



WORKING PAPER

COUNCIL — 177TH SESSION

2557th Report to Council by the President of the Air Navigation Commission

Subject No. 14.1.1: International Standards and Recommended Practices (SARPs)

ADOPTION OF AMENDMENT 167 TO ANNEX 1

(ANC Task Nos. MED-7101, PEL-9902)

SUMMARY

This paper presents a proposal of the Air Navigation Commission for Amendment 167 to Annex 1.

The material to be adopted/approved, as appropriate, is presented in the appendices as follows:

- Appendix A — Amendment to Annex 1
- Appendix B — Resolution of Adoption
- Appendix C — Amendment to the Foreword of Annex 1

REFERENCES

Amendment concerning upper age limits for flight crew members

- AN-WP/8102 *AN Min. 170-10
- *AN-WP/8074 AN Min. 167-10
- AN-WP/7982 and *Annex 1
- Discussion Paper No. 1 FCLTP/1 Report (yellow cover)
- AN Min. 171-8 *State letter AN 5/16.1-05/17
- AN Min. 171-6

Amendment concerning flight crew training and licensing Standards

- AN-WP/8102 AN Min. 169-7
- *AN-WP/8082 and Addenda *Annex 1
- Nos. 1 and 2 Annex 6, Parts I and III
- AN-WP/8030 *FCLTP/2 Report (yellow cover) and
- AN Min. 171-8 Corrigenda Nos. 1, 2 and 3
- *AN Min. 171-2 *State letter AN 12/1.1-05/62
- *AN Min. 170-13 State letter AN 12/1.1.10-01/35

This working paper relates to Strategic Objectives A1, A2, A4 and D1.

*Principal references

1. INTRODUCTION

1.1 This report deals with a proposal of the Air Navigation Commission for the amendment of Annex 1 — *Personnel Licensing* arising from the following sources:

- a) a study by the Air Navigation Commission concerning the upper age limits for flight crew members; and
- b) Recommendation 3/1 of the second meeting of the Flight Crew Licensing and Training Panel (FCLTP/2).

2. AMENDMENT CONCERNING THE UPPER AGE LIMITS FOR FLIGHT CREW MEMBERS

2.1 Origin and development

2.1.1 On 2 December 2004, the Air Navigation Commission (167-10) carried a preliminary review of a proposal to amend the Standards and Recommended Practices (SARPs) related to the upper age limit for pilots in Annex 1.

2.1.2 The Commission agreed that the proposed amendment be transmitted to States and appropriate international organizations for comments. Accordingly, State letter AN 5/16.1-05/17, dated 25 February 2005, was sent with a due date for replies of 15 June 2005.

2.2 Replies to the State letter

2.2.1 By the time of the final review of the proposed amendment by the Commission on 22 November 2005, seventy-four replies had been received from seventy-two Contracting States and two international organizations. A summary of the replies is contained in Appendix A to AN-WP/8074 and detailed comments on the proposed amendment are presented in Appendix B to that paper.

2.3 Review by the Air Navigation Commission

2.3.1 On 22 November 2005, the Air Navigation Commission (170-10) carried out a final review of the proposed amendment in light of comments by States and international organizations contained in AN-WP/8074. The Commission agreed that the proposed amendment to Annex 1, as contained in Attachment A of the State letter and as amended during discussions, be consolidated with other amendment proposals for inclusion in Amendment 167 to Annex 1.

2.3.2 The Commission (170-10) agreed that a review mechanism for pilot's age limitations should be introduced. As further agreed by the Commission (171-6) on 2 February 2006, this review would be conducted five years after the applicability date of the revised age limitation. The review would include the views and experience of States on subject as well as any relevant additional research information that becomes available during the period.

2.4 Nature and scope of the amendment

2.4.1 In the years since the introduction in Annex 1 in 1972 (with an applicability in 1978) of a Standard on an upper age limit for pilots, the increase in longevity and associated good health into old age

in many States, the progress of medical science, the introduction of incapacitation training for multi-pilot aircraft and advances in aircraft technology have changed the flight safety risk associated with ageing pilots. Also, the varying demands for experienced pilots and the legal challenges by individuals taking action under national age discrimination laws has caused several States to question the continued validity of the existing provisions. The great majority of States favour an increase to the current limit, and it is noted that the upper age limit Standard has more differences filed against it than any other Annex 1 Standards. The proposed amendment would allow the possibility for airline pilots to continue flying until the age of sixty-five years, with a limitation to multi-crew operations and with the proviso that no other pilot has attained the age of sixty and that all pilots over age sixty undergo a medical assessment every six months. Based on the foregoing, the Commission considered that flight safety would not be adversely affected.

3. AMENDMENT CONCERNING FLIGHT CREW TRAINING AND LICENSING STANDARDS

3.1 Origin and development

3.1.1 Following representation by airlines, flight training industry representatives and national Authorities, ICAO convened an informal meeting in Madrid in October 2000 to discuss the future of flight crew licensing and training. The consensus reached by the meeting was that the emphasis placed by Annex 1 on solo and pilot-in-command hours in qualifying for a professional pilot licence made excessive demands on the time and cost of training and that it was considered to be a source of negative learning, having a detrimental impact on the safety of multi-pilot operations. Based on the recommendations of the meeting and the subsequent survey of States (State letter AN 12/1.1.10-01/35), the Commission decided to establish the Flight Crew Licensing and Training Panel (FCLTP) to assess the compatibility of licensing and training exit requirements with commercial air transportation entry requirements and make recommendations for safer and more efficient training regime for commercial air transportation particularly as it applied to multi-crew operations. These recommendations were to include a determination of the competencies required for multi-crew operations and the optimum point at which multi-pilot training should commence.

3.1.2 On 2 June 2005, the Air Navigation Commission (169-7) conducted a preliminary review of the proposals that resulted from the second meeting of the Flight Crew Licensing and Training Panel (FCLTP/2) on amendments to the flight crew licensing and training requirements of Annex 1 and Annex 6 — *Operation of Aircraft, Part I — International Commercial Air Transport — Aeroplanes* and Part III — *International Operations — Helicopters*; the inclusion of the multi-crew pilot licence (MPL) in Annex 1; and the development of Procedures for Air Navigation Services – Training (PANS-TRG).

3.1.3 The Commission agreed that the proposal be transmitted to States and appropriate international organizations for comment. Accordingly, State letter AN 12/1.1-05/62, dated 27 June 2005, was sent to States and selected international organizations with a due date for replies of 10 October 2005.

3.2 Replies to State letter

3.2.1 By the time of the final review of the proposed amendment by the Commission on 1 December 2005, forty-two replies had been received from thirty-eight Contracting States and four international organizations. By 19 January 2006 replies had been received from a further four States. A summary of the replies is in Appendix A to AN-WP/8082 and Addendum No. 1 and detailed comments on the proposals are presented in Appendix B and Addendum No. 1 to that paper.

3.3 Review by the Air Navigation Commission

3.3.1 On 1 December 2005 and 19 January 2006, the Air Navigation Commission (170-13 and 171-2) carried out a final review of the proposed amendment in light of comments by States and international organizations contained in AN-WP/8082 and Addendum No. 1. The Commission agreed that the proposed amendment to Annex 1, as contained in Attachment A of the State letter and as amended during discussions, be consolidated with other amendment proposals for inclusion in Amendment 167 to Annex 1.

3.4 Nature and scope of the amendment

3.4.1 The proposed amendment introduces personnel licensing requirements for airship and powered-lift aircraft. It also introduces a new aeroplane pilot licence, the Multi-crew Pilot Licence (MPL), that qualifies the licence holder to perform the co-pilot duties on aeroplanes operated with more than one pilot. This licence complements, but does not replace, the existing ways of qualifying as co-pilot on aeroplanes operated with more than one pilot. The Air Navigation Commission was provided with assurance of the safety and efficiency gains of the MPL through the risk and safety benefit report of FCLTP/2, the identification of specific risk control measures and a post implementation proof of concept programme. A PANS-TRG document was developed and reviewed by the ANC taking into account comments received by States and is expected to be formally approved by the ANC at the beginning of its 172nd Session. It provides general guidance on the design, development and implementation of competency-based training and assessments as well as specific guidance for the new multi-crew pilot licence (MPL). Revisions have also been made to the details of the existing flight crew licensing Standards to ensure their continued relevance in meeting current and anticipated needs while preserving and improving upon existing flight safety levels; and better recognition of the role of flight simulation training devices (FTDs) in acquiring or maintaining the competences required for the various levels of licences and ratings.

4. METHOD OF PRESENTATION OF THE AMENDMENT

4.1 The proposed amendment to Annex 1 is presented in Appendix A to this paper. Notes on the method of presentation and indication of the source of the amendment are shown on the first page of Appendix A.

5. APPROVAL OF REPORT TO COUNCIL

5.1 On 21 February 2006, the Commission (171-8) reviewed AN-WP/8102 containing the draft report to Council on the adoption of Amendment 167 to Annex 1 and approved the report.

6. DATE OF APPLICABILITY

6.1 The Air Navigation Commission, having examined the technical circumstances associated with the implementation of these amendments, considers that the proposed applicability date of 23 November 2006 would be suitable.

7. **ACTION BY THE COUNCIL**

7.1 The Council is invited to:

- a) adopt, as Amendment 167 to Annex 1, the amendment to the definitions and to the Standards and Recommended Practices as contained in Appendix A to this paper;
- b) approve, as part of the said amendment, the amendment to Notes and attachments as contained in Appendix A to this paper;
- c) approve the Resolution of Adoption in Appendix B to this paper;
- d) approve, as part of the said amendment, the amendment to the Foreword of Annex 1 as contained in Appendix C to this paper; and
- e) note the review mechanism for pilot's age limitations agreed by the Air Navigation Commission in paragraph 2.3.2 above.

Adrian Sayce
President
Air Navigation Commission

APPENDIX A
PROPOSED AMENDMENT TO
INTERNATIONAL STANDARDS AND RECOMMENDED PRACTICES
PERSONNEL LICENSING
ANNEX 1
TO THE CONVENTION ON INTERNATIONAL CIVIL AVIATION

NOTES ON THE PRESENTATION OF THE PROPOSED AMENDMENT

1. The text of the amendment is arranged to show deleted text with a line through it and new text highlighted with grey shading, as shown below:

~~Text to be deleted is shown with a line through it.~~

text to be deleted

New text to be inserted is highlighted with grey shading.

new text to be inserted

~~Text to be deleted is shown with a line through it~~ **followed**
by the replacement text which is highlighted with grey
shading.

new text to replace existing text

2. The source of the proposed amendments have been indicated as follows:

Source	Annotation
Amendment arising from a study by the Air Navigation Commission concerning the upper age limits for flight crew members	Source A
Amendment arising from Recommendation 3/1 of the second meeting of the Flight Crew Licensing and Training Panel (FCLTP/2).	Source B

**INTERNATIONAL STANDARDS
AND RECOMMENDED PRACTICES**

PERSONNEL LICENSING

**ANNEX 1
TO THE CONVENTION ON INTERNATIONAL CIVIL AVIATION**

...

