (PANS-TRG, Doc 9868), Chapter 3, Attachment C, and in Part II, Chapter 2, of the Human Factors Training Manual (Doc 9683).*

- b) operate the aircraft within its limitations;
- c) complete all manoeuvres with smoothness and accuracy;
- d) exercise good judgement and airmanship;
- e) apply aeronautical knowledge; and
- f) maintain control of the aircraft at all times in a manner such that the successful outcome of a procedure or manoeuvre is assured.

2.3.1.4 *Medical fitness*

The applicant shall hold a current Class 2 Medical Assessment.

**Note.** *Attention is called to 2.7.1.3 on the medical fitness requirements for private pilot licence holders seeking an instrument rating.*

2.3.2 Privileges of the holder of the licence and the conditions to be observed in exercising such privileges

2.3.2.1 Subject to compliance with the requirements specified in 1.2.5, 1.2.6, 1.2.7.1, 1.2.9 and 2.1, the privileges of the holder of a private pilot licence shall be to act, but not for remuneration, as pilot-in-command or co-pilot of aircraft within the appropriate aircraft category engaged in non-revenue flights.

2.3.2.2 Before exercising the privileges at night, the licence holder shall have received dual instruction in aircraft within the appropriate category of aircraft in night flying, including take-off, landing and navigation.

2.3.3 Specific requirements for the issue of the aeroplane category rating

2.3.3.1 *Experience*

2.3.3.1.1 The applicant shall have completed not less than 40 hours of flight time, or 35 hours if completed during a course of approved training, as a pilot of aeroplanes appropriate to the class rating sought. 5 hours of experience as a pilot under instruction in a flight simulation training device is acceptable as part of the total flight time of 40 hours or 35 hours, as the case may be.

2.3.3.1.1.1 When the applicant has flight time as a pilot of aircraft in other categories, 10 hours of such experience is acceptable, towards meeting the total flight time requirements of 2.3.3.1.1.

2.3.3.1.2 The applicant shall have completed in aeroplanes not less than 10 hours of solo flight time appropriate to the class rating sought, under the supervision of an authorized flight instructor, including 5 hours of solo cross-country flight time with at least one cross-country flight totalling not less than 270 km (150 NM) in the course of which full-stop landings at two different aerodromes shall be made.

2.3.3.2 *Flight instruction*

The applicant shall have received dual instruction in aeroplanes appropriate to the class rating sought, from an authorized flight instructor. The instructor shall ensure that the applicant has operational experience in at least the following areas to the level of performance required for the private pilot:

- a) recognize and manage threats and errors;

**Note.** *Guidance material on the application of threat and error management is found in the Procedures for Air Navigation Services — Training (PANS-TRG, Doc 9868), Chapter 3, Attachment C, and in Part II, Chapter 2, of the Human Factors Training Manual (ICAO Doc 9683).*

- b) pre-flight operations, including mass and balance determination, aeroplane inspection and servicing;
- c) aerodrome and traffic pattern operations, collision avoidance precautions and procedures;
- d) control of the aeroplane by external visual reference;
- e) flight at critically slow airspeeds; recognition of, and recovery from, incipient and full stalls;
- f) flight at critically high airspeeds; recognition of, and recovery from, spiral dives;
- g) normal and crosswind take-offs and landings;
- h) maximum performance (short field and obstacle clearance) take-offs; short-field landings;
- i) flight by reference solely to instruments, including the completion of a level 180° turn;
- j) cross-country flying using visual reference, dead reckoning and, where available, radio navigation aids;
- k) emergency operations, including simulated aeroplane equipment malfunctions;
- l) operations to, from and transiting controlled aerodromes, compliance with air traffic services procedures; and
- m) communication procedures and phraseology.

**Note.** *The instrument experience specified in 2.3.3.2.1 i) and the night flying dual instruction in 2.3.2.2 do not entitle the holder of a private pilot licence to pilot aeroplanes under IFR.*

#### 2.3.4 Specific requirements for the issue of the helicopter category rating

##### 2.3.4.1 Experience

2.3.4.1.1 The applicant shall have completed not less than 40 hours of flight time, or 35 hours if completed during a course of approved training, as a pilot of helicopters. 5 hours of experience as a pilot under instruction in a flight simulation training device is acceptable as part of the total flight time of 40 hours or 35 hours, as the case may be.

2.3.4.1.1.1 When the applicant has flight time as a pilot of aircraft in other categories, 10 hours of such experience is acceptable, towards meeting the total flight time requirements of 2.3.4.1.1.

2.3.4.1.2 The applicant shall have completed in helicopters not less than 10 hours of solo flight time under the supervision of an authorized flight instructor, including 5 hours of solo cross-country flight time with at least one cross-country flight totalling not less than 180 km (100 NM) in the course of which landings at two different points shall be made.

##### 2.3.4.2 Flight instruction

2.3.4.2.1 The applicant shall have received not less than 20 hours of dual instruction time in helicopters from an authorized flight instructor. The instructor shall ensure that the applicant has operational experience in at least the following areas to the level of performance required for the private pilot:

- a) recognize and manage threats and errors;

**Note.** *Guidance material on the application of threat and error management is found in the Procedures for Air Navigation Services — Training (PANS-TRG, Doc 9868), Chapter 3, Attachment C, and in Part II, Chapter 2, of the Human Factors Training Manual (Doc 9683).*

- b) pre-flight operations, including mass and balance determination, helicopter inspection and servicing;
- c) aerodrome and traffic pattern operations, collision avoidance precautions and procedures;
- d) control of the helicopter by external visual reference;
- e) recovery at the incipient stage from settling with power; recovery techniques from low-rotor rpm within the normal range of engine rpm;
- f) ground manoeuvring and run-ups; hovering; take-offs and landings — normal, out of wind and sloping ground;

- g) take-offs and landings with minimum necessary power; maximum performance take-off and landing techniques; restricted site operations; quick stops;
- h) cross-country flying using visual reference, dead reckoning and, where available, radio navigation aids, including a flight of at least one hour;
- i) emergency operations, including simulated helicopter equipment malfunctions; autorotative approach;
- j) operations to, from and transiting controlled aerodromes, compliance with air traffic services procedures; and
- k) communication procedures and phraseology.

2.3.4.2.1.1 The applicant shall have received dual instrument flight instruction from an authorized flight instructor. The instructor should ensure that the applicant has operational experience in flight by reference solely to instruments, including the completion of a level 180° turn, in a suitably instrumented helicopter.

**Note** *The instrument experience specified in 2.3.4.2.1.1 and the night flying dual instruction in 2.3.2.2 do not entitle the holder of a private pilot licence to pilot helicopters under IFR.*

## 2.3.5 Specific requirements for the issue of the powered-lift category rating

### 2.3.5.1 Experience

2.3.5.1.1 The applicant should have completed not less than 40 hours of flight time as a pilot of powered-lifts. 5 hours of experience as a pilot under instruction in a flight simulation training device is acceptable as part of the total flight time of 40 hours or 35 hours, as the case may be.

2.3.5.1.2 When the applicant has flight time as a pilot of aircraft in other categories, 10 hours of such flight time experience is acceptable as part of the total flight time of 40 hours.

2.3.5.1.3 The applicant should have completed in powered-lifts not less than 10 hours of solo flight time under the supervision of an authorized flight instructor, including 5 hours of solo cross-country flight time with at least one cross-country flight totalling not less than 270 km (150 NM) in the course of which full-stop landings at two different aerodromes shall be made.

### 2.3.5.2 Flight instruction

The applicant should have received not less than 20 hours of dual instruction time in powered-lifts from an authorized flight instructor. The instructor should ensure that the applicant has operational experience in at least the following areas to the level of performance required for the private pilot:

- a) recognize and manage threats and errors;

**Note.** Guidance material on the application of threat and error management is found in the Procedures for Air Navigation Services — Training (PANS-TRG, Doc 9868), Chapter 3, Attachment C, and in Part II, Chapter 2, of the Human Factors Training Manual (Doc 9683).

