CAR LIC

LICENSING REGULATIONS

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FOREWORD

(a) The Civil Aviation and Maritime Navigation Authority (L'Autorità per l'Aviazione Civile e la Navigazione Marittima) of the Republic of San Marino is known in these regulations as the "Authority"

(b) CAR LIC addresses licences and validations of licences issued by an ICAO Contracting State and the requirements for cabin crew attestation.

(c) The Authority does not presently issue Flight Dispatcher, Flight Navigator or Air Traffic Controller licences.

(d) CAR LIC is applicable to all pilots of aeroplanes, helicopters, sailplanes, airships, remotely piloted aircraft with MTOM greater than 25 kg and balloons, as well as flight engineers, maintenance engineers and cabin crew.

(e) CAR LIC is not applicable to ultra-light or micro-light aircraft (refer SM-CAP PL1 M).

(f) Subparts A, L and M contain additional ICAO Annex 1 Standards. Subpart P is based on the Joint Authorities for Rulemaking on Unmanned Systems (JARUS) recommendations and all other Subparts are based on EASA Part FCL. The AMC guidance material is based on EASA Part FCL.

(g) The editing practices used in this document are as follows:

(1) 'Shall' is used to indicate a mandatory requirement.

(2) 'Should' is used to indicate a recommendation.

(3) 'May' is used to indicate discretion by the Authority, the industry or the applicant, as appropriate.

(4) 'Will' indicates a mandatory requirement.

Note: The use of the male gender implies the female gender and vice versa.

(h) Paragraphs and sub-paragraphs with new, amended and corrected text will be enclosed within brackets until a subsequent amendment is issued.

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REVISION RECORD

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Rev 05	01 January 2019	
Rev 06	01 July 2019	
Rev 07	12 November 2020	
Rev 08	01 January 2021	

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SUBPART A

GENERAL REQUIREMENTS

LIC.005 Scope

These regulations establish the requirements for the issue of pilot licences, Flight Engineer licences, Aircraft Maintenance Engineer licences, validations and associated ratings and certificates and the conditions of their validity and use.

Subpart O also establishes the requirements for the issuance of a cabin crew attestation and the conditions of their validity and use.

Subpart P establishes the requirements for the issuance of a remote pilot licence and associated ratings and the conditions of their validity and use.

Licences are established for the following personnel:

(a) Flight crew

(1) [private pilot — aeroplane, airship, helicopter or powered-lift;]

(2) commercial pilot — aeroplane, airship, helicopter or powered-lift;

(3) multi-crew pilot — aeroplane;

(4) airline transport pilot — aeroplane, helicopter or powered-lift

(5) flight engineer;

(6) remote pilot — aeroplane, airship, rotorcraft, powered-lift or free balloon

Note 1: Flight navigator licences are not issued.

[Note 2: Light aircraft pilot licences (LAPL) are no longer issued with effect 01 January, 2021. A LAPL issued prior to 01 January 2021 shall be valid for San Marino airspace until 31 December 2021, after which all LAPLs shall be revoked]

(b) Other personnel

(1) aircraft maintenance (technician/engineer/mechanic);

Note: Air traffic controller; flight operations officer/flight dispatcher and aeronautical station operator licences are not issued.

LIC.008 Requirements to hold a flight crew licence

(a) A person shall not act as a flight crew member of an aircraft, unless a valid licence is held showing compliance with these regulations and appropriate to the duties to be performed by that person.

Note: For the purpose of CAR LIC, flight crew member also refers to a flight crew member of a remotely piloted aircraft system (RPAS).

(b) The licences above shall have been issued by the Authority, as the State of Registry of that aircraft, or by any other Contracting State and rendered valid by the Authority, as State of Registry of that aircraft.

(c) 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 Subpart:

— aeroplane, excluding Light Sport Airplane *(see definition)*

— airship of a volume of more than 4 600 cubic metres;

— free balloon;

— glider (sailplane);

— helicopter;

— powered-lift.

— remote pilot for RPA with MTOM greater than 25 kg with the following categories;

- aeroplane;
- rotorcraft;
- airship;
- balloon;

(d) The category of aircraft shall be included in the title of the licence itself.

(e) When the holder of a pilot licence seeks a licence for an additional category of aircraft, the Authority shall issue the licence holder with an additional pilot licence for that category of aircraft.

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

(g) An applicant for any pilot licence or rating shall demonstrate, in a manner determined by the Authority, such requirements for knowledge and skill as are specified for that licence or rating.

(h) *[Transitional measures related to the powered-lift category.* Until 05 March 2025, the 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 an aeroplane or a helicopter as appropriate and incorporate all relevant aspects of operating an aircraft of the powered-lift category.]

LIC.010 Definitions

In addition to the definitions in CAR DEF, the following definitions apply to these regulations;

"Light aircraft pilot licence (LAPL)" is a non-ICAO private pilot licence, which permits the holder to fly for leisure within Europe only and restricted to a maximum of 3 passengers in the following;

(a) a single-engine piston aeroplane of 2 000 kg MTOM or less (*not a Light Sport Airplane - see below)*

(b) a sailplane or powered sailplane of 2 000 kg MTOM or less;

(c) a balloon or hot air airship;

(d) a single-engine helicopter of 2 000 kg MTOM or less.

[Note: LAPLs are no longer issued by the Authority.]

"Light Sport Airplane (LSA)" is a simple two-seater aeroplane with a maximum take-off weight of 600kg (also known as *ultra-light or micro-light - refer SM-CAP PL1 M for licensing requirements)*

"Remote pilot" means a person charged by the operator with duties essential to the operation of a remotely piloted aircraft and who manipulates the flight controls, as appropriate, during flight time.