Source B

**CHAPTER 1. DEFINITIONS AND GENERAL RULES
CONCERNING LICENCES**

1.1 Definitions

Aircraft required to be operated with a co-pilot. A type of aircraft that is required to be operated with a co-pilot as specified in the flight manual or by the air operator certificate.

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Airship. A power-driven lighter-than-air aircraft.

Airmanship. The consistent use of good judgement and well-developed knowledge, skills and attitudes to accomplish flight objectives.

...

Commercial air transport operation. An aircraft operation involving the transport of passengers, cargo or mail for remuneration or hire.

Competency. A combination of skills, knowledge and attitudes required to perform a task to the prescribed standard.

Competency element. An action that constitutes a task that has a triggering event and a terminating event that clearly defines its limits, and an observable outcome.

Competency unit. A discrete function consisting of a number of competency elements.

...

Credit. Recognition of alternative means or prior qualifications.

Cross-Country. A flight between a point of departure and a point of arrival following a pre-planned route using standard navigation procedures.

...

Error. An action or inaction by the flight crew that leads to deviations from organizational or flight crew intentions or expectations.

Error management. The process of detecting and responding to errors with countermeasures that reduce or eliminate the consequences of errors, and mitigate the probability of further errors or undesired aircraft states.

Note.— See Attachment D of Chapter 3 of the Procedures for Air Navigation Services – Training for a description of undesired aircraft states.

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Synthetic flight trainer **Flight simulation training device**
(Definition unchanged)

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Performance criteria. A simple, evaluative statement on the required outcome of the competency element and a description of the criteria used to judge if the required level of performance has been achieved.

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Pilot-in-command under supervision. Co-pilot performing, under the supervision of the pilot-in-command, the duties and functions of a pilot-in-command, in accordance with a method of supervision acceptable to the Licensing Authority.

Powered-lift. A heavier-than-air aircraft capable of vertical take-off, vertical landing, and low speed flight that depends principally on engine-driven lift devices or engine thrust for the lift during these flight regimes and on non-rotating aerofoil(s) for lift during horizontal flight.

...

Quality system. Documented organizational procedures and policies; internal audit of those policies and procedures; management review and recommendation for quality improvement.

...

Threat. Events or errors that occur beyond the influence of the flight crew, increase operational complexity and which must be managed to maintain the margin of safety.

Threat management. The process of detecting and responding to the threats with countermeasures that reduce or eliminate the consequences of threats, and mitigate the probability of errors or undesired aircraft states.

Note.— See Attachment D of Chapter 3 of the Procedures for Air Navigation Services – Training for a description of undesired aircraft states.

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1.2 General rules concerning licences

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1.2.2 Method of rendering a licence valid

1.2.2.1 When a Contracting State renders valid a licence issued by another Contracting State, as an alternative to the issuance of its own licence, it shall establish validity by suitable authorization to be carried with the former licence accepting it as the equivalent of the latter. When a State limits the authorization to specific privileges, the authorization shall specify the privileges of the licence which are to be accepted as its equivalent. The validity of the authorization shall not extend beyond the period of validity of the licence. The authorization ceases to be valid if the licence upon which it was issued is revoked or suspended.

Note.— This provision is not intended to preclude the State that issued the licence from extending, by a suitable notification, the period of validity of the licence without necessarily requiring either the physical return of the licence or the appearance of the licence holder before the Authorities of that State.

1.2.2.2 When an authorization under paragraph 1.2.2.1 is issued for use in commercial air transport operation, the Licensing Authority shall confirm the validity of the other Contracting State's licence before issuing the authorization.

~~1.2.2.3~~ **1.2.2.2-Recommendation.**— *A pilot licence issued by a Contracting State should be rendered valid by other Contracting States for use in private flights.*

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1.2.5 Validity of licences

1.2.5.1 A Contracting State, having issued a licence, shall ensure that the privileges granted by that licence, or by related ratings, are not exercised unless the holder maintains competency and meets the requirements for recent experience established by that State.

1.2.5.1.1 **Recommendation.**— *A Contracting State should establish maintenance of competency and recent experience requirements for pilot licences and ratings based on a systematic approach to accident prevention and should include a risk assessment process and analysis of current operations, including accident and incident data appropriate to that State.*

1.2.5.1.2 ~~1.2.5.1.1~~ A Contracting State, having issued a licence, shall ensure that other Contracting States are enabled to be satisfied as to the validity of the licence.

Note 1.— The maintenance of competency of flight crew members, engaged in commercial air transport operations, may be satisfactorily established by demonstration of skill during proficiency flight checks completed in accordance with Annex 6.

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Note 4.— See the Manual of Criteria for the Qualification of Flight Simulators (Doc 9625).

Note 5.— See the Manual of Procedures for Establishment and Management of a State's Personnel Licensing System, (Doc 9379) for guidance material on the development of a risk assessment process.

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1.2.5.2 Except as provided in 1.2.5.2.1, 1.2.5.2.2, 1.2.5.2.3, 1.2.5.2.4 and 1.2.5.2.5, a Medical Assessment issued in accordance with 1.2.4.5 and 1.2.4.6 shall be valid from the date of the medical examination for a period not greater than:

60 months for the private pilot licence – aeroplane, airship, helicopter and powered-lift;

12 months for the commercial pilot licence – aeroplane, airship, helicopter, and powered-lift;

12 months for the multi-crew pilot licence – aeroplane;

12 months for the airline transport pilot licence – aeroplane, helicopter and powered-lift;

~~60 months for the private pilot licence – helicopter;~~

~~12 months for the commercial pilot licence – helicopter;~~

~~12 months for the airlines transport pilot licence – helicopter;~~

60 months for the glider pilot licence;

...

Source A

1.2.5.2.6 When the holders of airline transport pilot licences, commercial pilot licences and multicrew pilot licences, who are engaged in commercial air transport operations, have passed their 60th birthday, the period of validity specified in 1.2.5.2 shall be reduced to six months.

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Source B

1.2.9 Language proficiency

1.2.9.1 Aeroplane, airship, ~~and~~ helicopter and powered-lift pilots and those flight navigators who are required to use the radio telephone aboard an aircraft shall demonstrate the ability to speak and understand the language used for radiotelephony communications.

...

1.2.9.4 As of 5 March 2008 aeroplane, airship, ~~and~~ helicopter and powered-lift pilots, air traffic controllers and aeronautical station operators shall demonstrate the ability to speak and understand the language used for radiotelephony communications to the level specified in the language proficiency requirements in ~~the~~ Appendix 1.

1.2.9.5 **Recommendation.**— *Aeroplane, airship, ~~and~~ helicopter and powered-lift pilots, flight navigators required to use the radio telephone aboard an aircraft, air traffic controllers and aeronautical*

station operators should demonstrate the ability to speak and understand the language used for radiotelephony communications to the level specified in the language proficiency requirements in ~~the~~ Appendix 1.

1.2.9.6 As of 5 March 2008, the language proficiency of aeroplane, airship, ~~and~~ helicopter and powered-lift pilots, air traffic controllers and aeronautical station operators who demonstrate proficiency below the Expert Level (Level 6) shall be formally evaluated at intervals in accordance with an individual's demonstrated proficiency level.

1.2.9.7 **Recommendation.**— *The language proficiency of aeroplane, airship, ~~and~~ helicopter and powered-lift pilots, flight navigators required to use the radio telephone aboard an aircraft, air traffic controllers and aeronautical station operators who demonstrate proficiency below the Expert Level (Level 6) should be formally evaluated at intervals in accordance with an individual's demonstrated proficiency level, as follows:*

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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
- helicopter
- glider
- free balloon
- powered-lift.

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2.1.1.4 *Transitional measures related to the powered-lift category*

Until (*date of adoption + 5 years*), the Licensing Authority 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 aeroplane or helicopter as appropriate and incorporate all relevant aspects of operating an aircraft of the powered-lift category.

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2.1.3.2 Type ratings shall be established for:

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

Note 1.— Where a common type rating is established, it shall only be for aircraft with similar characteristics in terms of operating procedures, systems and handling.

Note 2.— Requirements for class and type ratings for gliders and free balloons have not been determined.

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2.1.5 Requirements for the issue of class and type ratings

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2.1.5.2 Type rating as required by 2.1.3.2 a)

The applicant shall have:

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- c) demonstrated, at the airline transport pilot licence level, an extent of knowledge determined by the Licensing Authority on the basis of the requirements specified in ~~2.5.1.2 or~~ 2.6.1.2, as applicable.

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.

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2.1.6 Use of a ~~synthetic flight trainer~~ flight simulation training device ~~trainers~~ for acquisition of experience and demonstrations of skill

The use of a ~~synthetic flight trainer~~ 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 the Licensing Authority, which shall ensure that the ~~synthetic flight trainer~~ flight simulation training device used is appropriate to the task.

2.1.7 Circumstances in which an instrument rating is required

A Contracting State, having issued a pilot licence, shall not permit the holder thereof to 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 such Contracting State. 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 category, multi-crew pilot licence and commercial pilot licence — airship category, and 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 flight instruction is required

2.1.8.1 A Contracting State having issued a pilot licence shall not permit the holder thereof to carry out flight instruction required for the issue of a private pilot licence or rating aeroplane or helicopter, commercial pilot licence aeroplane or helicopter, instrument rating aeroplane or helicopter, or a flight instructor rating appropriate to aeroplanes and helicopters, unless such holder has received proper authorization from such Contracting State. Proper 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 the Licensing Authority to carry out flight instruction; or
- c) a specific authorization granted by the Contracting State which issued the licence.

2.1.8.2 A Contracting State shall not permit a person to 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 such Contracting State.