- b) pre-flight operations, including mass and balance determination, powered-lift inspection and servicing;
- c) aerodrome and traffic pattern operations, collision avoidance precautions and procedures;
- d) control of the powered-lift by external visual reference;
- e) ground manoeuvring and run-ups; hover and rolling take-offs and climb-out; hover and rolling approach and landings — normal, out of wind and sloping ground;
- f) take-offs and landings with minimum necessary power; maximum performance take-off and landing techniques; restricted site operations; quick stops;
- g) flight by reference solely to instruments, including the completion of a level 180° turn;
- h) recovery at the incipient stage from settling with power; recovery techniques from low-rotor rpm within the normal range of engine rpm;
- i) cross-country flying using visual reference, dead reckoning and, where available, radio navigation aids, including a flight of at least one hour;



- j) emergency operations, including simulated powered-lift equipment malfunctions; power of re-conversion to autorotation and autorotative approach, where applicable; transmission and interconnect driveshaft failure, where applicable;
- k) operations to from and transiting controlled aerodromes, compliance with air traffic services procedures; and
- l) communication procedures and phraseology.

**Note.** *The instrument experience specified in 2.3.5.2 g) and the night flying dual instruction specified in 2.3.2.2 do not entitle the holder of a private pilot licence to pilot powered-lifts under IFR.*

## 2.3.6 Specific requirements for the issue of the airship category rating

### 2.3.6.1 Experience

The applicant shall have completed not less than 25 hours of flight time as a pilot of airships, including at least:

- a) 3 hours of cross-country flight training in an airship with a cross-country flight totalling not less than 45 km (25 NM);
- b) 5 take-offs and 5 landings to a full stop at an aerodrome with each landing involving a flight in the traffic pattern at an aerodrome;
- c) 3 hours of instrument time; and
- d) 5 hours as pilot assuming the duties of the pilot-in-command under the supervision of the pilot-in-command.

### 2.3.6.2 Flight instruction

The applicant shall have received dual instruction in airships from an authorized flight instructor. The instructor shall ensure that the applicant has received instruction in at least the following areas:

- a) recognize and manage threats and errors;

**Note.** *Guidance material on the application of threat and error management is found in the Procedures for Air Navigation Services — Training (PANS-TRG, Doc 9868), Chapter 3, Attachment C, and in Part II, Chapter 2, of the Human Factors Training Manual (Doc 9683).*

- b) pre-flight operations, including mass and balance determination, airship inspection and servicing;
- c) ground reference manoeuvres;
- d) aerodrome and traffic pattern operations, collision avoidance precautions and procedures;
- e) techniques and procedures for the take-off, including appropriate limitations, emergency procedures and signals used;
- f) control of the airship by external visual reference;
- g) take-offs, landings and go-arounds;
- h) maximum performance (obstacle clearance) take-offs;
- i) flight by reference solely to instruments, including the completion of a level 180° turn;
- j) navigation, cross-country flying using visual reference, dead reckoning and radio navigation aids;
- k) emergency operations (recognition of leaks), including simulated airship equipment malfunctions; and
- l) communication procedures and phraseology.

**Note.** *The instrument experience specified in 2.3.6.2 i) and the night flying dual instruction specified in 2.3.2.2 do not entitle the holder of a private pilot licence to pilot airships under IFR.*

## 2.4 Commercial pilot licence

### 2.4.1 General requirements for the issue of the licence appropriate to the aeroplane, airship, helicopter and powered-lift categories

#### 2.4.1.1 Age

The applicant shall be not less than 18 years of age.

2.4.1.2 *Knowledge*

The applicant shall have demonstrated a level of knowledge appropriate to the privileges granted to the holder of a commercial pilot licence and appropriate to the category of aircraft intended to be included in the licence, in at least the following subjects:

*Air law*

- a) rules and regulations relevant to the holder of a commercial pilot licence; rules of the air; appropriate air traffic services practices and procedures; *Aircraft general knowledge for aeroplanes, airships, helicopters and powered-lifts*
- b) principles of operation and functioning of powerplants, systems and instruments;
- c) operating limitations of the relevant category of aircraft and powerplants; relevant operational information from the flight manual or other appropriate document;
- d) use and serviceability checks of equipment and systems of appropriate aircraft;
- e) maintenance procedures for airframes, systems and powerplants of appropriate aircraft;
- f) for helicopters and powered-lifts, transmission (power trains) where applicable;
- g) for airships, physical properties and practical application of gases;

*Flight performance, planning and loading*

- h) effects of loading and mass distribution on aircraft handling, flight characteristics and performance; mass and balance calculations;
- i) use and practical application of take-off, landing and other performance data;
- j) pre-flight and en-route flight planning appropriate to commercial operations under VFR; preparation and filing of air traffic services flight plans; appropriate air traffic services procedures; altimeter setting procedures;
- k) in the case of airships, helicopters and powered-lifts, effects of external loading on handling;

*Human performance*

- l) human performance including principles of threat and error management;

**Note** *Guidance material to design training programmes on human performance, including threat and error management, can be found in the Human Factors Training Manual (Doc 9683).*

*Meteorology*

- m) interpretation and application of aeronautical meteorological reports, charts and forecasts; use of, and procedures for obtaining, meteorological information, pre-flight and in-flight; altimetry;
- n) aeronautical meteorology; climatology of relevant areas in respect of the elements having an effect upon aviation; 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;
- o) causes, recognition and effects of icing; frontal zone penetration procedures; hazardous weather avoidance;

*Navigation*

- p) air navigation, including the use of aeronautical charts, instruments and navigation aids; an understanding of the principles and characteristics of appropriate navigation systems; operation of airborne equipment;
- q) in the case of airships:
  - i) use, limitation and serviceability of avionics and instruments necessary for control and navigation;
  - ii) use, accuracy and reliability of navigation systems used in departure, en-route, approach and landing phases of flight, identification of radio navigation aids;
  - iii) principles and characteristics of self-contained and external referenced navigation systems, operation of airborne equipment;

*Operational procedures*

- r) application of threat and error management to operational performance;

*Note.* Guidance material on the application of threat and error management is found in the Procedures for Air Navigation Services — Training (PANS-TRG, Doc 9868), Chapter 3, Attachment C, and in Part II, Chapter 2, of the Human Factors Training Manual (Doc 9683).

- s) use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations;
- t) altimeter setting procedures;
- u) appropriate precautionary and emergency procedures;
- v) operational procedures for carriage of freight; potential hazards associated with dangerous goods;
- w) requirements and practices for safety briefing to passengers, including precautions to be observed when embarking and disembarking from aircraft;
- x) in the case of helicopters, and if applicable, powered lifts, settling with power; ground resonance; retreating blade stall; dynamic rollover and other operating hazards; safety procedures, associated with flight in VMC;

*Principles of flight*

- y) principles of flight;

*Radiotelephony*

- z) communication procedures and phraseology as applied to VFR operations; action to be taken in case of communication failure.

2.4.1.3 *Skill*

The applicant shall have demonstrated the ability to perform as pilot-in-command of an aircraft within the appropriate category of aircraft, the procedures and manoeuvres described in 2.4.3.2 or 2.4.4.2 or 2.4.5.2 or 2.4.6.2 with a degree of competency appropriate to the privileges granted to the holder of a commercial pilot licence, and to:

- a) recognize and manage threats and errors;

*Note.* Guidance material on the application of threat and error management is found in the Procedures for Air Navigation Services — Training (PANS-TRG, Doc 9868), Chapter 3, Attachment C, and in Part II, Chapter 2, of the Human Factors Training Manual (Doc 9683).

- b) operate the aircraft within its limitations;
- c) complete all manoeuvres with smoothness and accuracy;
- d) exercise good judgement and airmanship;
- e) apply aeronautical knowledge; and
- f) maintain control of the aircraft at all times in a manner such that the successful outcome of a procedure or manoeuvre is assured.

2.4.1.4 *Medical fitness*

The applicant shall hold a current Class 1 Medical Assessment.