"Remote pilot-in-command" (RPIC) means the remote pilot designated by the operator as being in command and charged with the safe conduct of a flight.

"Remote pilot station" (RPS) means, the component of the remotely piloted aircraft system containing the equipment used to pilot the remotely piloted aircraft.

"Remotely piloted aircraft" (RPA) means an unmanned aircraft which is piloted from a remote pilot station.

"Remotely piloted aircraft system" (RPAS) means a remotely piloted aircraft, its associated remote pilot station(s), the required command and control links and any other components as specified in the type design.

"RPA aeroplane" (RPA(A)) means an engine-driven fixed-wing RPA heavier than air which is supported in flight by the dynamic reaction of the air against its wings.

"RPA airship" (RPA(As)) means a power-driven lighter than air RPA.

"RPA rotorcraft" (RPA(R)) means a heavier-than-air RPA supported in flight by the reactions of the air on one or more rotors.

"RPA observer" means a trained and competent person designated by the operator who, by visual observation of the RPA, assists the remote pilot in the safe conduct of the flight.

"Visual line-of-sight (VLOS) operation" means an operation in which the remote pilot or RPA observer maintains direct unaided visual contact with the remotely piloted aircraft.

LIC.013 Abbreviations

In addition to the abbreviations in CAR DEF (Definitions), the following abbreviations apply to these regulations;

As Airship
ATO Approved training organisation
ATPL Airline transport pilot licence
B Balloon
BITD Basic instrument training device
BPL Balloon pilot licence
BVLOS Beyond visual line of sight
CPL Commercial pilot licence
CRE Class rating examiner
CRI Class rating instructor
FE Flight examiner
FFS Full flight simulator
FI Flight instructor
FIE Flight instructor examiner
FNPT Flight navigation procedures trainer
FSTD Flight simulation training device
FTD Flight training device
FTI Flight test instructor
H Helicopter
IR Instrument rating
IRE Instrument rating examiner
IRI Instructor rating instrument
LAPL Light aircraft pilot licence
LSA Light sport airplane
MCCI Multi-crew cooperation instructor
ME Multi engine
MI Mountain rating instructor
MPL Multi-crew pilot licence
PIC Pilot-in-command
PICUS Pilot-in-command under supervision
PL Powered lift
PPL Private pilot licence
R Rotorcraft
RPA Remotely piloted aircraft
RPS Remote pilot station
S Sailplane
SE Single engine
SFE Synthetic flight examiner
SFI Synthetic flight instructor
SP Single pilot
SPIC Student pilot-in-command
STI Synthetic training instructor
TMG Touring motor glider
TRE Type rating examiner
TRI Type rating instructor
VLOS Visual line of sight
ZFTT Zero flight time rating

LIC.015 Application and issue of licences, ratings and certificates

(a) An application for the issue, revalidation or renewal of licences and associated ratings and certificates shall be submitted to the Authority in a form and manner established by the Authority. The application shall be accompanied by evidence that the applicant complies with the requirements for the issue, revalidation or renewal of the licence or certificate as well as associated ratings or endorsements, established in these regulations and CAR MED, if applicable.

(b) Any limitation or extension of the privileges granted by a licence, rating or certificate shall be endorsed in the licence or certificate by the Authority.

(c) A person shall not hold at any time more than one pilot licence per category of aircraft issued in accordance with these regulations.

(d) An application for the issue of a pilot licence for another category of aircraft, or for the issue of further ratings or certificates, as well as an amendment, revalidation or renewal of those licences, ratings or certificates shall be submitted to the Authority.

(e) The Authority, 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 and remote 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 the applicable CAR OPS.

Note 2: The maintenance of competency may be satisfactorily recorded in the operator's records, or in the flight crew or the remote flight crew member's personal log book or licence.

Note 3: Flight crew and remote flight crew members may, to the extent deemed feasible by the Authority, or Licensing Authority of the State of the operator, respectively, demonstrate their continuing competency in flight simulation training devices approved by that State.

(f) Any person holding a licence who does not satisfy in full the conditions laid down in the international standard relating to the class of licence or certificate which he holds shall have endorsed on or attached to his/her licence a complete enumeration of the particulars in which he/she does not satisfy such conditions.

LIC.020 Student pilot

(a) A student pilot shall meet the requirements prescribed in these regulations so they do not constitute a hazard to air navigation.

(b) A student pilot shall not fly solo in an aircraft on an international flight unless by special or general arrangement between the Contracting States concerned.

(c) A student pilot shall not fly solo unless authorised to do so and supervised by a flight instructor. Before his/her first solo flight, a student pilot shall be at least:

(1) in the case of aeroplanes, helicopters, airships and remotely piloted aircraft: 16 years of age;

(2) in the case of sailplanes and balloons: 14 years of age.

(d) A student pilot shall not fly solo unless that student pilot holds a current Medical Assessment as required by CAR MED.

LIC.025 Theoretical knowledge examinations for the issue of licences

(a) Responsibilities of the applicant

(1) Applicants shall take the entire set of examinations for a specific licence or rating under the responsibility of the Authority.

(2) Applicants shall only take the examination when recommended by the approved training organisation (ATO) responsible for their training, once they have completed the appropriate elements of the training course of theoretical knowledge instruction to a satisfactory standard.

(3) The recommendation by an ATO shall be valid for 12 months. If the applicant has failed to attempt at least one theoretical knowledge examination paper within this period, the need for further training shall be determined by the ATO, based on the needs of the applicant.