~~2.1.8.2 Recommendation.— A Contracting State having issued a pilot licence should not permit the holder thereof to carry out flight instruction for the issue of any licence or rating not specified in 2.1.8.1 above unless such holder has received proper authorization from such Contracting State.~~

2.1.9 Crediting of flight time

2.1.9.1 A student pilot or the holder of a pilot licence shall be 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 a Contracting State to be operated with a co-pilot, shall 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. The Contracting State 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~~ ~~2.1.9.3~~ The holder of a pilot licence, when acting as ~~co-pilot performing under the supervision of the pilot in command~~ the functions and duties of a 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.

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Source A

2.1.10 ~~Curtailment~~ **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 Contracting State, having issued pilot licences, shall not permit the holders thereof to act as pilot-in-command of an aircraft engaged in ~~scheduled international~~ **commercial** air services or ~~non-scheduled international~~ air transport operations for remuneration or hire 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 65th birthday.

2.1.10.2 **Recommendation.**— *A Contracting State, having issued pilot licences, should not permit the holders thereof to act as co-pilot of an aircraft engaged in ~~scheduled international air services or non-scheduled~~ international **commercial** air transport operations for remuneration or hire if the licence holders have attained their ~~60th~~ 65th birthday.*

Note.— Attention is drawn to paragraph 1.2.5.2.6 on the validity period of medical assessments for pilots over the age of 60 who are engaged in commercial air transport operations.

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Source B

2.3 Private pilot licence — **Aeroplane**

Note.— The Training Manual (Doc 7192), Part B-5, contains guidance material for a course of training for the private pilot licence — aeroplane.

2.3.1 ~~Requirements~~ **General requirements** for the issue of the licence **appropriate** to the aeroplane, helicopter, powered-lift and airship 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—~~aeroplane~~ 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 —~~aeroplane~~; rules of the air; ~~altimeter setting procedures~~; appropriate air traffic services practices and procedures;

Aircraft general knowledge for aeroplane, helicopter, powered-lift and airship

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

Flight performance, planning and loading

- ~~f~~f) effects of loading and mass distribution on flight characteristics; mass and balance calculations;
- ~~g~~g) use and practical application of take-off, landing and other performance data;
- ~~h~~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

- ~~g~~i) ~~human performance relevant to the private pilot aeroplane~~ 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~~j) application of elementary aeronautical meteorology; use of, and procedures for obtaining, meteorological information; altimetry; ~~hazardous weather conditions;~~

Navigation

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

Operational procedures

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

Note.— Material on the application of threat and error management is found in Part II, Chapter 2 of the Human Factors Training Manual (Doc 9683).

- m) altimeter setting procedures;
- jn) use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations;
- ko) 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 the helicopter, and if applicable, powered-lift, settling with power; ground resonance; retreating blade stall; dynamic roll-over and other operation hazards; safety procedures, associated with flight in VMC;

Principles of flight

- iq) principles of flight relating to aeroplanes;

Radiotelephony

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

~~2.3.1.3 Experience~~

Editorial Note.— Paragraph 2.3.1.3 relocated to new paragraph 2.3.3.1 as amended.

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~~2.3.1.4 Flight instruction~~

Editorial Note.— Paragraph 2.3.1.4 relocated to new paragraph 2.3.3.2 as amended.

...

~~2.3.1.5~~ 2.3.1.3 Skill

The applicant shall have demonstrated the ability to perform as pilot-in-command of an aircraft within an ~~aeroplane~~ the appropriate category, the procedures and manoeuvres described in ~~2.3.1.4~~ 2.3.3.2.1 or 2.3.4.2.1 or 2.3.5.2.1 or 2.3.6.2.1 with a degree of competency appropriate to the privileges granted to the holder of a private pilot licence — ~~aeroplane~~, and to:

- a) recognize and manage threats and errors;

Note.— Material on the application of threat and error management is found in Part II, Chapter 2 of the Human Factors Training Manual (Doc 9683).

ab) operate the aircraft aeroplane within its limitations;

...

ef) maintain control of the aircraft aeroplane at all times in a manner such that the successful outcome of a procedure or manoeuvre is never seriously in doubt assured.

2.3.1.6 2.3.1.4 Medical fitness

The applicant shall hold a current Class 2 Medical Assessment.

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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 — aeroplane shall be to act, but not for remuneration, as pilot-in-command or co-pilot of any aeroplane 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, ~~complied with the requirements specified in 2.3.1.4.2.~~

2.3.3 Specific requirements for the issue of the aeroplane category rating

Editorial Note.— Paragraph 2.3.1.3 relocated to new paragraph 2.3.3.1 as amended.

2.3.1.3 2.3.3.1 Experience

~~2.3.1.3.1~~ 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. The Licensing Authority shall determine whether experience as a pilot under instruction in a synthetic flight trainer, which it has approved, flight simulation training device, is acceptable as part of the total flight time of 40 hours or 35 hours, as the case may be. Credit for such experience shall be limited to a maximum of 5 hours.

~~2.3.1.3.1.1~~ 2.3.3.1.1.1 When the applicant has flight time as a pilot of aircraft in other categories, the Licensing Authority shall determine whether such experience is acceptable and, if so, the extent to which the flight time requirements of ~~2.3.1.3.1~~ 2.3.3.1.1 can be reduced accordingly.

~~2.3.1.3.2~~ 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.

Editorial Note.— Paragraph 2.3.1.4 relocated to new paragraph 2.3.3.2 as amended.

~~2.3.1.4~~ ~~2.3.3.2~~ *Flight instruction*

~~2.3.1.4.1~~ ~~2.3.3.2.1~~ 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.— *Material on the application of threat and error management is found in Part II, Chapter 2 of the Human Factors Training Manual (Doc 9683).*

- ab) pre-flight operations, including mass and balance determination, aeroplane inspection and servicing;
- bc) aerodrome and traffic pattern operations, collision avoidance precautions and procedures;
- ed) control of the aeroplane by external visual reference;
- de) flight at critically slow airspeeds; recognition of, and recovery from, incipient and full stalls;
- ef) flight at critically high airspeeds; recognition of, and recovery from, spiral dives;
- fg) normal and cross-wind take-offs and landings;
- gh) maximum performance (short field and obstacle clearance) take-offs; short-field landings;
- hi) flight by reference solely to instruments, including the completion of a level 180° turn;
- ij) cross-country flying using visual reference, dead reckoning and, where available, radio navigation aids;
- jk) emergency operations, including simulated aeroplane equipment malfunctions; and
- kl) operations to, from and transiting controlled aerodromes, compliance with air traffic services procedures, radiotelephony procedures and phraseology; and
- m) communication procedures and phraseology.

~~2.3.1.4.2~~—If the privileges of the licence are to be exercised at night, the applicant shall have received dual instruction in aeroplanes in night flying, including take-offs, landings and navigation.

Note.— *The instrument experience specified in ~~2.3.1.4.1 h)~~ 2.3.3.2.1 i) and the night flying experience specified dual instruction in ~~2.3.1.4.2~~ 2.3.2.2 do not entitle the holder of a private pilot licence —aeroplane to pilot aeroplanes under IFR.*

Editorial Note.— New paragraph 2.3.4.1 is existing paragraph 2.7.1.3 relocated as amended.

2.3.4 Specific requirements for the issue of the helicopter category rating

~~2.7.1.3~~ 2.3.4.1 *Experience*

~~2.7.1.3.1~~ 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. The Licensing Authority shall determine whether experience as a pilot under instruction in a synthetic flight trainer, which it has approved flight simulation training device, is acceptable as part of the total flight time of 40 hours or 35 hours as the case may be. Credit for such experience shall be limited to a maximum of 5 hours.

~~2.7.1.3.1.1~~ 2.3.4.1.1.1 When the applicant has flight time as a pilot of aircraft in other categories, the Licensing Authority shall determine whether such experience is acceptable and, if so, the extent to which the flight time requirements of ~~2.7.1.3.1~~ 2.3.4.1.1 can be reduced accordingly.

~~2.7.1.3.2~~ 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.

~~2.7.1.4~~ 2.3.4.2 *Flight instruction*

~~2.7.1.4.1~~ 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.— Material on the application of threat and error management is found in Part II, Chapter 2 of the Human Factors Training Manual (Doc 9683).

- ab) pre-flight operations, including mass and balance determination, helicopter inspection and servicing;
- bc) aerodrome and traffic pattern operations, collision avoidance precautions and procedures;
- ed) control of the helicopter by external visual reference;
- de) recovery at the incipient stage from settling with power; recovery techniques from low-rotor rpm within the normal range of engine rpm;
- ef) ground manoeuvring and run-ups; hovering; take-offs and landings — normal, out of wind and sloping ground;
- fg) take-offs and landings with minimum necessary power; maximum performance take-off and landing techniques; restricted site operations; quick stops;

- gh) cross-country flying using visual reference, dead reckoning and, where available, radio navigation aids, including a flight of at least one hour;
- hi) emergency operations, including simulated helicopter equipment malfunctions; autorotative approach and landing; and
- ij) operations to, from and transmitting controlled aerodromes, compliance with air traffic services procedures, radiotelephony procedures and phraseology; and
- k) communications procedures and phraseology.

~~2.7.1.4.1.1~~ ~~2.3.4.2.1.1~~ **Recommendation.**— *The applicant should have received dual instrument flight instruction from an authorized flight instructor. The instructor should ensure that the applicant has operational experience in flight solely by reference to instruments, including the completion of a level 180° turn, in a suitably instrumented helicopter.*

~~2.7.1.4.2~~— ~~If the privileges of the licence are to be exercised at night, the applicant shall have received dual instruction in helicopters in night flying, including take-offs, landings and navigation.~~

Note.— *The instrument experience specified in ~~2.7.1.4.1.1~~ ~~2.3.4.2.1.1~~ and the night flying experience specified dual instruction in ~~2.7.1.4.2~~ ~~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 Recommendation.— *The applicant should have completed not less than 40 hours of flight time as pilot of a powered-lift. The Licensing Authority should determine whether experience as a pilot under instruction in a flight simulation training device is acceptable as part of the total flight time of 40 hours.*

2.3.5.1.2 Recommendation.— *When the applicant has flight time as a pilot of aircraft in other categories, the Licensing Authority should determine whether such experience is acceptable and, if so, the extent to which the flight time requirements of 2.3.5.1.1 can be reduced accordingly.*

2.3.5.1.3 Recommendation.— *The applicant should have completed in a powered-lift 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

2.3.5.2.1 Recommendation.— *The applicant should have received not less than 20 hours of 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 private pilot:*

- a) recognize and manage threats and errors;

Note.— Material on the application of threat and error management is found in 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 stopping 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 reconversion 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 2.3.5.2.1 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-lift under IFR.