2.4.2 Privileges of the holder of the licence and the conditions to be observed in exercising such privileges

2.4.2.1 Subject to compliance with the requirements specified in 1.2.5, 1.2.6, 1.2.7.1, 1.2.9 and 2.1, the privileges of the holder of a commercial pilot licence shall be:

- a) to exercise all the privileges of the holder of a private pilot licence in an aircraft within the appropriate aircraft category;
- b) to act as pilot-in-command of an aircraft within the appropriate aircraft category engaged in operations other than commercial air transportation;
- c) to act as pilot-in-command, in commercial air transportation, of an aircraft within the appropriate aircraft category and certificated for single-pilot operation;
- d) to act as co-pilot of an aircraft within the appropriate aircraft category required to be operated with a co-pilot; and
- e) for the airship category, to pilot an airship under IFR.

2.4.2.2 Before exercising the privileges at night, the licence holder shall have received dual instruction in aircraft within the appropriate category of aircraft in night flying, including take-off, landing and navigation.

*Note.* Certain privileges of the licence are curtailed by 2.1.10 for licence holders when they attain their 60th and 65<sup>th</sup> birthdays.

2.4.3 Specific requirements for the issue of the aeroplane category rating

2.4.3.1 *Experience*

2.4.3.1.1 The applicant shall have completed not less than 200 hours of flight time, or 150 hours if completed during a course of approved training, as a pilot of aeroplanes. 10 hours of experience as a pilot under instruction in a flight simulation training device is acceptable as part of the total flight time of 200 hours or 150 hours, as the case may be.

2.4.3.1.1.1 The applicant shall have completed in aeroplanes not less than:

- a) 100 hours as pilot-in-command or, in the case of a course of approved training, 70 hours as pilot-in-command;
- b) 20 hours of cross-country flight time as pilot-in-command including a cross-country flight totaling not less than 540 km (300 NM) in the course of which full-stop landings at two different aerodromes shall be made;
- c) 10 hours of instrument instruction time of which not more than 5 hours may be instrument ground time; and
- d) if the privileges of the licence are to be exercised at night, 5 hours of night flight time including 5 take-offs and 5 landings as pilot-in-command.

2.4.3.1.2 When the applicant has flight time as a pilot of aircraft in other categories, 30 hours of such experience is acceptable, towards meeting the total flight time requirements of 2.4.3.1.1.

2.4.3.2 *Flight instruction*

The applicant shall have received dual instruction in aeroplanes appropriate to the class and/or type rating, sought from an authorized flight instructor. The instructor shall ensure that the applicant has operational experience in at least the following areas to the level of performance required for the commercial pilot;

- a) recognize and manage threats and errors;

*Note.* Guidance material on the application of threat and error management is found in the Procedures for Air Navigation Services — Training (PANS-TRG, Doc 9868), Chapter 3, Attachment C, and in Part II, Chapter 2, of the Human Factors Training Manual (Doc 9683).

- b) pre-flight operations, including mass and balance determination, aeroplane inspection and servicing;
- c) aerodrome and traffic pattern operations, collision avoidance precautions and procedures;
- d) control of the aeroplane by external visual reference;
- e) flight at critically slow airspeeds; spin avoidance; recognition of, and recovery from, incipient and full stalls;
- f) flight with asymmetrical power for multi-engine class or type ratings;
- g) flight at critically high airspeeds; recognition of, and recovery from, spiral dives;
- h) normal and crosswind take-offs and landings;
- i) maximum performance (short field and obstacle clearance) take-offs; short-field landings;
- j) basic flight manoeuvres and recovery from unusual attitudes by reference solely to basic flight instruments;
- k) cross-country flying using visual reference, dead reckoning and radio navigation aids; diversion procedures;
- l) abnormal and emergency procedures and manoeuvres including simulated aeroplane equipment malfunctions;
- m) operations to, from and transiting controlled aerodromes, compliance with air traffic services procedures; and

- n) communication procedures and phraseology.

**Note.** *The instrument experience specified in 2.4.3.1.1.1 c) and 2.4.3.2 j) and the night flying experience and dual instruction specified in 2.4.3.1.1.1 d) and 2.4.2.2 do not entitle the holder of a commercial pilot licence to pilot aeroplanes under IFR.*

#### 2.4.4 Specific requirements for the issue of the helicopter category rating

##### 2.4.4.1 Experience

2.4.4.1.1 The applicant shall have completed not less than 150 hours of flight time, or 100 hours if completed during a course of approved training, as a pilot of helicopters. 10 hours of experience as a pilot under instruction in a flight simulation training device is acceptable as part of the total flight time of 150 hours or 100 hours, as the case may be.

2.4.4.1.1.1 The applicant shall have completed in helicopters not less than:

- a) 35 hours as pilot-in-command;
- b) 10 hours of cross-country flight time as pilot-in-command including a cross-country flight in the course of which landings at two different points shall be made;
- c) 10 hours of instrument instruction time of which not more than 5 hours may be instrument ground time; and
- d) if the privileges of the licence are to be exercised at night, 5 hours of night flight time including 5 take-offs and 5 landing patterns as pilot-in-command.

2.4.4.1.2 When the applicant has flight time as a pilot of aircraft in other categories, 20 hours of such experience is acceptable, towards meeting the total flight time requirements of 2.4.4.1.1.

##### 2.4.4.2 Flight instruction

The applicant shall have received dual instruction in helicopters from an authorized flight instructor. The instructor shall ensure that the applicant has operational experience in at least the following areas to the level of performance required for the commercial pilot:

- a) recognize and manage threats and errors;

**Note.** *Guidance material on the application of threat and error management is found in the Procedures for Air Navigation Services — Training (PANS-TRG, Doc 9868), Chapter 3, Attachment C, and in Part II, Chapter 2, of the Human Factors Training Manual (Doc 9683).*

- b) pre-flight operations, including mass and balance determination, helicopter inspection and servicing;
- c) aerodrome and traffic pattern operations, collision avoidance precautions and procedures;
- d) control of the helicopter by external visual reference;
- e) recovery at the incipient stage from settling with power; recovery techniques from low-rotor rpm within the normal range of engine rpm;
- f) ground manoeuvring and run-ups; hovering; take-offs and landings — normal, out of wind and sloping ground; steep approaches;
- g) take-offs and landings with minimum necessary power; maximum performance take-off and landing techniques; restricted site operations; quick stops;
- h) hovering out of ground effect; operations with external load, if applicable; flight at high altitude;
- i) basic flight manoeuvres and recovery from unusual attitudes by reference solely to basic flight instruments;
- j) cross-country flying using visual reference, dead reckoning and radio navigation aids; diversion procedures;
- k) abnormal and emergency procedures, including simulated helicopter equipment malfunctions, autorotative approach and landing;
- l) operations to, from and transiting controlled aerodromes, compliance with air traffic services procedures; and
- m) communication procedures and phraseology.

*Note.* The instrument experience specified in 2.4.4.1.1.1 c) and 2.4.4.2 i) and the night flying experience and dual instruction specified in 2.4.4.1.1.1 d) and 2.4.2.2 do not entitle the holder of a commercial pilot licence to pilot helicopters under IFR.

#### 2.4.5 Specific requirements for the issue of the powered-lift category rating

##### 2.4.5.1 Experience

2.4.5.1.1 The applicant shall have completed not less than 200 hours of flight time in a powered lift, or 150 hours if completed during a course of approved training, as a pilot of aircraft. 10 hours of experience as a pilot under instruction in a flight simulation training device is acceptable as part of the total flight time of 200 hours or 150 hours, as the case may be.

2.4.5.1.2 The applicant shall have completed in a powered-lift not less than:

- a) 50 hours as pilot-in-command;
- b) 10 hours of cross-country flying as pilot-in-command including a cross-country flight totalling not less than 540 km (300 NM) in the course of which full-stop landings at two different aerodromes should be made;
- c) 10 hours of instrument instruction of which not more than 5 hours may be instrument ground time; and
- d) if the privileges of the licence are to be exercised at night, 5 hours of night flight time including 5 take-offs and landings as pilot-in-command.