(b) Pass standards

(1) A pass in an examination paper will be awarded to an applicant achieving at least 75 % of the marks allocated to that paper. There is no penalty marking.

(2) An applicant has successfully completed the required theoretical knowledge examination for the appropriate pilot licence or rating when he/she has passed all the required examination papers within a period of 18 months counted from the end of the calendar month when the applicant first attempted an examination.

(3) If an applicant has failed to pass one of the examination papers within 4 attempts, or has failed to pass all papers within either 6 sittings or the period mentioned in paragraph (2), he/she shall re-take the complete set of examination papers.

(4) Before re-taking the examinations, the applicant shall undertake further training at an ATO. The extent and scope of the training needed shall be determined by the training organisation, based on the needs of the applicant.

(c) Validity period

(1) The successful completion of the theoretical knowledge examinations will be valid:

(i) [for the issue of a private pilot licence, a RPA licence, a sailplane pilot licence or a balloon pilot licence, for a period of 24 months;]

(ii) for the issue of a commercial pilot licence or instrument rating (IR), for a period of 36 months;

(iii) the periods in (i) and (ii) shall be counted from the day when the pilot successfully completes the theoretical knowledge examination, in accordance with (b)(2).

(2) The completion of the airline transport pilot licence (ATPL) theoretical knowledge examinations will remain valid for the issue of an ATPL for a period of 7 years from the last validity date of:

(i) an IR entered in the licence; or

(ii) in the case of helicopters, a helicopter's type rating entered in that licence.

(d) Equivalent Standards

(1) For an applicant of a licence under CAR LIC, any successful theoretical knowledge examinations conducted, and valid, under EASA Part FCL for the category of licence, shall be recognised as meeting the applicable theoretical knowledge requirements of CAR LIC.

(2) [Effective 01 January, 2021, for an applicant of a licence under CAR LIC, any successful theoretical knowledge examinations conducted, and valid, under UK CAA legislation for the category of licence, shall be recognised as meeting the applicable theoretical knowledge requirements of CAR LIC.]

LIC.030 Practical skill test

(a) Before a skill test required for the issue of a pilot licence, rating or certificate is taken, the applicant shall have passed the required theoretical knowledge examination, except in the case of applicants undergoing a course of integrated flying training. In any case, the theoretical knowledge instruction shall always have been completed before the skill tests are taken.

(b) Except for the issue of an airline transport pilot licence, the applicant for a skill test shall be recommended for the test by the organisation/person responsible for the training, once the training is completed. The training records shall be made available to the examiner.

(c) Equivalent Standards

(1) For an applicant of a CAR LIC licence a successful skill test conducted, and valid, under EASA Part FCL, shall be recognised as meeting the applicable skill test requirements of CAR LIC.

(2) [Effective 01 January, 2021, for an applicant of a CAR LIC licence a successful skill test conducted, and valid under UK CAA legislation, shall be recognised as meeting the applicable skill test requirements of CAR LIC.]

LIC.035 Crediting of flight time and theoretical knowledge

(a) Crediting of flight time

(1) Unless otherwise specified in these regulations, flight time to be credited for a licence, rating or certificate shall have been flown in the same category of aircraft for which the licence or rating is sought.

(2) Pilot-in command or under instruction.

(i) An applicant for a licence, rating or certificate shall be credited in full with all solo, dual instruction or PIC flight time towards the total flight time required for the licence, rating or certificate.

(ii) A graduate of an ATP integrated training course is entitled to be credited with up to 50 hours of student pilot-in-command instrument time towards the PIC time required for the issue of the airline transport pilot licence, commercial pilot licence and a multi-engine type or class rating.

(iii) A graduate of a CPL/IR integrated training course is entitled to be credited with up to 50 hours of the student pilot-in-command instrument time towards the PIC time required for the issue of the commercial pilot licence and a multi-engine type or class rating.

(iv) An applicant holding a RPL for another category of RPA, shall be credited with 10% of their total flight time as RPIC on such RPA up to a maximum of 4 hours.

(v) 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.

(vi) 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 the Authority 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 Authority may authorise 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.

(vii) 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.

(viii) The holder of a pilot licence, when acting as pilot-in-command under supervision, shall be entitled to be credited in full with this flight time towards the total flight time required for a higher grade of pilot licence.

(b) Crediting of theoretical knowledge

(1) [An applicant having passed the theoretical knowledge examination for an airline transport pilot licence shall be credited with the theoretical knowledge requirements for the private pilot licence, the commercial pilot licence and, except in the case of helicopters, the IR in the same category of aircraft.

(2) An applicant having passed the theoretical knowledge examination for a commercial pilot licence shall be credited with the theoretical knowledge requirement for a private pilot licence in the same category of aircraft or a remote pilot licence.]

(3) The holder of an IR or an applicant having passed the instrument theoretical knowledge examination for a category of aircraft shall be fully credited towards the requirements for the theoretical knowledge instruction and examination for an IR in another category of aircraft.

(4) With the exception of a remote pilot licence the holder of a pilot licence shall be credited towards the requirements for theoretical knowledge instruction and examination for a licence in another category of aircraft in accordance with Appendix 1 to these regulations. This credit also applies to applicants for a pilot licence who have already successfully completed the theoretical knowledge examinations for the issue of that licence in another category of aircraft, as long as it is within the validity period specified in LIC.025(c).

LIC.037 Crediting of foreign military training for RPAS licence

(a) A rated military remote pilot/engineer or former rated military remote pilot/engineer of a foreign State who meets the provisions of these regulations may apply, on the basis of his or her military training, for a licence with a rating in the category and type of RPAS for which the applicant is qualified.