2.3.6 Specific requirements for the issue of the airship category rating

2.3.6.1 Experience

2.3.6.1.1 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 airport;*
- 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

2.3.6.2.1 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.— Material on the application of threat and error management is found in Part II, Chapter 2 of the Human Factors Training Manual (Doc 9683).

- b) pre-flight operations, including mass and balance determination, airships 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 airships by external visual reference;
- g) take-offs and landings and go-around;
- 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.

2.4 Commercial pilot licence — Aeroplane

Note.— The Training Manual (Doc 7192), Part B-5, contains guidance material for a course of training for the commercial pilot licence — aeroplane.

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

2.4.1.1 Age

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

Note:— Certain privileges of the licence are curtailed by 2.1.10 for licence holders who have attained their 60th birthday.

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—~~aeroplane~~ 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 —~~aeroplane~~; rules of the air; appropriate air traffic services practices and procedures;

Aircraft general knowledge for aeroplane, helicopter, powered-lift and airship

- b) principles of operation and functioning of ~~aeroplane~~ powerplants, systems and instruments;
- c) operating limitations of ~~appropriate aeroplanes~~ 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 ~~aeroplanes~~ aircraft;
- e) maintenance procedures for airframes, systems and powerplants of appropriate ~~aeroplanes~~ aircraft;
- f) for helicopter and powered-lift, transmission (power-trains) where applicable;
- g) for airship, physical properties and practical application of gases;

Flight performance and, planning and loading

- h) effects of loading and mass distribution on ~~aeroplane~~ aircraft handling, flight characteristics and performance; 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 ~~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 airship, helicopter and powered-lift effects of external loading;

Human performance

- i) human performance relevant to the commercial pilot — aeroplane — 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) interpretation and application of aeronautical meteorological reports, charts and forecasts; use of, and procedures for obtaining, meteorological information, pre-flight and in-flight; altimetry;
- k) 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; hazardous weather avoidance;
- 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 airship:
 - i) use, limitation and serviceability of avionics and instruments necessary for the 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 principles to operational performance;

Note.— Material on the application of threat and error management is found 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;

- nu) appropriate precautionary and emergency procedures;
- ov) operational procedures for carriage of freight; potential hazards associated with dangerous goods;
- pw) requirements and practices for safety briefing to passengers, including precautions to be observed when embarking and disembarking from aeroplanes aircraft;
- x) in the case of the helicopter, and if applicable, powered-lift, settling with power; ground resonance; retreating blade stall; dynamic roll-over and other operation hazards; safety procedures, associated with flight in VMC;

Principles of flight

- qy) principles of flight relating to aeroplanes;

Radiotelephony

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

~~2.4.1.3~~ *Experience*

...

~~2.4.1.4~~ *Flight instruction*

...

~~2.4.1.5~~ ~~2.4.1.3~~ *Skill*

The applicant shall have demonstrated the ability to perform as pilot-in-command of an aeroplane aircraft within the appropriate category of aircraft, the procedures and manoeuvres described in ~~2.4.1.4~~ ~~2.4.3.2.1~~ or ~~2.4.4.2.1~~ or ~~2.4.5.2.1~~ or ~~2.4.6.2.1~~ with a degree of competency appropriate to the privileges granted to the holder of a commercial pilot licence — aeroplane, and to:

- a) recognize and manage threats and errors;

Note.— Material on the application of threat and error management is found in Part II, Chapter 2 of the Human Factors Training Manual (Doc 9683).

- ab) operate the aeroplane aircraft within its limitations;
- bc) complete all manoeuvres with smoothness and accuracy;
- ed) exercise good judgement and airmanship;
- de) apply aeronautical knowledge; and
- ef) maintain control of the aeroplane aircraft at all times in a manner such that the successful outcome of a procedure or manoeuvre is never seriously in doubt assured.

~~2.4.1.6~~ 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, 1.2.9 and 2.1, the privileges of the holder of a commercial pilot licence—~~aeroplane~~ shall be:

- a) to exercise all the privileges of the holder of a private pilot licence —~~aeroplane~~ in an aircraft within the appropriate aircraft category;
- b) to act as pilot-in-command in ~~any aeroplane~~ 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 in ~~any aeroplane~~ an aircraft within the appropriate aircraft category certificated for single-pilot operation; ~~and~~
- d) to act as co-pilot in ~~commercial air transportation in aeroplanes~~ 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 ~~complied with the requirements specified in 2.4.1.3.1.1 d) and 2.4.1.4.2.~~ received dual instruction in aircraft within the appropriate category 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 65th birthdays.

2.4.3 Specific requirements for the issue of the aeroplane category rating

Editorial Note.— Paragraph 2.4.1.3 relocated to new paragraph 2.4.3.1 as amended.

~~2.4.1.3~~ 2.4.3.1 *Experience*

~~2.4.1.3.1~~ 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. The Licensing Authority shall determine whether experience as a pilot under instruction in a ~~synthetic flight trainer, which it has approved,~~ flight simulation training device is acceptable as part of the total flight time of 200 hours or 150 hours, as the case may be. Credit for such experience shall be limited to a maximum of 10 hours.

~~2.4.1.3.1.1~~ 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 totalling 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.

~~2.4.1.3.2~~ 2.4.3.1.2 When the applicant has flight time as a pilot of aircraft in other categories, the Licensing Authority shall determine whether such experience is acceptable and, if so, the extent to which the flight time requirements of ~~2.4.1.3.1~~ 2.4.3.1.1.1 can be reduced accordingly.

Editorial Note.— Paragraph 2.4.1.4 relocated to new paragraph 2.4.3.2 as amended.

2.4.1.4 ~~2.4.3.2~~ *Flight instruction*

~~2.4.1.4.1~~ 2.4.3.2.1 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.— *Material on the application of threat and error management is found in Part II, Chapter 2 of the Human Factors Training Manual (Doc 9683).*

- ab) pre-flight operations, including mass and balance determination, aeroplane inspection and servicing;
- bc) aerodrome and traffic pattern operations, collision avoidance precautions and procedures;
- ed) control of the aeroplane by external visual reference;
- de) 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;
- eg) flight at critically high airspeeds; recognition of, and recovery from, spiral dives;
- fh) normal and cross-wind take-offs and landings;
- gi) maximum performance (short field and obstacle clearance) take-offs; short-field landings;
- hj) basic flight manoeuvres and recovery from unusual attitudes by reference solely to basic flight instruments;

- ik) cross-country flying using visual reference, dead reckoning and radio navigation aids; diversion procedures;
- jl) abnormal and emergency procedures and manoeuvres including simulated aeroplane equipment malfunctions; and
- lm) operations to, from and transiting controlled aerodromes, compliance with air traffic services procedures, radiotelephony procedures and phraseology; and
- n) communication procedures and phraseology.

2.4.1.4.2 — If the privileges of the licence are to be exercised at night, the applicant shall have received dual instruction in aeroplanes in night flying, including take-offs, landings and navigation.

Note.— The instrument experience specified in ~~2.4.1.3.1.1 c) and 2.4.1.4.1 h)~~ 2.4.3.1.1.1 c) and 2.4.3.2.1 j) and the night flying experience and dual instruction specified in 2.4.3.1.1.1 d) and 2.4.2.2 specified in ~~2.4.1.3.1.1 d) and 2.4.1.4.~~ do not entitle the holder of a commercial pilot licence — aeroplane to pilot aeroplanes under IFR.

Editorial Note.— New paragraph 2.4.4.1 is existing paragraph 2.8.1.3 relocated as amended.

2.4.4 Specific requirements for the issue of the helicopter category rating

~~2.8.1.3~~ 2.4.4.1 Experience

~~2.8.1.3.1~~ 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. The Licensing Authority shall determine whether experience as a pilot under instruction in a ~~synthetic flight trainer, which it has approved~~ flight simulation training device is acceptable as part of the total flight time of 150 hours or 100 hours, as the case may be. Credit for such experience shall be limited to a maximum of 10 hours.

~~2.8.1.3.1.1~~ 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.

~~2.8.1.3.2~~ 2.4.4.1.2 When the applicant has flight time as a pilot of aircraft in other categories, the Licensing Authority shall determine whether such experience is acceptable and, if so, the extent to which the flight time requirements of ~~2.8.1.3.1~~ 2.4.4.1.1 can be reduced accordingly.

2.8.1.4 2.4.4.2 *Flight instruction*

2.8.1.4.1 2.4.4.2.1 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.— Material on the application of threat and error management is found in Part II, Chapter 2 of the Human Factors Training Manual (Doc 9683).

ab) pre-flight operations, including mass and balance determination, helicopter inspection and servicing;

bc) aerodrome and traffic pattern operations, collision avoidance precautions and procedures;

cd) control of the helicopter by external visual reference;

de) recovery at the incipient stage from settling with power; recovery techniques from low-rotor rpm within the normal range of engine rpm;

ef) ground manoeuvring and run-ups; hovering; take-offs and landings — normal, out of wind and sloping ground; steep approaches;

fg) take-offs and landings with minimum necessary power; maximum performance take-off and landing techniques; restricted site operations; quick stops;

gh) hovering out of ground effect; operations with external load, if applicable; flight at high altitude;

hi) basic flight manoeuvres and recovery from unusual attitudes by reference solely to basic flight instruments;

ij) cross-country flying using visual reference, dead reckoning and radio navigation aids; diversion procedures;

jk) abnormal and emergency procedures, including simulated helicopter equipment malfunctions, autorotative approach and landing; ~~and~~

kl) operations to, from and transiting controlled aerodromes, compliance with air traffic services procedures, ~~radiotelephony procedures and phraseology;~~ and

m) communication procedures and phraseology.