2.4.5.1.3 When the applicant has flight time as a pilot of aircraft in other categories, 30 hours of such experience is acceptable, towards meeting the total flight time requirements of 2.4.5.1.1.

##### 2.4.5.2 Flight instruction

The applicant shall have received dual instruction time in a powered-lift from an authorized flight instructor. The instructor shall ensure that the applicant has operational experience in at least the following areas to the level of performance required for the commercial pilot:

- a) recognize and manage threats and errors;

*Note.* Guidance material on the application of threat and error management is found in the Procedures for Air Navigation Services — Training (PANS-TRG, Doc 9868), Chapter 3, Attachment C, and in Part II, Chapter 2, of the Human Factors Training Manual (Doc 9683).

- b) pre-flight operations, including mass and balance determination, powered-lift inspection and servicing;
- c) aerodrome and traffic pattern operations, collision avoidance precautions and procedures;
- d) control of the powered-lift by external visual reference;
- e) recovery at the incipient stage from settling with power; recovery techniques from low-rotor rpm within the normal range of engine rpm;
- f) ground manoeuvring and run-ups; hover and rolling take-offs and climb-out; hover and rolling approach and landings — normal, out of wind and sloping ground; steep approaches;
- g) take-offs and landings with minimum necessary power; maximum performance take-off and landing techniques; restricted site operations; quick stops;
- h) hovering out of ground effect; operations with external load, if applicable; flight at high altitude;
- i) basic flight manoeuvres and recovery from unusual attitudes by reference solely to basic flight instruments;
- j) cross-country flying using visual reference, dead reckoning and, where available, radio navigation aids, including a flight of at least one hour;
- k) emergency operations, including simulated powered-lift equipment malfunctions; power of re-conversion to autorotation and autorotative approach, where applicable; transmission and interconnect driveshaft failure, where applicable;
- l) operations to, from and transiting controlled aerodromes, compliance with air traffic services procedures; and
- m) communication procedures and phraseology.

*Note.* The instrument experience specified in 2.4.5.1.2 c) and 2.4.5.2 i) and the night flying experience and dual instruction specified in 2.4.5.1.2 d) and 2.4.2.2 do not entitle the holder of a commercial pilot licence to pilot powered-lifts under IFR.

#### 2.4.6 Specific requirements for the issue of the airship category rating

##### 2.4.6.1 Experience

2.4.6.1.1 The applicant shall have completed not less than 200 hours of flight time as a pilot.

2.4.6.1.1.1 The applicant shall have completed not less than:

- a) 50 hours as a pilot of airships;
- b) 30 hours in airships as pilot-in-command or pilot-in command under supervision, to include not less than:
  - 10 hours of cross-country flight time; and
  - 10 hours of night flight;
- c) 40 hours of instrument time, of which 20 hours shall be in flight and 10 hours in flight in airships; and
- d) 20 hours of flight training in airships in the areas of operation listed in 2.4.6.2.

##### 2.4.6.2 Flight instruction

The applicant shall have received dual instruction in airships from an authorized flight instructor. The instructor shall ensure that the applicant has operational experience in at least the following areas to the level of performance required for the commercial pilot:

- a) recognize and manage threats and errors;

*Note.* Guidance material on the application of threat and error management is found in the Procedures for Air Navigation Services — Training (PANS-TRG, Doc 9868), Chapter 3, Attachment C, and in Part II, Chapter 2, of the Human Factors Training Manual (Doc 9683).

- b) pre-flight operations, including mass and balance determination, airship inspection and servicing;
- c) aerodrome and traffic pattern operations, collision avoidance precautions and procedures;
- d) techniques and procedures for the take-off, including appropriate limitations, emergency procedures and signals used;
- e) control of the airship by external visual reference;
- f) recognition of leaks;
- g) normal take-offs and landings;
- h) maximum performance (short field and obstacle clearance) take-offs; short-field landings;
- i) flight under IFR;
- j) cross-country flying using visual reference, dead reckoning and, where available, radio navigation aids;
- k) emergency operations, including simulated airship equipment malfunctions;
- l) operations to, from and transiting controlled aerodromes, compliance with air traffic services procedures; and
- m) communication procedures and phraseology.

## 2.5 Multi-crew pilot licence appropriate to the aeroplane category

### 2.5.1 General requirements for the issue of the licence

#### 2.5.1.1 Age

The applicant shall be not less than 18 years of age.

#### 2.5.1.2 Knowledge

The applicant shall have met the requirements specified in 2.6.1.2 for the airline transport pilot licence appropriate to the aeroplane category in an approved training course.

#### 2.5.1.3 Skill

2.5.1.3.1 The applicant shall have demonstrated the skills required for fulfilling all the competency units specified in Appendix 3 as pilot flying and pilot not flying, to the level required to perform as a co-pilot of turbine-powered aeroplanes certificated for operation with a minimum crew of at least two pilots under VFR and IFR, and to:

- a) recognize and manage threats and errors;

**Note.** *Guidance material on the application of threat and error management is found in the Procedures for Air Navigation Services — Training (PANS-TRG, Doc 9868), Chapter 3, Attachment C, and in Part II, Chapter 2, of the Human Factors Training Manual (Doc 9683).*

- b) smoothly and accurately, manually control the aeroplane within its limitations at all times, such that the successful outcome of a procedure or manoeuvre is assured;
- c) operate the aeroplane in the mode of automation appropriate to the phase of flight and to maintain awareness of the active mode of automation;
- d) perform, in an accurate manner, normal, abnormal and emergency procedures in all phases of flight; and e) communicate effectively with other flight crew members and demonstrate the ability to effectively perform procedures for crew incapacitation, crew coordination, including allocation of pilot tasks, crew cooperation, adherence to standard operating procedures (SOPs) and use of checklists.

2.5.1.3.2 Progress in acquiring the skills specified in 2.5.1.3.1 shall be continuously assessed.

#### 2.5.1.4 Medical fitness

The applicant shall hold a current Class 1 medical assessment.

#### 2.5.2 Privileges of the holder of the licence and the conditions to be observed in exercising such privileges

2.5.2.1 Subject to compliance with the requirements specified in 1.2.5, 1.2.6, 1.2.7.1, 1.2.9 and 2.1, the privileges of the holder of a multi-crew pilot licence will be:

- a) to exercise all the privileges of the holder of a private pilot licence in the aeroplane category provided the requirements of paragraph 2.3.3 have been met;
- b) to exercise the privileges of the instrument rating in a multi-crew operation; and
- c) to act as co-pilot of an aeroplane required to be operated with a co-pilot.

2.5.2.2 Before exercising the privileges of the instrument rating in a single-pilot operation in aeroplanes, the licence holder shall have demonstrated an ability to act as pilot-in command in a single-pilot operation exercised by reference solely to instruments and shall have met the skill requirement specified in 2.7.1.2 appropriate to the aeroplane category.

2.5.2.3 Before exercising the privileges of a commercial pilot licence in a single-pilot operation in aeroplanes, the licence holder shall have:

- a) completed in aeroplanes 70 hours, either as pilot-in command, or made up of not less than 10 hours as pilot-in command and the necessary additional flight time as pilot-in-command under supervision;
- b) completed 20 hours of cross-country flight time as pilot-in-command, or made up of not less than 10 hours as pilot-in-command and 10 hours as pilot-in command under supervision, including a cross-country flight totalling not less than 540 km (300 NM) in the course of which full-stop landings at two different aerodromes shall be made; and
- c) met the requirements for the commercial pilot licence specified in 2.4.1.2, 2.4.1.3, 2.4.3.1.1 (with the exception of 2.4.3.1.1.1 a)) and 2.4.3.2 appropriate to the aeroplane category.