(b) The knowledge, experience and skill gained in military service may be credited in accordance with the elements of a credit report established by that foreign State, or where no credit report is provided, supporting documentation provided by the applicant.

LIC.040 Exercise of the privileges of licences

(a) The exercise of the privileges granted by a flight crew licence shall be dependent upon the validity of the ratings contained therein, if applicable.

(b) The exercise of the privileges granted by an aircraft maintenance engineer licence shall be valid in accordance with LIC.1160(a).

(c) The Authority shall not permit the holder of a licence to exercise privileges other than those granted by that licence.

(d) Flight crew members shall not exercise the privileges of their licence unless they hold a current Medical Assessment appropriate to the licence.

(e) A flight crew member assessed as fit to exercise the privileges of a licence, subject to the use of suitable correcting lenses, shall have a spare set of the correcting lenses readily available when exercising those privileges.

LIC.045 Obligation to carry and present documents

(a) A valid licence and a valid medical certificate, if applicable, shall always be carried by the licence holder when exercising the privileges of the licence.

(b) The pilot shall also carry a personal identification document containing his/her photo.

(c) A pilot or a student pilot shall without undue delay present his/her flight time record for inspection upon request by an authorised representative of the Authority.

(d) A student pilot shall carry on all solo cross-country flights evidence of the authorisation required by LIC.020(b).

LIC.050 Recording of flight time

The pilot shall keep a reliable record of the details of all flights flown in a form and manner established by the Authority.

LIC.055 Language proficiency

(a) General. Aeroplane, helicopter, powered-lift, glider pilots, free balloon, airship pilots and remote pilots required to use the radio telephone shall not exercise the privileges of their licences and ratings unless they have a language proficiency endorsement on their licence in either English or the language used for radio communications involved in the flight. The endorsement shall indicate the language, the proficiency level and the validity date.

(b) The applicant for a language proficiency endorsement shall demonstrate, in accordance with Appendix 2 to these regulations, at least an operational level of language proficiency (Level 4) both in the use of phraseologies and plain language. To do so, the applicant shall demonstrate the ability to:

  (1) communicate effectively in voice-only and in face-to-face situations;

  (2) communicate on common and work-related topics with accuracy and clarity;

  (3) use appropriate communicative strategies to exchange messages and to recognise and resolve misunderstandings in a general or work-related context;

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

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

(c) Except for pilots who have demonstrated language proficiency at an expert level, in accordance with Appendix 2 to these regulations, the language proficiency endorsement shall be re-evaluated every:

  (1) 3 years, if the level demonstrated is operational level; or

(2) 6 years, if the level demonstrated is extended level.

(d) Specific requirements for holders of an instrument rating (IR). Without prejudice to the paragraphs above, holders of an IR shall have demonstrated the ability to use the English language at a level that allows them to:

(1) understand all the information relevant to the accomplishment of all phases of a flight, including flight preparation;

(2) use radio telephony in all phases of flight, including emergency situations;

(3) communicate with other crew members during all phases of flight, including flight preparation.

(e) The demonstration of language proficiency and of the use of English for IR holders shall be done through a method of assessment established by the Authority.

LIC.060 Recent pilot experience

The privileges granted by a licence, or by related ratings, shall not be exercised unless the holder maintains competency and meets the following recent experience requirements;

(a) Balloons. A pilot shall not operate a balloon in commercial air transport or carrying passengers unless he/she has completed in the preceding 180 days:

(1) at least 3 flights as a pilot flying in a balloon, of which at least 1 shall be in a balloon of the relevant class and group; or

(2) 1 flight in the relevant class and group of balloon under the supervision of an instructor qualified in accordance with Subpart J.

(b) Aeroplanes, helicopters, powered-lift, airships and sailplanes. A pilot shall not operate an aircraft in commercial air transport or carrying passengers:

(1) as PIC or co-pilot unless he/she has carried out, in the preceding 90 days, at least 3 take-offs, approaches and landings in an aircraft of the same type or class or an FFS representing that type or class. The 3 take-offs and landings shall be performed in either multi-pilot or single-pilot operations, depending on the privileges held by the pilot; and

(2) as PIC at night unless he/she:

(i) has carried out in the preceding 90 days at least 1 take-off, approach and landing at night as a pilot flying in an aircraft of the same type or class or an FFS representing that type or class; or

(ii) holds an IR;

(3) as cruise relief co-pilot unless he/she:

(i) has complied with the requirements in (b)(1); or

(ii) has carried out in the preceding 90 days at least 3 sectors as a cruise relief pilot on the same type or class of aircraft; or

(iii) has carried out recency and refresher flying skill training in an FFS at intervals not exceeding 90 days. This refresher training may be combined with the operator's refresher training prescribed by the Authority.

(4) When a pilot has the privilege to operate more than one type of aeroplane with similar handling and operation characteristics, the 3 take-offs, approaches and landings required in (1) may be performed as defined in the operational suitability data established in accordance with CAR 21.

(5) When a pilot has the privilege to operate more than one type of non-complex helicopter with similar handling and operation characteristics, as defined in the operational suitability data established in accordance with CAR 21, the 3 take-offs, approaches and landings required in (1) may be performed in just one of the types, provided that the pilot has completed at least 2 hours of flight in each of the types of helicopter, during the preceding 6 months.

(c) Specific requirements for commercial air transport:

(1) In the case of commercial air transport, the 90-day period prescribed in subparagraphs (b)(1) and (2) above may be extended up to a maximum of 120 days, as long as the pilot undertakes line flying under the supervision of a type rating instructor or examiner.