2.8.1.4.2 ~~If the privileges of the licence are to be exercised at night, the applicant shall have received dual instruction in helicopters in night flying, including take-offs, landings and navigation.~~

Note.— The instrument experience specified in 2.8.1.3.1.1 c) and 2.8.1.4.1 h) 2.4.4.1.1 c) and 2.4.4.2.1 i) and the night flying experience and dual instruction specified in 2.8.1.3.1.1 d) and 2.8.1.4.2 2.4.4.1.1 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 Recommendation.— *The applicant should 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. The Licensing Authority should determine whether 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 Recommendation.— *The applicant should have completed in a powered-lift not less than:*

- a) *50 hours as pilot-in-command;*
- b) *10 hours in 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 landing at two different aerodromes shall 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 Recommendation. — *When the applicant has flight time as a pilot of aircraft in other categories, the Licensing Authority should determine whether such experience is acceptable and, if so, the extent to which the flight time requirements of 2.4.5.1.1 could be reduced accordingly.*

2.4.5.2 Flight instruction

2.4.5.2.1 Recommendation.— *The applicant should 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.— *Material on the application of threat and error management is found 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 slopping 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, where applicable; power of reconversion to autorotation; autorotative approach; transmission and interconnect driveshaft failure;*
- l) *operations to, from and transitting 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 2.4.5.2.1 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-lift 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 in airships;
- b) 30 hours as pilot-in-command or pilot-in-command under supervision in airships, 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 on the areas of operation listed in paragraph 2.4.6.2.1.

2.4.6.2 *Flight instruction*

2.4.6.2.1 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.— Material on the application of threat and error management is found in Part II, Chapter 2 of the Human Factors Training Manual (Doc 9683).

- b) pre-flight operations, including mass and balance determination, airships 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 airships by external visual reference;
- f) recognition of leak;
- 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 paragraph 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 at 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.— Material on the application of threat and error management is found 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.

...

2.5.1.6 Medical fitness

2.5.1.6.1 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, 1.2.9 and 2.1, the privileges of the holder of a multi-crew pilot licence shall be:

- a) to exercise all the privileges of the holder of a private pilot licence in the appropriate 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 in 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 solely by reference to instruments and met the skill requirement specified in paragraph 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 70 hours, either as pilot-in-command, or made up by not less than 10 hours as pilot-in-command and the necessary additional flight time as pilot-in-command under supervision in aeroplanes;
- 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 paragraphs 2.4.1.2, 2.4.1.3, 2.4.3.1.1, 2.4.3.1.1 b) to d) and 2.4.3.2 appropriate to the aeroplane category.

Note 1.— When a Contracting State grants single pilot operation privileges to the holder of a MPL, it can document the privileges through an endorsement of the MPL or through the issuance of a CPL in the aeroplane category.

Note 2.— Certain privileges of the license are curtailed by 2.1.10 for license 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 solely by reference to instruments.

2.5.3.3 In addition to meeting 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 by the Licensing Authority 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 paragraph 2.5.3.

2.5.4.2 The applicant shall have received dual flight instruction in all the competency units stated at 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.

2.5 2.6 Airline Transport Pilot Licence — Aeroplane

~~2.5.1~~ 2.6.1 **Requirements** General requirements for the issue of the licence appropriate to the aeroplane, helicopter and powered-lift categories

~~2.5.1.1~~ 2.6.1.1 *Age*

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

Note. — Certain privileges of the licence are curtailed by 2.1.10 for licence holders who have attained their 60th birthday.

~~2.5.1.2~~ 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 — aeroplane 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 — aeroplane; rules of the air; appropriate air traffic services practices and procedures;

Aircraft general knowledge for aeroplane, helicopter and powered-lift

- b) general characteristics and limitations of electrical, hydraulic, pressurization and other aeroplane aircraft systems; flight control systems, including autopilot and stability augmentation;
- c) principles of operation, handling procedures and operating limitations of aeroplane 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 appropriate aeroplanes — the relevant category of aircraft; effects of atmospheric conditions on aeroplane aircraft performance in accordance to the relevant operational information from the flight manual;
- e) use and serviceability checks of equipment and systems of appropriate aeroplanes 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 aeroplanes aircraft;

h) for helicopter and powered-lift, transmission (power-trains) where applicable;

Flight performance and planning

- hi) effects of loading and mass distribution on ~~aeroplane~~ aircraft handling, flight characteristics and performance; mass and balance calculations;
- ij) use and practical application of take-off, landing and other performance data, including procedures for cruise control;
- jk) 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 helicopter or powered-lift, effects of external loading on handling;

Human performance

- km) human performance ~~relevant to the airline transport pilot~~ ~~aeroplane~~ 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

- hn) 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;
- mo) 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;
- np) causes, recognition and effects of ~~engine and airframe~~ icing; frontal zone penetration procedures; hazardous weather avoidance;
- oq) in the case of aeroplane and powered-lift, practical high altitude meteorology, including interpretation and use of weather reports, charts and forecasts; jetstreams;

Navigation

- pr) air navigation, including the use of aeronautical charts, radio navigation aids and area navigation systems; specific navigation requirements for long-range flights;
- qs) use, limitation and serviceability of avionics and instruments necessary for the control and navigation of ~~aeroplanes~~ aircraft;

- ft) use, accuracy and reliability of navigation systems used in departure, en-route, approach and landing phases of flight; identification of radio navigation aids;
- su) 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.— Material on the application of threat and error management is found in Part II, Chapter 2 of the Human Factors Training Manual (Doc 9683).

- tw) 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;~~
- ux) precautionary and emergency procedures; safety practices ~~associated with flight under IFR;~~
- vy) operational procedures for carriage of freight and dangerous goods;
- wz) requirements and practices for safety briefing to passengers, including precautions to be observed when embarking and disembarking from ~~aeroplanes~~ aircraft;
- aa) in the case of the helicopter, and if applicable, powered-lift, settling with power; ground resonance; retreating blade stall; dynamic roll-over and other operation hazards; safety procedures, associated with flight in VMC;

Principles of flight

- xb) principles of flight ~~relating to aeroplanes; subsonic aerodynamics; compressibility effects, manoeuvre boundary limits, wing design characteristics, effects of supplementary lift and drag devices; relationships between lift, drag and thrust at various airspeeds and in different flight configurations;~~

Radiotelephony

- yc) ~~radiotelephony~~ 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.

Editorial Note.— Paragraph 2.5.1.3 relocated to paragraph 2.6.3.1 as amended.

2.5.1.3 Experience

Editorial Note.— Paragraph 2.5.1.4 relocated to paragraph 2.6.3.2 as amended.

~~2.5.1.4~~ *Flight instruction*~~2.5.1.5~~ 2.6.1.3 *Skill*

~~2.5.1.5.1~~ 2.6.1.3.1 The applicant shall have demonstrated the ability to perform, as pilot-in-command of a multi-engined aeroplane an aircraft of the appropriate category required to be operated with a co-pilot, 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) ~~procedures and manoeuvres for IFR operations under normal, abnormal and emergency conditions, including simulated engine failure, and covering at least the following:~~
 - transition to instrument flight on take-off;
 - standard instrument departures and arrivals;
 - en route IFR procedures and navigation;
 - holding procedures;
 - instrument approaches to specified minima;
 - missed approach procedures;
 - landings from instrument approaches;
- d) abnormal and emergency procedures and manoeuvres related to failures and malfunctions of equipment, such as powerplant, systems and airframe; ~~and~~
- e) procedures for crew incapacitation and crew coordination, including allocation of pilot tasks, crew cooperation and use of checklists; ~~and~~
- e) in the case of the aeroplane and powered-lift, procedures and manoeuvres for instrument flight described in 2.7.1.2.1 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.

~~2.5.1.5.1.1~~ 2.6.1.3.1.2 The applicant shall have demonstrated the ability to perform the procedures and manoeuvres described in ~~2.5.1.5.1~~ 2.6.1.3 with a degree of competency appropriate to the privileges granted to the holder of an airline transport pilot licence — ~~aeroplane~~, and to:

- ~~a) operate the aeroplane within its limitations;~~
- a) recognize and manage threats and errors;

Note.— Material on the application of threat and error management is found in Part II, Chapter 2 of the Human Factors Training Manual (Doc 9683).

- b) ~~complete all manoeuvres with smoothness and accuracy;~~ 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) apply aeronautical knowledge; perform, in an accurate manner, normal, abnormal and emergency procedures in all phases of flight;
- e) maintain control of the aeroplane at all times in a manner such that the successful outcome of a procedure or manoeuvre is never in doubt;
- ee) exercise good judgment and airmanship, to include structured decision making and the maintenance of situational awareness; and
- f) understand and apply crew coordination and incapacitation procedures; and
- g)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.

2.5.1.6 2.6.1.4 *Medical fitness*

The applicant shall hold a current Class 1 Medical Assessment.

2.5.2 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, 1.2.9 and 2.1, the privileges of the holder of an airline transport pilot licence—~~aeroplane~~ shall be:

- a) to exercise all the privileges of the holder of a private and commercial pilot licence — ~~aeroplane and of an instrument rating — aeroplane~~ of 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 ~~and co-pilot in aeroplanes in air transportation~~ in commercial air transportation in an aircraft of 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 only previously held a MPL, the privileges of the licence shall be limited to multi-crew operations unless the holder has met the requirements established in paragraphs 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 65th birthdays

2.6.3 Specific requirements for the issue of the aeroplane category rating

Editorial Note.— Paragraph 2.5.1.3 relocated to paragraph 2.6.3.1 as amended.

~~2.5.1.3~~ **2.6.3.1 Experience**

~~2.5.1.3.1~~ **2.6.3.1.1** The applicant shall have completed not less than 1 500 hours of flight time as a pilot of aeroplanes. The Licensing Authority shall determine whether experience as a pilot under instruction in a ~~synthetic flight trainer, which it has approved,~~ **flight simulation training device** is acceptable as part of the total flight time of 1 500 hours. Credit for such experience shall be 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.

~~2.5.1.3.1.1~~ **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 400 70 hours as pilot-in-command and the necessary additional flight time as pilot-in-command under supervision~~ **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** ~~eo pilot performing, under the supervision of the pilot in command, the duties and functions of a pilot in command, provided that the method of supervision employed is acceptable to the Licensing Authority;~~
- 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~~ **pilot-in-command under supervision** ~~eo pilot performing, under the supervision of the pilot in command, the duties and functions of a pilot in command, provided that the method of supervision employed is acceptable to the Licensing Authority;~~
- 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.

~~2.5.1.3.2~~ **2.6.3.1.2** When the applicant has flight time as a pilot of aircraft in other categories, the Licensing Authority shall determine whether such experience is acceptable and, if so, the extent to which the flight time requirements of ~~2.5.1.3.1~~ **2.6.3.1** can be reduced accordingly.

Editorial Note.— Paragraph 2.5.1.4 relocated to paragraph 2.6.3.2 as amended.