**Note1.** *When a Contracting State grants single-pilot operation privileges to the holder of a multi-crew pilot licence, it can document the privileges through an endorsement of the multi-crew pilot licence or through the issuance of a commercial pilot licence in the aeroplane category.*

**Note2.** *Certain privileges of the licence are curtailed by 2.1.10 for licence holders when they attain their 65th birthday.*



### 2.5.3 Experience

- 2.5.3.1 The applicant shall have completed in an approved training course not less than 240 hours as pilot flying and pilot not flying of actual and simulated flight.
- 2.5.3.2 Flight experience in actual flight shall include at least the experience requirements at 2.3.3.1, upset recovery training, night flying and flight by reference solely to instruments.
- 2.5.3.3 In addition to meeting the provisions of 2.5.3.2, the applicant shall have gained, in a turbine-powered aeroplane certificated for operation with a minimum crew of at least two pilots, or in a flight simulation training device approved for that purpose MCAA in accordance with Appendix 3, paragraph 4, the experience necessary to achieve the advanced level of competency defined in Appendix 3.

### 2.5.4 Flight instruction

- 2.5.4.1 The applicant shall have completed a course of approved training covering the experience requirements specified in 2.5.3.
- 2.5.4.2 The applicant shall have received dual flight instruction in all the competency units specified in Appendix 3, to the level required for the issue of the multi-crew pilot licence, to include the competency units required to pilot under instrument flight rules.

## 2.6 Airline transport pilot licence

- 2.6.1 General requirements for the issue of the licence appropriate to the aeroplane, helicopter and powered-lift categories

### 2.6.1.1 Age

The applicant shall be not less than 21 years of age.

### 2.6.1.2 Knowledge

- 2.6.1.2.1 The applicant shall have demonstrated a level of knowledge appropriate to the privileges granted to the holder of an airline transport pilot licence and appropriate to the category of aircraft intended to be included in the licence, in at least the following subjects:

#### *Air law*

- a) rules and regulations relevant to the holder of an airline transport pilot licence; rules of the air; appropriate air traffic services practices and procedures;

#### *Aircraft general knowledge for aeroplanes, helicopters and powered-lifts*

- b) general characteristics and limitations of electrical, hydraulic, pressurization and other aircraft systems; flight control systems, including autopilot and stability augmentation;
- c) principles of operation, handling procedures and operating limitations of aircraft powerplants; effects of atmospheric conditions on engine performance; relevant operational information from the flight manual or other appropriate document;
- d) operating procedures and limitations of the relevant category of aircraft; effects of atmospheric conditions on aircraft performance in accordance with the relevant operational information from the flight manual;
- e) use and serviceability checks of equipment and systems of appropriate aircraft;
- f) flight instruments; compasses, turning and acceleration errors; gyroscopic instruments, operational limits and precession effects; practices and procedures in the event of malfunctions of various flight instruments and electronic display units;
- g) maintenance procedures for airframes, systems and powerplants of appropriate aircraft;
- h) for helicopters and powered-lifts, transmission (power trains) where applicable;

*Flight performance, planning and loading*

- i) effects of loading and mass distribution on aircraft handling, flight characteristics and performance; mass and balance calculations;
- j) use and practical application of take-off, landing and other performance data, including procedures for cruise control;
- k) pre-flight and en-route operational flight planning; preparation and filing of air traffic services flight plans; appropriate air traffic services procedures; altimeter setting procedures;
- l) in the case of helicopters and powered-lifts, effects of external loading on handling;

*Human performance*

- m) human performance including principles of threat and error management;

**Note.** *Guidance material to design training programmes on human performance, including threat and error management, can be found in the Human Factors Training Manual (Doc 9683).*

*Meteorology*

- n) interpretation and application of aeronautical meteorological reports, charts and forecasts; codes and abbreviations; use of, and procedures for obtaining, meteorological information, pre-flight and in-flight; altimetry;
- o) aeronautical meteorology; climatology of relevant areas in respect of the elements having an effect upon aviation; 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;
- p) causes, recognition and effects of icing; frontal zone penetration procedures; hazardous weather avoidance;
- q) in the case of aeroplanes and powered-lifts, practical high altitude meteorology, including interpretation and use of weather reports, charts and forecasts; jet streams;

*Navigation*

- r) air navigation, including the use of aeronautical charts, radio navigation aids and area navigation systems; specific navigation requirements for long-range flights;
- s) use, limitation and serviceability of avionics and instruments necessary for the control and navigation of aircraft;
- t) use, accuracy and reliability of navigation systems used in departure, en-route, approach and landing phases of flight; identification of radio navigation aids;
- u) principles and characteristics of self-contained and external-referenced navigation systems; operation of airborne equipment;

*Operational procedures*

- v) application of threat and error management to operational performance;

**Note** *Guidance material on the application of threat and error management is found in the Procedures for Air Navigation Services — Training (PANS-TRG, Doc 9868), Chapter 3, Attachment C, and in Part II, Chapter 2, of the Human Factors Training Manual (Doc 9683).*

- w) interpretation and use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations;
- x) precautionary and emergency procedures; safety practices;
- y) operational procedures for carriage of freight and dangerous goods;
- z) requirements and practices for safety briefing to passengers, including precautions to be observed when embarking and disembarking from aircraft;
- aa) in the case of helicopters, and if applicable, powered lifts, settling with power; ground resonance; retreating blade stall; dynamic rollover and other operating hazards; safety procedures, associated with flight in VMC;

*Principles of flight*

- bb) principles of flight;

*Radiotelephony*

- cc) communication procedures and phraseology; action to be taken in case of communication failure.

2.6.1.2.2 In addition to the above subjects, the applicant for an airline transport pilot licence applicable to the aeroplane or powered-lift category shall have met the knowledge requirements for the instrument rating at 2.7.1.1.

2.6.1.3 *Skill*

2.6.1.3.1 The applicant shall have demonstrated the ability to perform, as pilot-in-command of an aircraft within the appropriate category required to be operated with a copilot, the following procedures and manoeuvres:

- a) pre-flight procedures, including the preparation of the operational flight plan and filing of the air traffic services flight plan;
- b) normal flight procedures and manoeuvres during all phases of flight;
- c) abnormal and emergency procedures and manoeuvres related to failures and malfunctions of equipment, such as powerplant, systems and airframe;
- d) procedures for crew incapacitation and crew coordination, including allocation of pilot tasks, crew cooperation and use of checklists; and
- e) in the case of aeroplanes and powered-lifts, procedures and manoeuvres for instrument flight described in 2.7.4.1 a) to d), including simulated engine failure.

2.6.1.3.1.1 In the case of an aeroplane, the applicant shall have demonstrated the ability to perform the procedures and manoeuvres described in 2.6.1.3.1 as pilot-in-command of a multi-engined aeroplane.

2.6.1.3.1.2 The applicant shall have demonstrated the ability to perform the procedures and manoeuvres described in 2.6.1.3 with a degree of competency appropriate to the privileges granted to the holder of an airline transport pilot licence, and to:

- a) recognize and manage threats and errors;

**Note** *Guidance material on the application of threat and error management is found in the Procedures for Air Navigation Services — Training (PANS-TRG, Doc 9868), Chapter 3, Attachment C, and in Part II, Chapter 2, of the Human Factors Training Manual (Doc 9683).*

- b) smoothly and accurately, manually control the aircraft within its limitations at all times, such that the successful outcome of a procedure or manoeuvre is assured;
- c) operate the aircraft in the mode of automation appropriate to the phase of flight and to maintain awareness of the active mode of automation;
- d) perform, in an accurate manner, normal, abnormal and emergency procedures in all phases of flight;
- e) exercise good judgement and airmanship, to include structured decision making and the maintenance of situational awareness; and
- f) communicate effectively with other flight crew members and demonstrate the ability to effectively perform procedures for crew incapacitation, crew coordination, including allocation of pilot tasks, crew cooperation, adherence to standard operating procedures (SOPs) and use of checklists.

2.6.1.4 *Medical fitness*

The applicant shall hold a current Class 1 Medical Assessment.