(2) When the pilot does not comply with the requirement in (1), he/she shall complete a training flight in the aircraft or an FFS of the aircraft type to be used, which shall include at least the requirements described in (b)(1) and (2) before he/she can exercise his/her privileges.

(d) Remotely piloted aircraft. A pilot shall not operate a remotely piloted aircraft unless the pilot meets the requirements specified by the Authority.

LIC.065 Curtailment of privileges of licence holders aged 60 years or more in commercial air transport

(a) Age 60-64. The holder of a pilot licence who has attained the age of 60 years shall not act as a pilot of an aircraft engaged in commercial air transport except as a member of a multi-pilot crew.

(b) Age 65. The holder of a pilot licence who has attained the age of 65 years shall not act as a pilot of an aircraft engaged in commercial air transport.

LIC.070 Revocation, suspension and limitation of licences, ratings and certificates

(a) Licences, ratings and certificates issued in accordance with these regulations may be limited, suspended or revoked by the Authority when the licence holder does not comply with the requirements of these regulations, CAR MED where applicable, or the applicable requirements, in accordance with the conditions and procedures laid down by the Authority.

(b) When the licence holder has his/her licence suspended or revoked, he/she shall immediately return the licence and certificates to the Authority.

LIC.073 Validation of a licence

(a) A licence issued in compliance with the requirements of Annex 1 to the Chicago Convention by an ICAO Contracting State may be validated by the Authority.

(b) When the Authority 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 authorisation to be carried with the former licence accepting it as the equivalent of the latter.

(c) When the Authority limits the authorisation to specific privileges, the authorisation shall specify the privileges of the licence which are to be accepted as its equivalent.

(d) The validity of the authorisation shall not extend beyond the period of validity of the licence.

(e) The holders of a licence accepted by the Authority shall exercise their privileges in accordance with the requirements of the State of licence issue and any additional requirements specified by the Authority.

(f) The holders of a flight crew licence validated by the Authority shall hold a medical certificate issued in accordance with the requirements of the State of licence issue.

(g) The initial period of validation of a licence shall not exceed 3 years, provided that the basic licence remains valid. This period may be extended at the discretion of the Authority.

(h) The authorisation ceases to be valid if the licence upon which it was issued is revoked or suspended.

(i) When an authorisation is issued for use in commercial air transport operations, the Authority shall confirm the validity of the other Contracting State's licence before issuing the authorisation.

LIC.074 Automatic Rendering a Licence Valid

(a) Notwithstanding the provisions in LIC.073, the Authority may automatically render valid another State's licence, provided that the States shall have:

(1) adopted common licensing regulations that are compliant with ICAO Annex 1; and

(2) entered into a formal agreement recognising the automatic validation process; and

(3) established a surveillance system to ensure the continuing implementation of the common licensing regulations; and

(4) registered the agreement with ICAO pursuant to Article 83 of the Convention on International Civil Aviation.

(b) An endorsement shall appear on licences rendered valid under the process of (a) above indicating that the licence is automatically validated under the agreement described in (a)(2) and referencing the ICAO registration number of the agreement. The endorsement shall further include a list of all States that are party to the agreement. Paragraph (c) provides a transition period for States that meet the requirements above and have issued licences prior to the applicability of this regulation.

(c) Until 31 December 2022, States that meet the requirements in (a) above and have issued licences prior to 09 November 2017 may use other effective means, carried on board the aircraft or accessible, to indicate that the licences issued by the State are rendered valid in accordance with the agreement in paragraph (a)(2).

LIC.075 Approved training and approved training organisation

(a) Approved training shall provide a level of competency at least equal to that provided by the minimum experience requirements for personnel not receiving such approved training.

(b) The approval of a training organisation shall be dependent upon the applicant demonstrating compliance with the requirements of Subpart N.

(c) Approved training for the issuance of a licence or rating for flight crew shall be conducted within an approved training organisation.

(d) Competency-based approved training for aircraft maintenance personnel shall be conducted within an approved training organisation.

LIC.080 Class and type ratings

(a) Class ratings shall be established for aeroplanes certificated for single-pilot operation and shall comprise

(1) single-engine, land;

(2) single-engine, sea;

(3) multi-engine, land;

(4) multi-engine, sea;

(5) TMG.

(b) Type ratings shall be established for:

(1) aircraft certificated for operation with a minimum crew of at least two pilots;

(2) helicopters and powered-lifts certificated for single-pilot operation;

(3) remotely piloted aircraft; and

(4) any aircraft whenever considered necessary by the Authority

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

(d) The holder of a licence shall not act either as pilot-in-command or as co-pilot of an aeroplane, an airship, a helicopter, a powered-lift or a remotely pilot aircraft unless the holder has received authorisation as follows:

(1) the appropriate class rating specified in (a) above; or

(2) a type rating when required in accordance with the provisions of (b) above.

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

(f) For the purpose of training, testing, or specific special purpose non-revenue, non-passenger carrying flights, special authorisation may be provided in writing to the licence holder by the Authority in place of issuing the class or type rating. This authorisation shall be limited in validity to the time needed to complete the specific flight.

(g) The applicant shall have demonstrated a degree of skill appropriate to the licence in an aircraft of the class for which the rating is sought.