~~2.5.1.4~~ **2.6.3.2 Flight instruction**

The applicant shall have received the dual flight instruction required ~~at 2.4.3.2~~ **at 2.4.3.2** for the issue of the commercial pilot licence—~~aeroplane (2.4.1.4)~~ and ~~at 2.7.4~~ **at 2.7.4** for the issue of the instrument rating—~~aeroplane (2.6.1.3)~~ or ~~at 2.5.4~~ **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

Editorial Note.— Paragraph 2.9.1.3 relocated to paragraph 2.6.4.1 as amended.

~~2.9.1.3~~ 2.6.4.1 *Experience*

~~2.9.1.3.1~~ 2.6.4.1.1 The applicant shall have completed not less than 1 000 hours of flight time as a pilot of helicopters. The Licensing Authority shall determine whether experience as a pilot under instruction in a ~~synthetic flight trainer, which it has approved,~~ flight simulation training device is acceptable as part of the total flight time of 1 000 hours. Credit for such experience shall be 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.

~~2.9.1.3.1.1~~ 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 by not less than ~~100~~ 70 hours as pilot-in-command and the necessary additional flight time as pilot-in-command under supervision ~~co-pilot performing, under the supervision of the pilot in command, the duties and functions of a pilot in command, provided that the method of supervision employed is acceptable to the Licensing Authority;~~
- 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 ~~co-pilot performing, under the supervision of the pilot in command, the duties and functions of a pilot in command, provided that the method of supervision employed is acceptable to the Licensing Authority;~~
- 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.

~~2.9.1.3.2~~ 2.6.4.1.2 When the applicant has flight time as a pilot of aircraft in other categories, 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~~ 2.6.4.1.1 can be reduced accordingly.

Editorial Note.— Paragraph 2.9.1.4 relocated to paragraph 2.6.4.2 as amended.

2.9.1.4 2.6.4.2 *Flight instruction*

The applicant shall have received the flight instruction required for the issue of the commercial pilot licence —~~helicopter~~ (2.8.1.4 2.4.4.2).

Note.— The instrument time specified in ~~2.9.1.3.1.1 c)~~ 2.6.4.1.1.1 c) and the night flying time specified in ~~2.9.1.3.1.1 d)~~ 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 requirement for the issue of the powered-lift category rating

2.6.5.1 *Experience*

2.6.5.1.1 **Recommendation.**— The applicant should have completed not less than 1 500 hours of flight time as a pilot in a powered-lift. The Licensing Authority should determine whether 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 Recommendation.— *The applicant should have completed in a powered-lift not less than:*

- a) *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) *100 hours of cross-country flight time, of which not less than 50 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) *25 hours of night flight as pilot-in-command or as co-pilot.*

2.6.5.1.3 Recommendation.— *When the applicant has flight time as a pilot of aircraft in other categories, the Licensing Authority should determine whether such experience is acceptable and, if so, the extent to which the flight time requirements of 2.6.5.1.1 could be reduced accordingly.*

2.6.5.2 Flight instruction

2.6.5.2.1 Recommendation.— *The applicant should 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.*

2.6 2.7 Instrument rating — Aeroplane

Note.— *The Training Manual (Doc 7192), Part B-5, contains guidance material for a course of training for the instrument rating — aeroplane.*

2.6.1 2.7.1 Requirements for the issue of the rating for aeroplane, helicopter, powered-lift and airship categories

2.6.1.1 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—~~aeroplane~~, 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 aeroplanes 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 aeroplanes 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 helicopter and powered-lift, 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 procedures;
- 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 PANS-OPS, Volume I – Flight Procedures (Doc 8168). Procedures used in certain States may differ from PANS-OPS, and knowledge of these differences is important for safety reasons.

Radiotelephony

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

Editorial Note.— Paragraph 2.6.1.2 relocated to paragraph 2.7.3.1 as amended.

2.6.1.2 Experience

Editorial Note.— Paragraph 2.6.1.3 relocated to paragraph 2.7.4.1 as amended.

2.6.1.3 Flight instruction

2.6.1.4 2.7.1.2 Skill

2.6.1.4.1 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 2.6.1.3.1 2.7.4.1 with a degree of competency appropriate to the privileges granted to the holder of an instrument rating —aeroplane, and to:

- a) recognize and manage threats and errors;

Note.— Guidance material on the application of threat and error management is found in the PANS/TRG, Chapter 3 Attachment D, and in Part II, Chapter 2 of the Human Factors Training Manual (Doc 9683).

- b) operate the aeroplane 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 aeroplane aircraft at all times in a manner such that the successful outcome of a procedure or manoeuvre is never seriously in doubt assured.

2.6.1.4.1.1 2.7.1.2.1.1 The applicant shall have demonstrated the ability to operate multi-engined aircraft of the appropriate category aeroplanes solely by reference to instruments with one engine inoperative, or simulated inoperative, if the privileges of the instrument rating are to be exercised on such aircraft aeroplanes.

Note.— Attention is called to 2.1.6 on the use of synthetic flight trainers simulation training device for demonstrations of skill.

~~2.6.1.5~~ 2.7.1.3 *Medical fitness*

~~2.6.1.5.1~~ 2.7.1.3.1 Applicants who hold a private pilot licence shall have established their hearing acuity on the basis of compliance with the hearing requirements for the issue of a Class 1 Medical Assessment.

~~2.6.1.5.2~~ 2.7.1.3.2 **Recommendation.**— *Contracting States should consider requiring the holder of a private pilot licence to comply with the physical and mental, and visual requirements for the issue of a Class 1 Medical Assessment.*

~~2.6.2.2~~ 2.7.2 Privileges of the holder of the rating and the conditions to be observed in exercising such privileges

~~2.6.2.1~~ 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 —~~aeroplane~~ with a specific aircraft category shall be to pilot ~~aeroplanes~~ that category of aircraft under IFR.

~~2.6.2.2~~ 2.7.2.2 Before exercising the privileges on multi-engined ~~aeroplanes~~ aircraft, the holder of the rating shall have complied with the requirements of ~~2.6.1.4.1.1~~ 2.7.1.2.1.1.

Note.— ~~Attention is called to 2.10.3 on the Pilots may exercise of joint category privileges of the instrument rating — aeroplane and of the instrument rating — helicopter on more than one category of aircraft if they have completed the requirements in each category.~~

~~2.6.1.2~~ 2.7.3 *Experience*

Editorial Note.— Paragraph 2.6.1.2 relocated to paragraph 2.7.3.1 as amended.

~~2.6.1.2.1~~ 2.7.3.1 The applicant shall hold a ~~private or commercial~~ pilot licence —~~aeroplane~~ for the aircraft category being sought.

~~2.6.1.2.2~~ 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 ~~aeroplanes~~ the aircraft category being sought; and
- b) 40 hours of instrument time in ~~aeroplanes or helicopters~~ 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.

~~2.6.1.3~~ 2.7.4 *Flight instruction*

Editorial Note.— Paragraph 2.6.1.3 relocated to paragraph 2.7.4.1 as amended.

~~2.6.1.3.1~~ 2.7.4.1 The applicant shall have gained not less than 10 hours of the instrument flight time required in ~~2.6.1.2.2 b)~~ 2.7.3.2 b) while receiving dual instrument flight instruction in ~~aeroplanes~~ 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:

...

Editorial Note.— Renumber paragraph 2.6.1.3.2 to 2.7.4.2.

**2.11 2.8 Flight instructor rating appropriate to
aeroplanes, airships, and helicopters and powered-lift**

~~2.11.1~~ **2.8.1** Requirements for the issue of the rating

~~2.11.1.1~~ **2.8.1.1** *Knowledge*

The applicant shall have met the knowledge requirements for the issue of a commercial pilot licence as specified in ~~2.4.1.2 or 2.8.1.2~~ 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;

...

i) use of training aids, including flight simulation training devices as appropriate;

...

k) human performance relevant to flight instruction including principles of threat and error management; ~~and~~

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.

Editorial Note.— Paragraph 2.11.1.2 relocated to paragraph 2.8.1.3.

~~2.11.1.2~~—*Experience*

~~2.11.1.3~~ *Flight instruction*

Editorial Note.— Paragraph 2.11.1.3 relocated to paragraph 2.8.1.4.

~~2.11.1.4~~ **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.

~~2.11.1.2~~ 2.8.1.3 *Experience*

The applicant shall have met the experience requirements for the issue of a commercial pilot licence as specified in ~~2.4.1.3 or 2.8.1.3~~ 2.4.3.1, 2.4.4.1, 2.4.5.1 and 2.4.6.1 for each aircraft category, as appropriate.

~~2.11.1.3~~ 2.8.1.4 *Flight instruction*

The applicant shall, under the supervision of a flight instructor accepted by the Licensing Authority 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.

~~2.11.2~~ 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 instructions for the multi-crew pilot licence, shall have also met all the instructor qualifications requirements.

Note.— Specific provision for flight instructor carrying out instructions for the multi-crew licence exists in Chapter 4 of the PANS-TRG.

2.9 ~~2.12~~ Glider pilot licence

~~2.12.1~~ 2.9.1 Requirements for the issue of the licence

~~2.12.1.1~~ 2.9.1.1 Age

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

~~2.12.1.2~~ 2.9.1.2 Knowledge

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 and planning

- 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 and wake turbulence and other operating hazards;

Principles of flight

- m) principles of flight relating to gliders.

~~2.12.1.2.1~~ **2.9.1.2.1 Recommendation.**— *The applicant should have demonstrated a level of knowledge appropriate to the privileges to be granted to the holder of a glider pilot licence, in radiotelephony communication procedures and phraseology as appropriate to VFR operations and on action to be taken in case of communication failure.*

~~2.12.1.3~~ **2.9.1.3 Experience**

~~2.12.1.3.1~~ **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' solo flight time during which not less than 20 launches and landings have been performed.

~~2.12.1.3.1.1~~ **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 2.12.1.3.1 can be reduced accordingly.

~~2.12.1.3.2~~ **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 cross-wind launches, approaches and landings;
- h) cross-country flying using visual reference and dead reckoning;
- i) emergency procedures.

~~2.12.1.4~~ 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 ~~2.12.1.3.2~~ 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.— Material on the application of threat and error management is found in Part II, Chapter 2 of the Human Factors Training Manual (Doc 9683).

- ab) operate the glider within its limitations;
- bc) complete all manoeuvres with smoothness and accuracy;
- ed) exercise good judgement and airmanship;
- de) apply aeronautical knowledge; and
- ef) maintain control of the glider at all times in a manner such that the successful outcome of a procedure or manoeuvre is never seriously in doubt.

...