2.6.2 Privileges of the holder of the licence and the conditions to be observed in exercising such privileges

2.6.2.1 Subject to compliance with the requirements specified in 1.2.5, 1.2.6, 1.2.7.1, 1.2.9 and 2.1, the privileges of the holder of an airline transport pilot licence shall be:

- a) to exercise all the privileges of the holder of a private and commercial pilot licence in an aircraft within the appropriate aircraft category and, in the case of a licence for the aeroplane and powered-lift categories, of the instrument rating; and

- b) to act as pilot-in-command, in commercial air transportation, of an aircraft within the appropriate category and certificated for operation with more than one pilot.

2.6.2.2 When the holder of an airline transport pilot licence in the aeroplane category has previously held only a multi-crew pilot licence, the privileges of the licence shall be limited to multi-crew operations unless the holder has met the requirements established in 2.5.2.1 a), 2.5.2.2 and 2.5.2.3 as appropriate. Any limitation of privileges shall be endorsed on the licence.

*Note.* Certain privileges of the licence are curtailed by 2.1.10 for licence holders when they attain their 60th and 65<sup>th</sup> birthdays.

## 2.6.3 Specific requirements for the issue of the aeroplane category rating

### 2.6.3.1 Experience

2.6.3.1.1 The applicant shall have completed not less than 1 500 hours of flight time as a pilot of aeroplanes. Experience as a pilot under instruction in a flight simulation training device is acceptable as part of the total flight time of 1 500 hours. Credit for such experience is limited to a maximum of 100 hours, of which not more than 25 hours shall have been acquired in a flight procedure trainer or a basic instrument flight trainer.

2.6.3.1.1.1 The applicant shall have completed in aeroplanes not less than:

- a) 500 hours as pilot-in-command under supervision or 250 hours, either as pilot-in-command, or made up by not less than 70 hours as pilot-in-command and the necessary additional flight time as pilot-in-command under supervision;
- b) 200 hours of cross-country flight time, of which not less than 100 hours shall be as pilot-in-command or as pilot-in-command under supervision;
- c) 75 hours of instrument time, of which not more than 30 hours may be instrument ground time; and
- d) 100 hours of night flight as pilot-in-command or as co-pilot.

2.6.3.1.2 When the applicant has flight time as a pilot of aircraft in other categories, 100 hours of such experience is acceptable, towards meeting the total flight time requirements of 2.6.3.1.1.

### 2.6.3.2 Flight instruction

The applicant shall have received the dual flight instruction required at 2.4.3.2 for the issue of the commercial pilot licence and at 2.7.4 for the issue of the instrument rating or at 2.5.4 for the issue of the multi-crew pilot licence.

## 2.6.4 Specific requirements for the issue of the helicopter category rating

### 2.6.4.1 Experience

2.6.4.1.1 The applicant shall have completed not less than 1 000 hours of flight time as a pilot of helicopters. Experience as a pilot under instruction in a flight simulation training device is acceptable as part of the total flight time of 1 000 hours. Credit for such experience is limited to a maximum of 100 hours, of which not more than 25 hours shall have been acquired in a flight procedure trainer or a basic instrument flight trainer.

2.6.4.1.1.1 The applicant shall have completed in helicopters not less than:

- a) 250 hours, either as pilot-in-command, or made up of not less than 70 hours as pilot-in-command and the necessary additional flight time as pilot-in-command under supervision;
- b) 200 hours of cross-country flight time, of which not less than 100 hours shall be as pilot-in-command or as pilot-in-command under supervision;
- c) 30 hours of instrument time, of which not more than 10 hours may be instrument ground time; and
- d) 50 hours of night flight as pilot-in-command or as co-pilot.

2.6.4.1.2 When the applicant has flight time as a pilot of aircraft in other categories, 100 hours of such experience is acceptable, towards meeting the total flight time requirements of 2.6.4.1.1.

2.6.4.2 *Flight instruction*

The applicant shall have received the flight instruction required for the issue of the commercial pilot licence (2.4.4.2).

**Note.** *The instrument time specified in 2.6.4.1.1.1 c) and the night flying time specified in 2.6.4.1.1.1 d) do not entitle the holder of the airline transport pilot licence — helicopter to pilot helicopters under IFR.*

2.6.5 Specific requirements for the issue of the powered-lift category rating

2.6.5.1 Experience

2.6.5.1.1 The applicant shall have completed not less than 1 500 hours of flight time as a pilot of powered-lifts. 100 hours of experience as a pilot under instruction in a flight simulation training device is acceptable as part of the total flight time of 1 500 hours.

2.6.5.1.2 The applicant should have completed in powered-lifts not less than:

- a) 250 hours, either as pilot-in-command, or made up of not less than 70 hours as pilot-in-command and the necessary additional flight time as pilot-in-command under supervision;
- b) 100 hours of cross-country flight time, of which not less than 50 hours should be as pilot-in-command or as pilot-in-command under supervision;
- c) 75 hours of instrument time, of which not more than 30 hours may be instrument ground time; and
- d) 25 hours of night flight as pilot-in-command or as co-pilot.

2.6.5.1.3 When the applicant has flight time as a pilot of aircraft in other categories, 100 hours of such experience is acceptable, towards meeting the total flight time requirements of 2.6.5.1.1.

2.6.5.2 *Flight instruction*

The applicant shall have received the dual flight instruction required at 2.4.5.2 for the issue of the commercial pilot licence and at 2.7.4 for the issue of the instrument rating.

**2.7 Instrument rating**

2.7.1 Requirements for the issue of the rating for aeroplane, airship, helicopter and powered-lift categories

2.7.1.1 *Knowledge*

The applicant shall have demonstrated a level of knowledge appropriate to the privileges granted to the holder of an instrument rating, in at least the following subjects:

*Air law*

- a) rules and regulations relevant to flight under IFR; related air traffic services practices and procedures;

*Aircraft general knowledge for the aircraft category being sought*

- b) use, limitation and serviceability of avionics, electronic devices and instruments necessary for the control and navigation of aircraft under IFR and in instrument meteorological conditions; use and limitations of autopilot;
- c) compasses, turning and acceleration errors; gyroscopic instruments, operational limits and precession effects; practices and procedures in the event of malfunctions of various flight instruments;

*Flight performance and planning for the aircraft category being sought*

- d) pre-flight preparations and checks appropriate to flight under IFR;

- e) operational flight planning; preparation and filing of air traffic services flight plans under IFR; altimeter setting procedures;

*Human performance for the aircraft category being sought*

- f) human performance relevant to instrument flight in aircraft including principles of threat and error management;

**Note.** *Guidance material to design training programmes on human performance, including threat and error management, can be found in the Human Factors Training Manual (Doc 9683).*

*Meteorology for the aircraft category being sought*

- g) application of aeronautical meteorology; interpretation and use of reports, charts and forecasts; codes and abbreviations; use of, and procedures for obtaining, meteorological information; altimetry;
- h) causes, recognition and effects of icing; frontal zone penetration procedures; hazardous weather avoidance;
- i) in the case of helicopters and powered-lifts, effects of rotor icing;

*Navigation for the aircraft category being sought*

- j) practical air navigation using radio navigation aids;
- k) use, accuracy and reliability of navigation systems used in departure, en-route, approach and landing phases of flight; identification of radio navigation aids;

*Operational procedures for the aircraft category being sought*

- l) application of threat and error management to operational performance;
- m) interpretation and use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations, and instrument procedure charts for departure, en-route, descent and approach;
- n) precautionary and emergency procedures; safety practices associated with flight under IFR; obstacle clearance criteria;

**Note** *Information for pilots and flight operations personnel on flight procedure parameters and operational procedures is contained in the Procedures for Air Navigation Services (PANS-OPS, Doc 8168), Volume I — Flight Procedures. Procedures used in certain States may differ from PANS-OPS, and knowledge of these differences is important for safety reasons.*

*Radiotelephony*

- o) communication procedures and phraseology as applied to aircraft operations under IFR; action to be taken in case of communication failure.