(h) For aircraft operating under (b)(1) above, the applicant shall have:

(1) gained, under appropriate supervision, experience in the applicable type of aircraft and/or flight simulator in the following:

— normal flight procedures and manoeuvres during all phases of flight;

— abnormal and emergency procedures and manoeuvres in the event of failures and malfunctions of equipment, such as engine, systems and airframe;

— where applicable, instrument procedures, including instrument approach, missed approach and landing procedures under normal, abnormal and emergency conditions, including simulated engine failure;

— procedures for crew incapacitation and crew coordination including allocation of pilot tasks; crew cooperation and use of checklists;

(2) demonstrated the skill and knowledge required for the safe operation of the applicable type of aircraft, relevant to the duties of a pilot-in-command or a co-pilot as applicable; and

(3) demonstrated, at the airline transport pilot licence level, an extent of knowledge determined by the Authority on the basis of the requirements specified in Subpart F.

(i) For aircraft operated under (b)(2),(3),(4) above;

(1) The applicant shall have demonstrated the skill and knowledge required for the safe operation of the applicable type of aircraft, relevant to the licensing requirements and piloting functions of the applicant.

LIC.083 Use of a flight simulation training device

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

LIC.085 Circumstances in which an instrument rating is required

The holder of a pilot licence shall not act either as pilot-in-command or as co-pilot of an aircraft under instrument flight rules (IFR) unless such holder has an instrument rating appropriate to the aircraft category.

LIC.090 Circumstances in which authorisation to conduct instruction is required

(a) The holder of a pilot licence shall not carry out flight instruction required for the issue of a pilot licence or rating, unless such holder has;

(1) a flight instructor rating on the holder's licence; or

(2) the authority to act as an agent of an approved organisation authorised by the Authority to carry out flight instruction; or

(3) a specific authorisation granted by the Authority or a Contracting State which issued the licence.

(b) a person shall not carry out instruction on a flight simulation training device required for the issue of a pilot licence or rating unless such person holds or has held an appropriate licence or has appropriate flight training and flight experience and has received proper authorisation from either the Contracting State where the training device is located or the Authority.

LIC.095 Licence Validity

(a) A pilot licence issued by the Authority shall remain valid indefinitely.

(b) A RPA Maintenance Engineer licence shall be valid for 5 years.

LIC.098 Licence specifications

(a) Personnel licences issued by the Authority shall ensure that other States are able to easily determine the licence privileges and validity of ratings and conform to the following specifications:

I) Name of State (in bold type);

II) Title of licence (in very bold type);

III) Serial number of the licence in Arabic numerals;

IV) Name of holder in full (in Roman alphabet);

IVa) Date of birth;

V) Address of holder if desired by the Authority;

VI) Nationality of holder;

VII) Signature of holder;

VIII) Authority and, where necessary, conditions under which the licence is issued;

IX) Certification concerning validity and authorisation for holder to exercise privileges appropriate to licence;

X) Signature of officer issuing the licence and the date of such issue;

XI) Seal or stamp of Authority;

XII) Ratings, e.g. category, class, type of aircraft, airframe, aerodrome control, etc.

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

XIV) Any other details desired by the Authority.

(b) First quality paper or other suitable material, including plastic cards, shall be used and the items mentioned in (a) above shown clearly thereon.

(c) Licences shall be issued in the English language.

(d) Item headings on the licence shall be uniformly numbered in roman numerals as indicated in (a) above, so that on any licence the number will, under any arrangement, refer to the same item heading.

SUBPART B

[STUDENT PILOT LICENCE

SECTION 1

Common Requirements

LIC.120 Minimum age

Before his/her first solo flight, a student pilot shall be at least:

(a) in the case of aeroplanes, helicopters, airships and remotely piloted aircraft: 16 years of age;

(b) in the case of sailplanes and balloons: 14 years of age.

LIC.125 Training requirements

(a) Prior to conducting a solo flight, a student pilot shall;

(1) have received and logged flight training for the manoeuvres and procedures applicable to the aircraft category, including flight training in those manoeuvres and procedures at night, if the solo flight is to be conducted at night;

(2) have demonstrated satisfactory proficiency and safety, as judged by an authorised instructor, on the manoeuvres and procedures for the appropriate category and class, if applicable, of aircraft;

(3) have passed an aeronautical knowledge test on the following subjects;

(i) Applicable sections of the regulations;

(ii) Airspace rules and procedures for the aerodrome where the student will perform solo flight; and

(iii) Flight characteristics and operational limitations for the make and model of aircraft to be flown.

LIC.130 Knowledge requirements

(a) The applicant for a student pilot authorisation shall receive and log ground training from an authorised instructor on the following subjects:

(1) Applicable sections of this Subpart for the category of aircraft to be flown;

(2) Airspace rules and procedures for the aerodrome where the student will perform solo flight; and

(3) Flight characteristics and operation limitations for the make and model of aircraft to be flown.

LIC. 135 Conditions

(a) A student pilot shall meet the requirements prescribed in these regulations so they do not constitute a hazard to air navigation;

(b) A student pilot shall not fly solo in an aircraft on a cross-country flight unless;

(1) on an international flight by special or general arrangement between the Contracting States concerned; and

(2) holding a solo cross-country endorsement in the student’s log book by the authorised flight instructor who conducted the training.

(c) A student pilot shall not fly solo unless;

(1) authorised to do so by a letter of endorsement provided by the authorised flight instructor who conducted the training to conduct solo operations;

(2) supervised by a flight instructor; and

(3) that student pilot holds a current Medical Assessment as required by CAR MED.