~~2.10~~ 2.13- **Free balloon pilot licence**

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

~~2.13.1~~ 2.10.1 Requirements for the issue of the licence~~2.13.1.1~~ 2.10.1.1 *Age*

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

~~2.13.1.2~~ 2.10.1.2 *Knowledge*

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 and planning

- 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.

~~2.13.1.2.1~~ 2.10.1.2.1 **Recommendation.**— *The applicant should have demonstrated a level of knowledge appropriate to the privileges to be granted to the holder of a free balloon pilot licence, in radiotelephony procedures and phraseology as appropriate to VFR operations and on action to be taken in case of communication failure.*

~~2.13.1.3~~ 2.10.1.3 *Experience*

~~2.13.1.3.1~~ 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.

~~2.13.1.3.2~~ 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 a 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.

~~2.13.1.3.3~~ 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 **Recommendation.**— *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 free balloon.*

~~2.13.1.4~~ 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 ~~2.13.1.3.2~~ 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.— Material on the application of threat and error management is found in Part II, Chapter 2 of the Human Factors Training Manual (Doc 9683).

- ~~a~~b) operate the free balloon within its limitations;
- ~~b~~c) complete all manoeuvres with smoothness and accuracy;
- ~~e~~d) exercise good judgement and airmanship;
- ~~d~~e) apply aeronautical knowledge; and

- ef) maintain control of the free balloon at all times in a manner such that the successful outcome of a procedure or manoeuvre is never seriously in doubt.

~~2.13.1.5~~ **2.10.1.5** *Medical fitness*

The applicant shall hold a current Class 2 Medical Assessment.

~~2.13.2~~ **2.10.2** Privileges of the holder of the licence and
the conditions to be observed in exercising
such privileges

~~2.13.2.1~~ **2.10.2.1** Subject to compliance with the requirements specified in 1.2.5, 1.2.6, and ~~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.

~~2.13.2.2~~ **2.10.2.2** Before exercising the privileges at night, the licence holder shall have complied
with the requirements specified in ~~2.13.1.3.3~~ ~~2.10.1.3.3~~.

CHAPTER 3. LICENCES FOR FLIGHT CREW MEMBERS OTHER THAN LICENCES FOR PILOTS

...

3.2 Flight navigator licence

3.2.1 Requirements for the issue of the licence

3.2.1.1 Age

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

3.2.1.2 Knowledge

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

Air law

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

Flight performance and planning

- b) effects of loading and mass distribution on aircraft performance;
- c) use of take-off, landing and other performance data including procedures for cruise control;
- d) 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;

Human performance

- e) human performance relevant to the flight navigator 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

- f) interpretation and practical 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;
- g) 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;

Navigation

- h) dead-reckoning, pressure-pattern and celestial navigation procedures; the use of aeronautical charts, radio navigation aids and area navigation systems; specific navigation requirements for long-range flights;
- i) use, limitation and serviceability of avionics and instruments necessary for the navigation of the aircraft;
- j) use, accuracy and reliability of navigation systems used in departure, en-route and approach phases of flight; identification of radio navigation aids;
- k) principles, characteristics and use of self-contained and external-referenced navigation systems; operation of airborne equipment;
- l) the celestial sphere including the movement of heavenly bodies and their selection and identification for the purpose of observation and reduction of sights; calibration of sextants; the completion of navigation documentation;
- m) definitions, units and formulae used in air navigation;

Operational procedures

- n) interpretation and use of aeronautical documentation such as AIP, NOTAM, aeronautical codes, abbreviations, and instrument procedure charts for departure, en-route, descent and approach;

Principles of flight

- o) principles of flight;

Radiotelephony

- p) radiotelephony communication procedures and phraseology.

...

3.2.1.4 *Skill*

The applicant shall have demonstrated the ability to perform as flight navigator of an aircraft with a degree of competency appropriate to the privileges granted to the holder of a flight navigator licence, and to:

- a) recognize and manage threats and errors;

Note.— Material on the application of threat and error management is found in Part II, Chapter 2 of the Human Factors Training Manual (Doc 9683).

- ab) exercise good judgement and airmanship;
- bc) apply aeronautical knowledge;
- ed) perform all duties as part of an integrated crew; and
- de) communicate effectively with the other flight crew members.

3.2.1.5 *Medical fitness*

The applicant shall hold a current Class 2 + Medical Assessment.

...

3.3 Flight engineer licence

3.3.1 Requirements for the issue of the licence

3.3.1.1 *Age*

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

3.3.1.2 *Knowledge*

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

Air law

- a) rules and regulations relevant to the holder of a flight engineer licence; rules and regulations governing the operation of civil aircraft pertinent to the duties of a flight engineer;

Aircraft general knowledge

- b) basic principles of powerplants, gas turbines and/or piston engines; characteristics of

- fuels, fuel systems including fuel control; lubricants and lubrication systems; afterburners and injection systems, function and operation of engine ignition and starter systems;
- c) principles of operation, handling procedures and operating limitations of aircraft powerplants; effects of atmospheric conditions on engine performance;
 - d) airframes, flight controls, structures, wheel assemblies, brakes and anti-skid units, corrosion and fatigue life; identification of structural damage and defects;
 - e) ice and rain protection systems;
 - f) pressurization and air-conditioning systems, oxygen systems;
 - g) hydraulic and pneumatic systems;
 - h) basic electrical theory, electric systems (AC and DC), aircraft wiring systems, bonding and screening;
 - i) principles of operation of instruments, compasses, autopilots, radio communication equipment, radio and radar navigation aids, flight management systems, displays and avionics;
 - j) limitations of appropriate aircraft;
 - k) fire protection, detection, suppression and extinguishing systems;
 - l) use and serviceability checks of equipment and systems of appropriate aircraft;

Flight performance and planning

- m) effects of loading and mass distribution on aircraft handling, flight characteristics and performance; mass and balance calculations;
- n) use and practical application of performance data including procedures for cruise control;

Human performance

- o) human performance relevant to the flight engineer, 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).

Operational procedures

- p) principles of maintenance, procedures for the maintenance of airworthiness, defect reporting, pre-flight inspections, precautionary procedures for fuelling and use of external power; installed equipment and cabin systems;
- q) normal, abnormal and emergency procedures;
- r) operational procedures for carriage of freight and dangerous goods;

Principles of flight

- s) fundamentals of aerodynamics;

Radiotelephony

- t) ~~radiotelephony~~ communication procedures and phraseology.

3.3.1.2.1 **Recommendation.**— *The applicant should have demonstrated a level of knowledge appropriate to the privileges granted to the holder of a flight engineer licence in at least the following subjects:*

- a) fundamentals of navigation; principles and operation of self-contained systems; and
- b) operational aspects of meteorology.

3.3.1.3 *Experience*

3.3.1.3.1 The applicant shall have completed, under the supervision of a person accepted by the Licensing Authority for that purpose, not less than 100 hours of flight time in the performance of the duties of a flight engineer. The Licensing Authority shall determine whether experience as a flight engineer in a flight simulator, which it has approved, is acceptable as part of the total flight time of 100 hours. Credit for such experience shall be limited to a maximum of 50 hours.

3.3.1.3.1.1 When the applicant has flight time as a pilot, the Licensing Authority shall determine whether such experience is acceptable and, if so, the extent to which the flight time requirements of 3.3.1.3.1 can be reduced accordingly.

3.3.1.3.2 The applicant shall have operational experience in the performance of the duties of a flight engineer, under the supervision of a flight engineer accepted by the Licensing Authority for that purpose, in at least the following areas:

- a) Normal procedures
 - pre-flight inspections
 - fuelling procedures, fuel management
 - inspection of maintenance documents
 - normal flight deck procedures during all phases of flight
 - crew coordination and procedures in case of crew incapacitation
 - defect reporting
- b) Abnormal and alternate (standby) procedures
 - recognition of abnormal functioning of aircraft systems
 - use of abnormal and alternate (standby) procedures
- c) Emergency procedures
 - recognition of emergency conditions
 - use of appropriate emergency procedures

3.3.1.4 *Skill*

The applicant shall have demonstrated the ability to perform as flight engineer of an aircraft, the duties and procedures described in 3.3.1.3.2 with a degree of competency appropriate to the privileges granted to the holder of a flight engineer licence, and to:

a) recognize and manage threats and errors;

Note.— Material on the application of threat and error management is found in Part II, Chapter 2 of the Human Factors Training Manual (Doc 9683).

ab) use aircraft systems within the aircraft's capabilities and limitations;

bc) exercise good judgement and airmanship;

ec) apply aeronautical knowledge;

de) perform all the duties as part of an integrated crew with the successful outcome ~~never in doubt~~ assured; and

ef) communicate effectively with the other flight crew members.

3.3.1.4.1 The use of a ~~synthetic flight trainer~~ flight simulation training device for performing any of the procedures required during the demonstration of skill described in 3.3.1.4 shall be approved by the Licensing Authority, which shall ensure that the ~~synthetic flight trainer~~ flight simulation training device is appropriate to the task.

3.3.1.5 *Medical fitness*

The applicant shall hold a current Class 2 + Medical Assessment.

...

CHAPTER 5. SPECIFICATIONS FOR PERSONNEL LICENCES

5.1 Personnel licences issued by a Contracting State in accordance with the relevant provisions of this Annex shall conform to the following specifications:

5.1.1 Detail

5.1.1.1 A Contracting State having issued a licence shall ensure that other States are able to easily determine the licence privileges and validity of ratings.

Note.— Operator records or a flight crew member's personal log book, in which maintenance of competency and recent experience may be satisfactorily recorded, are not normally carried on international flights.

5.1.1.2 The following details shall appear on the licence:

...

V) Address of holder ~~if desired by the State;~~

...

XIII) Remarks, i.e. special endorsements relating to limitations and endorsements for privileges, including from 5 March 2008 an endorsement of language proficiency, ~~and other information required in pursuance to Article 39 of the Chicago Convention;~~

...

5.1.2 Material

First quality paper or other suitable material, ~~including plastic cards,~~ shall be used and the items mentioned in 5.1.1 shown clearly thereon.

~~5.1.3 Colour~~

Editorial Note.—Delete 5.1.3 and re-number succeeding paragraphs.

...

CHAPTER 6. MEDICAL PROVISIONS FOR LICENSING

...