2.7.1.2 Skill

2.7.1.2.1 The applicant shall have demonstrated in an aircraft of the category for which the instrument rating is being sought the ability to perform the procedures and manoeuvres described in 2.7.4.1 with a degree of competency appropriate to the privileges granted to the holder of an instrument rating, and to:

- a) recognize and manage threats and errors;

**Note.** *Guidance material on the application of threat and error management is found in the Procedures for Air Navigation Services — Training (PANS-TRG, Doc 9868), Chapter 3, Attachment C, and in Part II, Chapter 2, of the Human Factors Training Manual (Doc 9683).*

- b) operate the aircraft for the category being sought, within its limitations;
- c) complete all manoeuvres with smoothness and accuracy;
- d) exercise good judgement and airmanship;
- e) apply aeronautical knowledge; and
- f) maintain control of the aircraft at all times in a manner such that the successful outcome of a procedure or manoeuvre is assured.

2.7.1.2.1.1 The applicant shall have demonstrated the ability to operate multi-engined aircraft within the appropriate category by reference solely to instruments with one engine inoperative, or simulated inoperative, if the privileges of the instrument rating are to be exercised on such aircraft.

*Note.* Attention is called to 2.1.6 on the use of flight simulation training devices for demonstrations of skill.

2.7.1.3 *Medical fitness*

Applicants shall hold a Class 1 Medical Assessment.

2.7.1.3.1 **Reserved.**

2.7.1.3.2 **Reserved.**

2.7.2 Privileges of the holder of the rating and the conditions to be observed in exercising such privileges

2.7.2.1 Subject to compliance with the requirements specified in 1.2.5, 1.2.6 and 2.1, the privileges of the holder of an instrument rating with a specific aircraft category shall be to pilot that category of aircraft under IFR.

2.7.2.2 Before exercising the privileges on multi-engined aircraft, the holder of the rating shall have complied with the requirements of 2.7.1.2.1.1.

*Note.* Pilots may exercise joint category privileges of the instrument rating on more than one category of aircraft if they have completed the requirements in each category.

2.7.3 Experience

2.7.3.1 The applicant shall hold a pilot licence for the aircraft category being sought.

2.7.3.2 The applicant shall have completed not less than:

- a) 50 hours of cross-country flight time as pilot-in-command of aircraft in categories acceptable to the Licensing Authority, of which not less than 10 hours shall be in the aircraft category being sought; and
- b) 40 hours of instrument time in aircraft of which not more than 20 hours, or 30 hours where a flight simulator is used, may be instrument ground time. The ground time shall be under the supervision of an authorized instructor.

2.7.4 Flight instruction

2.7.4.1 The applicant shall have gained not less than 10 hours of the instrument flight time required in 2.7.3.2

b) while receiving dual instrument flight instruction in the aircraft category being sought, from an authorized flight instructor. The instructor shall ensure that the applicant has operational experience in at least the following areas to the level of performance required for the holder of an instrument rating:

- a) pre-flight procedures, including the use of the flight manual or equivalent document, and appropriate air traffic services documents in the preparation of an IFR flight plan;
- b) pre-flight inspection, use of checklists, taxiing and pre take-off checks;
- c) procedures and manoeuvres for IFR operation under normal, abnormal and emergency conditions covering at least:
  - transition to instrument flight on take-off;
  - standard instrument departures and arrivals;
  - en-route IFR procedures;
  - holding procedures;
  - instrument approaches to specified minima;
  - missed approach procedures;
  - landings from instrument approaches;
- d) in-flight manoeuvres and particular flight characteristics.

- 2.7.4.2 If the privileges of the instrument rating are to be exercised on multi-engined aircraft, the applicant shall have received dual instrument flight instruction in a multi-engined aircraft within the appropriate category from an authorized flight instructor. The instructor shall ensure that the applicant has operational experience in the operation of the aircraft within the appropriate category by reference solely to instruments with one engine inoperative or simulated inoperative.

## **2.8 Flight instructor rating appropriate to aeroplanes, airships, helicopters and powered-lifts**

### **2.8.1 Requirements for the issue of the rating**

#### **2.8.1.1 Knowledge**

The applicant shall have met the knowledge requirements for the issue of a commercial pilot licence as appropriate to the category of aircraft included in the licence. In addition, the applicant shall have demonstrated a level of knowledge appropriate to the privileges granted to the holder of a flight instructor rating, in at least the following areas:

- a) techniques of applied instruction;
- b) assessment of student performance in those subjects in which ground instruction is given;
- c) the learning process;
- d) elements of effective teaching;
- e) student evaluation and testing, training philosophies;
- f) training programme development;
- g) lesson planning;
- h) classroom instructional techniques;
- i) use of training aids, including flight simulation training devices as appropriate;
- j) analysis and correction of student errors;
- k) human performance relevant to flight instruction including principles of threat and error management;

**Note.** *Guidance material to design training programmes on human performance, including threat and error management, can be found in the Human Factors Training Manual (Doc 9683).*

- l) hazards involved in simulating system failures and malfunctions in the aircraft.

#### **2.8.1.2 Skill**

The applicant shall have demonstrated, in the category and class of aircraft for which flight instructor privileges are sought, the ability to instruct in those areas in which flight instruction is to be given, including pre-flight, post-flight and ground instruction as appropriate.

#### **2.8.1.3 Experience**

The applicant shall have met the experience requirements for the issue of a commercial pilot licence as specified in 2.4.3.1, 2.4.4.1, 2.4.5.1 and 2.4.6.1 for each aircraft category, as appropriate.

#### **2.8.1.4 Flight instruction**

The applicant shall, under the supervision of a flight instructor accepted by MCAA for that purpose:

- a) have received instruction in flight instructional techniques including demonstration, student practices, recognition and correction of common student errors; and
- b) have practised instructional techniques in those flight manoeuvres and procedures in which it is intended to provide flight instruction.

### **2.8.2 Privileges of the holder of the rating and the conditions to be observed in exercising such privileges**

#### **2.8.2.1 Subject to compliance with the requirements specified in 1.2.5 and 2.1, the privileges of the holder of a flight instructor rating shall be:**

- a) to supervise solo flights by student pilots; and
- b) to carry out flight instruction for the issue of a private pilot licence, a commercial pilot licence, an instrument rating, and a flight instructor rating provided that the flight instructor:
  - 1) holds at least the licence and rating for which instruction is being given, in the appropriate aircraft category;



- 2) holds the licence and rating necessary to act as the pilot-in-command of the aircraft on which the instruction is given; and
- 3) has the flight instructor privileges granted entered on the licence.

2.8.2.2 The applicant, in order to carry out instruction for the multi-crew pilot licence, shall have also met all the instructor qualification requirements.

**Note.** *Specific provisions for flight instructors carrying out instruction for the multi-crew pilot licence exist in Chapter 4 of the Procedures for Air Navigation Services — Training (PANS-TRG, Doc 9868).*

## 2.9 Glider pilot licence

2.9.1 Requirements for the issue of the licence

### 2.9.1.1 Age

The applicant shall be not less than 16 years of age.

### 2.9.1.2 Knowledge

2.9.1.2.1 The applicant shall have demonstrated a level of knowledge appropriate to the privileges granted to the holder of a glider pilot licence, in at least the following subjects:

#### *Air law*

- a) rules and regulations relevant to the holder of a glider pilot licence; rules of the air; appropriate air traffic services practices and procedures;

#### *Aircraft general knowledge*

- b) principles of operation of glider systems and instruments;
- c) operating limitations of gliders; relevant operational information from the flight manual or other appropriate document;

#### *Flight performance, planning and loading*

- d) effects of loading and mass distribution on flight characteristics; mass and balance considerations;
- e) use and practical application of launching, landing and other performance data;
- f) pre-flight and en-route flight planning appropriate to operations under VFR; appropriate air traffic services procedures; altimeter setting procedures; operations in areas of high-density traffic;

#### *Human performance*

- g) human performance relevant to the glider pilot including principles of threat and error management;

**Note** *Guidance material to design training programmes on human performance, including threat and error management, can be found in the Human Factors Training Manual (Doc 9683).*

#### *Meteorology*

- h) application of elementary aeronautical meteorology; use of, and procedures for obtaining, meteorological information; altimetry;

#### *Navigation*

- i) practical aspects of air navigation and dead-reckoning techniques; use of aeronautical charts;

#### *Operational procedures*

- j) use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations;
- k) different launch methods and associated procedures;
- l) appropriate precautionary and emergency procedures, including action to be taken to avoid hazardous weather, wake turbulence and other operating hazards;

*Principles of flight*

- m) principles of flight relating to gliders.