SECTION 2

Specific pre-solo requirements for aeroplanes

LIC.125(A) Training Requirements

(a) A student pilot who is receiving training for solo flight in an aeroplane shall receive and log flight training for the following manoeuvres and procedures:

(1) Proper flight preparation procedures, including pre-flight planning and preparation, powerplant operation, and aircraft systems;

(2) Taxiing, or surface operations, including run ups;

(3) Take-offs and landings, including normal and crosswind;

(4) Straight and level flight and turns in both directions;

(5) Climbs and climbing turns;

(6) Aerodrome traffic patterns, including entry and departure procedures;

(7) Collision avoidance, windshear avoidance, and wake turbulence avoidance;

(8) Descents, with and without turns, using high and low drag configurations;

(9) Flight at various airspeeds from cruise to slow flight;

(10) Stall entries from various flight attitudes and power combinations with recovery initiated at the first indication of a stall, and recovery from a full stall;

(11) Emergency procedures and equipment malfunctions;

(12) Ground reference manoeuvres;

(13) Approaches to a landing area with simulated engine malfunctions;

(14) Slips to a landing (SE only); and

(15) Go-arounds.

SECTION 3

Specific pre-solo requirements for helicopters

LIC.125(H) Training Requirements

(a) A student pilot who is receiving training for solo flight in a helicopter shall receive and log flight training for the following manoeuvres and procedures:

(1) Proper flight preparation procedures, including pre-flight planning and preparation, powerplant operation, and aircraft systems;

(2) Taxiing, or surface operations, including run ups;

(3) Take-offs and landings, including normal and crosswind;

(4) Straight and level flight and turns in both directions;

(5) Climbs and climbing turns;

(6) Aerodrome traffic patterns, including entry and departure procedures;

(7) Collision avoidance, windshear avoidance, and wake turbulence avoidance;

(8) Descents, with and without turns, using high and low drag configurations;

(9) Flight at various airspeeds;

(10) Emergency procedures and equipment malfunctions;

(11) Ground reference manoeuvres;

(12) Approaches to the landing area;

(13) Hovering and hovering turns;

(14) Go-arounds;

(15) Simulated emergency procedures, including autorotational descents with a power recovery and power recovery to a hover;

(16) Rapid decelerations; and

(17) Simulated one-engine-inoperative approaches and landings (ME only)

SECTION 4

Specific pre-solo requirements for powered lift

LIC.125(PL) Training Requirements

(a) A student pilot who is receiving training for solo flight in a powered-lift shall receive and log flight training for the following manoeuvres and procedures:

(1) Proper flight preparation procedures, including pre-flight planning and preparation, powerplant operation, and aircraft systems;

(2) Taxiing, or surface operations, including run ups;

(3) Take-offs and landings, including normal and crosswind;

(4) Straight and level flight and turns in both directions;

(5) Climbs and climbing turns;

(6) Aerodrome traffic patterns, including entry and departure procedures;

(7) Collision avoidance, windshear avoidance, and wake turbulence avoidance;

(8) Descents with and without turns;

(9) Flight at various airspeeds from cruise to slow flight;

(10) Stall entries from various flight attitudes and power combinations with recovery initiated at the first indication of a stall, and recovery from a full stall;

(11) Emergency procedures and equipment malfunctions;

(12) Ground reference manoeuvres;

(13) Approaches to a landing with simulated engine malfunctions;

(14) Go-arounds;

(15) Approaches to the landing area;

(16) Hovering and hovering turns; and

(17) Simulated one-engine-inoperative approaches and landings (ME only).

SECTION 5

Specific pre-solo requirements for airships

LIC.125(As) Training Requirements

(a) A student pilot who is receiving training for solo flight in an airship shall receive and log flight training for the following manoeuvres and procedures:

(1) Proper flight preparation procedures, including pre-flight planning and preparation, powerplant operation, and aircraft systems;

(2) Taxiing or surface operations, including run ups;

(3) Take-offs and landings, including normal and crosswind;

(4) Straight and level flight and turns in both directions;

(5) Climbs and climbing turns;

(6) Aerodrome traffic patterns, including entry and departure procedures;

(7) Collision avoidance, windshear avoidance, and wake turbulence avoidance;

(8) Descents with and without turns;

(9) Flight at various airspeeds from cruise to slow flight;

(10) Emergency procedures and equipment malfunctions;

(11) Ground reference manoeuvres;

(12) Rigging, ballasting, and controlling pressure in the ballonets, and superheating; and

(13) Landings with positive and with negative static trim.

SECTION 6

Specific pre-solo requirements for balloons

LIC.125(B) Training Requirements

(a) A student pilot who is receiving training for solo flight in a balloon shall receive and log flight training for the following manoeuvres and procedures:

(1) Layout and assembly procedures;

(2) Proper flight preparation procedures, including pre-flight planning and preparation, and aircraft systems;

(3) Ascents and descents;

(4) Landing and recovery procedures;

(5) Emergency procedures and equipment malfunctions;

(6) Operation of hot air or gas source, ballast, valves, vents, and rip panels, as appropriate;

(7) Use of deflation valves or rip panels for simulating an emergency;

(8) The effects of wind on climb and approach angles; and

(9) Obstruction detection and avoidance techniques.