6.1 Medical Assessments – General

6.1.1 Classes of Medical Assessment

Three classes of Medical Assessment shall be established as follows:

a) Class 1 Medical Assessment;

applies to applicants for, and holders of:

— commercial pilot licences – aeroplane, ~~airship,~~ ~~and helicopter,~~ ~~and powered-lift~~

— ~~multi-crew pilot licences - aeroplane~~

— airline transport pilot licences – aeroplane, ~~and helicopter,~~ ~~and powered-lift~~

— ~~flight navigator licences~~

— ~~flight engineer licences~~

...

b) Class 2 Medical Assessment;

applies to applicants for, and holders of:

— ~~flight navigator~~

- flight engineer
- private pilot licences – aeroplane, airship, and helicopter, and powered-lift

...

APPENDIX 2. APPROVED TRAINING ORGANIZATION

Editorial Note.—This proposed amendment complements the proposed Standard on approved training organizations that was adopted by the Council on 21 February 2005 as part of Amendment 166.

1. Issue of approval

...

3. Training Programmes

3.1 A Licensing Authority may approve a training programme for a private pilot licence, commercial pilot licence or instrument rating that allows an alternative means of compliance with the experience requirements established by Annex 1, provided that the approved training organization demonstrates to the satisfaction of the Licensing Authority that the training provides a level of competency at least equivalent to that provided by the minimum experience requirements for personnel not receiving such approved training.

3.2 When a Licensing Authority approves a training programme for a multi-crew pilot licence, the approved training organization shall demonstrate to the satisfaction of the Licensing Authority that the training provides a level of competency in multi-crew operations at least equal to that met by holders of a commercial pilot licence, instrument rating and type rating for an aeroplane certificated for operation with a minimum crew of at least two pilots.

Note.— Guidance on the approval of training programmes can be found in the Manual on Approval of Flight Training Organizations (Doc 9841).

...

34. Quality assurance system

Editorial Note.— Renumber subsequent paragraphs.

APPENDIX 3

REQUIREMENTS FOR THE ISSUE OF THE MULTI-CREW PILOT LICENCE (MPL) (Chapter 2, Section 2.5, refers)

1. TRAINING

1.1 In order to meet the requirements of the multi-crew pilot licence in the aeroplane category, the applicant shall have completed an approved training course. The training shall be competency-based and conducted in a multi-crew operational environment.

1.2 During the training, the applicant shall have acquired the knowledge, skills and attitudes required as the underpinning attributes for performing as a co-pilot of a turbine-powered air transport aeroplane certificated for operation with a minimum crew of at least two pilots.

2. ASSESSMENT LEVEL

2.1 The applicant for the multi-crew pilot licence in the appropriate aeroplane category shall have satisfactorily demonstrated performance in all the nine competency units specified in paragraph 3.1 below, at the advanced level of competency as defined in Attachment 2.

Note.— The training scheme for the multi-crew pilot licence in the appropriate aeroplane category, including the various levels of competency are contained in the Procedures for Air Navigation Services—Training (PANS-TRG) document.

3. COMPETENCY UNITS

3.1 The nine competency units that an applicant has to demonstrate in accordance with 2.5.3 are as follows:

- 1) apply threat and error management (TEM) principles;
- 2) perform aeroplane ground operations;
- 3) perform take-off;
- 4) perform climb;
- 5) perform cruise;
- 6) perform descent;
- 7) perform approach;
- 8) perform landing; and
- 9) perform after landing and aeroplane post-flight operations.

Note 1.— Competency units are broken down into their constituent elements, for which specific performance criteria have been defined. Competency elements and performance criteria are contained in the Procedures for Air Navigation Services — Training (PANS-TRG) document.

Note 2.— The application of threat and error management principles is a specific competency unit that is to be integrated with each of the other competency units for training and testing purposes.

4. SIMULATED FLIGHT

4.1 The flight simulation training devices used to gain the experience specified in Chapter 2, paragraph 2.5.3.3 shall have been approved by the Licensing Authority.

4.2 Flight simulation training devices shall be categorized as follows:

- a) **Type I** E-training and part tasking devices approved by the Licensing Authority that have the following characteristics:
- involve accessories beyond those normally associated with desktop computers, such as functional replicas of a throttle quadrant, a sidestick controller, or an FMS keypad; and
 - involve psychomotor activity with appropriate application of force and timing of responses.
- b) **Type II** A flight simulation training device that represents a generic turbine-powered aeroplane.

Note.— This requirement can be met by a flight simulation training device equipped with a daylight visual system and otherwise meeting at a minimum the specifications equivalent to FAA FTD Level 5, or JAA FNPT II, MCC.

- c) **Type III** A flight simulation training device that represents a multi-engine turbine-powered aeroplane certificated for a crew of two pilots with enhanced daylight visual system and equipped with an autopilot.

Note.— This requirement can be met by a flight simulation training device equipped with a daylight visual system and otherwise meeting at a minimum the specifications equivalent to a Level B simulator as defined in JAR STD 1A, as amended; and in FAA AC 120-40B, as amended, including Alternate Means of Compliance (AMOC), as permitted in AC 120-40B. [Some previously evaluated Level A Full Flight Simulators that have been approved for training and checking required manoeuvres may be used.]

- d) **Type IV** Fully equivalent to a Level D Flight Simulator or to a Level C Flight Simulator with an enhanced daylight visual system.

Note.— This requirement can be met by a flight simulation training device meeting at a minimum the specifications equivalent to a Level C and Level D simulator as defined in JAR STD 1A, as amended; and in FAA AC 120-40B, as amended, including Alternate Means of Compliance (AMOC), as permitted in AC 120-40B.

ATTACHMENT 1
ICAO LANGUAGE PROFICIENCY RATING SCALE

1.1 Expert, Extended and Operational Levels

...

ATTACHMENT 2

Multi-crew pilot licence (MPL) for aeroplanes

1. Levels of competency

- a) Core flying skills is the level of competency at which the applicant shall have complied with the requirements for the private pilot licence specified in Chapter 2, paragraph 2.3 including night flight requirements, and, in addition, have completed, smoothly and with accuracy, all procedures and manoeuvres related to upset training and flight with reference solely to instruments. From the outset, all training is conducted in an integrated multi-crew, competency-based and threat and error management (TEM) environment. Initial training and instructional input levels are high as core skills are being embedded in the ab initio application. Assessment at this level confirms that control of the aeroplane is maintained at all times in a manner such that the successful outcome of a procedure or a manoeuvre is assured.
- b) *Level 1 (Basic)* is the level of competency at which assessment confirms that control of the aeroplane or situation is maintained at all times and in such a manner that if the successful outcome of a procedure or manoeuvre is in doubt, corrective action is taken. Performance in the generic cockpit environment does not yet consistently meet the Standards of knowledge, operational skills and level of achievement required in the core competencies. Continual training input is required to meet an acceptable initial operating standard. Specific performance improvement/personal development plans will be agreed and the details recorded. Applicants will be continuously assessed as to their suitability to progress to further training and assessment in successive phases.
- c) *Level 2 (Intermediate)* is the level of competency at which assessment confirms that control of the aeroplane or situation is maintained at all times and in such manner that the successful outcome of a procedure or manoeuvre is assured. The training received at Level 2 shall be conducted under the instrument flight rules, but need not be specific to any one type of aeroplane. On completion of Level 2, the applicant shall demonstrate levels of knowledge and operational skills that are adequate in the environment and achieves the basic standard in the core capability. Training support may be required with a specific development plan to maintain or improve aircraft handling, behavioural performance in leadership or team management. Improvement and development to attain the Standard is the key performance objective. Any core competency assessed as less than satisfactory should include supporting evidence and a remedial plan.
- d) *Level 3 (Advanced)* is the level of competency required to operate and interact as a co-pilot in a turbine-powered aeroplane certificated for operation with a minimum crew of at least two pilots, under visual and instrument conditions. Assessment confirms that control of the aeroplane or situation is maintained at all times in such a manner that the successful outcome of a procedure or manoeuvre is assured. The applicant shall consistently demonstrate the knowledge, skills and attitudes required for the safe operation of an applicable aeroplane type as specified in the performance criteria.

Note.— Material on the development of performance criteria can be found in the Procedures for Air Navigation Services — Training (PANS-TRG) document.

APPENDIX B

**AMENDMENT 167 TO THE INTERNATIONAL STANDARDS
AND RECOMMENDED PRACTICES**

PERSONNEL LICENSING

RESOLUTION OF ADOPTION

The Council

Acting in accordance with the Convention on International Civil Aviation, and particularly with the provisions of Articles 37, 54 and 90 thereof,

1. *Hereby adopts* on [D] Amendment 167 to the International Standards and Recommended Practices contained in the document entitled *International Standards and Recommended Practices, Personnel Licensing* which for convenience is designated Annex 1 to the Convention;
2. *Prescribes* [* July 2006] as the date upon which the said amendment shall become effective, except for any part thereof in respect of which a majority of the Contracting States have registered their disapproval with the Council before that date;
3. *Resolves* that the said amendment or such parts thereof as have become effective shall become applicable on 23 November 2006;
4. *Requests the Secretary General:*
 - f) to notify each Contracting State immediately of the above action and immediately after [* July 2006] of those parts of the amendment which have become effective;
 - g) to request each Contracting State:
 - 1) to notify the Organization (in accordance with the obligation imposed by Article 38 of the Convention) of the differences that will exist on 23 November 2006 between its national regulations or practices and the provisions of the Standards in the Annex as hereby amended, such notification to be made before 23 October 2006, and thereafter to notify the Organization of any further differences that arise; and
 - 2) to notify the Organization before 23 October 2006 of the date or dates by which it will have complied with the provisions of the Standards in the Annex as hereby amended.
 - c) to invite each Contracting State to notify additionally any differences between its own practices and those established by the Recommended Practices, when the notification of such differences is important for the safety of air navigation, following the procedure specified in subparagraph b) above with respect to differences from Standards.

APPENDIX C

AMENDMENT TO THE FOREWORD OF ANNEX 1

Add the following at the end of Table A:

<i>Amendment</i>	<i>Source(s)</i>	<i>Subject</i>	<i>Adopted/Approved Effective Applicable</i>
167	Air Navigation Commission studies; Second meeting of the Flight Crew Licensing and Training Panel	The amendment concerns: a) revised and new medical provisions on the upper age limits for flight crew members; and b) new personnel licensing requirements for airship and powered-lift aircraft; introduction of the Multicrew Pilot Licence (MPL); amendments to the details of existing flight crew licensing Standards; amendments to the provisions on the role of flight simulation training devices (FTDs) in acquiring or maintaining the competences required for the various levels of licences and ratings.	D * 23 November 2006

— END —