2.9.1.2.2 The applicant shall have demonstrated a level of knowledge appropriate to the privileges to be granted to the holder of a glider pilot licence, in communication procedures and phraseology as appropriate to VFR operations and on action to be taken in case of communication failure.

2.9.1.3 *Experience*

2.9.1.3.1 The applicant shall have completed not less than six hours of flight time as a pilot of gliders including two hours of solo flight time during which not less than 20 launches and landings have been performed.

2.9.1.3.1.1 When the applicant has flight time as a pilot of aeroplanes, the Licensing Authority shall determine whether such experience is acceptable and, if so, the extent to which the flight time requirements of 2.9.1.3.1 can be reduced accordingly.

2.9.1.3.2 The applicant shall have gained, under appropriate supervision, operational experience in gliders in at least the following areas:

- a) pre-flight operations, including glider assembly and inspection;
- b) techniques and procedures for the launching method used, including appropriate airspeed limitations, emergency procedures and signals used;
- c) traffic pattern operations, collision avoidance precautions and procedures;
- d) control of the glider by external visual reference;
- e) flight throughout the flight envelope;
- f) recognition of, and recovery from, incipient and full stalls and spiral dives;
- g) normal and crosswind launches, approaches and landings;
- h) cross-country flying using visual reference and dead reckoning;
- i) emergency procedures.

2.9.1.4 *Skill*

The applicant shall have demonstrated the ability to perform as pilot-in-command of a glider, the procedures and manoeuvres described in 2.9.1.3.2 with a degree of competency appropriate to the privileges granted to the holder of a glider pilot licence, and to:

- a) recognize and manage threats and errors;

**Note.** *Guidance material on the application of threat and error management is found in the Procedures for Air Navigation Services — Training (PANS-TRG, Doc 9868), Chapter 3, Attachment C, and in Part II, Chapter 2, of the Human Factors Training Manual (Doc 9683).*

- b) operate the glider within its limitations;
- c) complete all manoeuvres with smoothness and accuracy;
- d) exercise good judgment and airmanship;
- e) apply aeronautical knowledge; and
- f) maintain control of the glider at all times in a manner such that the successful outcome of a procedure or manoeuvre is assured.

2.9.1.5 *Medical fitness*

The applicant shall hold a current Class 2 Medical Assessment.

2.9.2 Privileges of the holder of the licence and the conditions to be observed in exercising such privileges

2.9.2.1 Subject to compliance with the requirements specified in 1.2.5, 1.2.6, 1.2.7.1 and 2.1, the privileges of the holder of a glider pilot licence shall be to act as pilot-in command of any glider provided the licence holder has operational experience in the launching method used.

2.9.2.2 If passengers are to be carried, the licence holder shall have completed not less than 10 hours of flight time as a pilot of gliders.

**2.10 Free balloon pilot licence**

*Note.* The provisions of the free balloon pilot licence apply to free balloons using hot air or gas.

#### 2.10.1 Requirements for the issue of the licence

##### 2.10.1.1 Age

The applicant shall be not less than 16 years of age.

##### 2.10.1.2 Knowledge

2.10.1.2.1 The applicant shall have demonstrated a level of knowledge appropriate to the privileges granted to the holder of a free balloon pilot licence, in at least the following subjects:

###### *Air law*

- a) rules and regulations relevant to the holder of a free balloon pilot licence; rules of the air; appropriate air traffic services practices and procedures;

###### *Aircraft general knowledge*

- b) principles of operation of free balloon systems and instruments;
- c) operating limitations of free balloons; relevant operational information from the flight manual or other appropriate document;
- d) physical properties and practical application of gases used in free balloons;

###### *Flight performance, planning and loading*

- e) effects of loading on flight characteristics; mass calculations;
- f) use and practical application of launching, landing and other performance data, including the effect of temperature;
- g) pre-flight and en-route flight planning appropriate to operations under VFR; appropriate air traffic services procedures; altimeter setting procedures; operations in areas of high-density traffic;

###### *Human performance*

- h) human performance relevant to the free balloon pilot including principles of threat and error management;

*Note.* Guidance material to design training programmes on human performance, including threat and error management, can be found in the Human Factors Training Manual (Doc 9683).

###### *Meteorology*

- i) application of elementary aeronautical meteorology; use of, and procedures for obtaining, meteorological information; altimetry;

###### *Navigation*

- j) practical aspects of air navigation and dead-reckoning techniques; use of aeronautical charts;

###### *Operational procedures*

- k) use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations;
- l) appropriate precautionary and emergency procedures, including action to be taken to avoid hazardous weather, wake turbulence and other operating hazards;

###### *Principles of flight*

- m) principles of flight relating to free balloons.

2.10.1.2.2 The applicant shall have demonstrated a level of knowledge appropriate to the privileges to be granted to the holder of a free balloon pilot licence, in communication procedures and phraseology as appropriate to VFR operations and on action to be taken in case of communication failure.

##### 2.10.1.3 Experience

2.10.1.3.1 The applicant shall have completed not less than 16 hours of flight time as a pilot of free balloons including at least eight launches and ascents of which one must be solo.

2.10.1.3.2 The applicant shall have gained, under appropriate supervision, operational experience in free balloons in at least the following areas:

- a) pre-flight operations, including balloon assembly, rigging, inflation, mooring and inspection;
- b) techniques and procedures for the launching and ascent, including appropriate limitations, emergency procedures and signals used;
- c) collision avoidance precautions;
- d) control of the free balloon by external visual reference;
- e) recognition of, and recovery from, rapid descents;
- f) cross-country flying using visual reference and dead reckoning;
- g) approaches and landings, including ground handling;
- h) emergency procedures.

2.10.1.3.3 If the privileges of the licence are to be exercised at night, the applicant shall have gained, under appropriate supervision, operational experience in free balloons in night flying.

2.10.1.3.4 If passengers are to be carried for remuneration or hire, the licence holder shall have completed not less than 35 hours of flight time including 20 hours as a pilot of a free balloon.

2.10.1.4 *Skill*

The applicant shall have demonstrated the ability to perform as pilot-in-command of a free balloon, the procedures and manoeuvres described in 2.10.1.3.2 with a degree of competency appropriate to the privileges granted to the holder of a free balloon pilot licence, and to:

- a) recognize and manage threats and errors;

**Note** *Guidance material on the application of threat and error management is found in the Procedures for Air Navigation Services — Training (PANS-TRG, Doc 9868), Chapter 3, Attachment C, and in Part II, Chapter 2, of the Human Factors Training Manual (Doc 9683).*

- b) operate the free balloon within its limitations;
- c) complete all manoeuvres with smoothness and accuracy;
- d) exercise good judgement and airmanship;
- e) apply aeronautical knowledge; and
- f) maintain control of the free balloon at all times in a manner such that the successful outcome of a procedure or manoeuvre is assured.

2.10.1.5 *Medical fitness*

The applicant shall hold a current Class 2 Medical Assessment.

2.10.2 Privileges of the holder of the licence and the conditions to be observed in exercising such privileges

2.10.2.1 Subject to compliance with the requirements specified in 1.2.5, 1.2.6, 1.2.7.1, 2.1 and 2.10.1.3.4, the privileges of the holder of a free balloon pilot licence shall be to act as pilot-in-command of any free balloon provided that the licence holder has operational experience in hot air or gas balloons as appropriate.

2.10.2.2 Before exercising the privileges at night, the licence holder shall have complied with the requirements specified in 2.10.1.3.3.