SECTION 7

Specific pre-solo requirements for sailplanes

LIC.125(S) Training Requirements

(a) A student pilot who is receiving training for solo flight in a glider shall receive and log flight training for the following manoeuvres and procedures:

(1) Proper flight preparation procedures, including pre-flight planning and preparation, aircraft systems, and, if applicable, powerplant operations;

(2) Taxiing or surface operations, including run ups, if applicable;

(3) Launches, including normal and crosswind;

(4) Straight and level flight and turns in both directions, if applicable;

(5) Aerodrome traffic patterns, including entry procedures;

(6) Collision avoidance, windshear avoidance, and wake turbulence avoidance;

(7) Descents with and without turns using high and low drag configurations;

(8) Flight at various airspeeds;

(9) Emergency procedures and equipment malfunctions;

(10) Ground reference manoeuvres;

(11) Inspection of towline rigging and review of signals and release procedures, if applicable;

(12) Aero-tow, ground tow, or self-launch procedures;

(13) Procedures for disassembly and assembly of the glider;

(14) Stall entry, stall, and stall recovery;

(15) Straight glides, turns, and spirals;

(16) Landings, including normal and crosswind;

(17) Slips to a landing;

(18) Procedures and techniques for thermalling; and

(19) Emergency operations, including towline break procedures.]

SUBPART C

PRIVATE PILOT LICENCE (PPL), SAILPLANE PILOT LICENCE (SPL) AND BALLOON PILOT LICENCE (BPL)

SECTION 1

Common requirements

LIC.200 Minimum age

(a) An applicant for a PPL shall be at least 17 years of age;

(b) An applicant for a BPL or an SPL shall be at least 16 years of age.

LIC.205 Conditions

Applicants for the issue of a PPL shall have fulfilled the requirements for the class or type rating for the aircraft used in the skill test, as established in Subpart H.

LIC.210 Training course

Applicants for a BPL, SPL or PPL shall complete a training course at an ATO. The course shall include theoretical knowledge and flight instruction appropriate to the privileges given.

LIC.215 Theoretical knowledge examination

Applicants for a BPL, SPL or PPL shall demonstrate a level of theoretical knowledge appropriate to the privileges granted through examinations in the following subjects:

(a) common subjects:

— Air law,

— Human performance,

— Meteorology, and

— Communications;

(b) specific subjects concerning the different aircraft categories:

— Principles of flight,

— Operational procedures,

— Flight performance and planning,

— Aircraft general knowledge, and

— Navigation.

LIC.235 Skill test

(a) Applicants for a BPL, SPL or PPL shall demonstrate through the completion of a skill test the ability to perform, as PIC on the appropriate aircraft category, the relevant procedures and manoeuvres with competency appropriate to the privileges granted.

(b) An applicant for the skill test shall have received flight instruction on the same class or type of aircraft, or a group of balloons to be used for the skill test.

(c) Pass marks

(1) The skill test shall be divided into different sections, representing all the different phases of flight appropriate to the category of aircraft flown.

(2) Failure in any item of a section will cause the applicant to fail the entire section. Failure in more than 1 section will cause the applicant to fail the entire test. If the applicant fails only 1 section, he/she shall repeat only that section.

(3) When the test needs to be repeated in accordance with (2), failure in any section, including those that have been passed on a previous attempt, will cause the applicant to fail the entire test.

(4) Failure to achieve a pass in all sections of the test in 2 attempts will require further training.

SECTION 2

Specific requirements for the PPL aeroplanes — PPL(A)

LIC.205.A PPL(A) — Privileges

(a) The privileges of the holder of a PPL(A) are to act without remuneration as PIC or co-pilot on aeroplanes or TMGs engaged in non-commercial operations.

(b) Notwithstanding the paragraph above, the holder of a PPL(A) with instructor or examiner privileges may receive remuneration for:

(1) [the provision of flight instruction for the PPL(A);]

(2) the conduct of skill tests and proficiency checks for these licences; (3) the ratings and certificates attached to these licences.

LIC.210.A PPL(A) — Experience requirements and crediting

(a) Applicants for a PPL(A) shall have completed at least 45 hours of flight instruction in aeroplanes, 5 of which may have been completed in an FSTD, including at least:

(1) 25 hours of dual flight instruction; and

(2) 10 hours of supervised solo flight time, including at least 5 hours of solo cross-country flight time with at least 1 cross-country flight of at least 270 km (150 NM), during which full stop landings at 2 aerodromes different from the aerodrome of departure shall be made.

(b) [Specific requirements for applicants holding an LAPL(A) issued prior to 01 January 2021.

Applicants for a PPL(A) holding an LAPL(A) shall have completed at least 15 hours of flight time on aeroplanes after the issue of the LAPL(A), of which at least 10 shall be flight instruction completed in a training course at an ATO. This training course shall include at least 4 hours of supervised solo flight time, including at least 2 hours of solo cross-country flight time with at least 1 cross-country flight of at least 270 km (150 NM), during which full stop landings at 2 aerodromes different from the aerodrome of departure shall be made.

(c) Specific requirements for applicants holding an LAPL(S) with a TMG extension issued prior to 01 January 2021.

Applicants for a PPL(A) holding an LAPL(S) with a TMG extension shall have completed:

(1) at least 24 hours of flight time on TMG after the endorsement of the TMG extension; and

(2) 15 hours of flight instruction in aeroplanes in a training course at an ATO, including at least the requirements of (a)(2).]

(d) Crediting. Applicants holding a pilot licence for another category of aircraft, with the exception of balloons, shall be credited with 10 % of their total flight time as PIC on such aircraft up to a maximum of 10 hours. The amount of credit given shall in any case not include the requirements in (a)(2).

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SECTION 3

Specific requirements for the PPL helicopters — PPL(H)

LIC.205.H PPL(H) — Privileges

(a) The privileges of the holder of a PPL(H) are to act without remuneration as PIC or co-pilot of helicopters engaged in non-commercial operations.

(b) Notwithstanding the paragraph above, the holder of a PPL(H) with instructor or examiner privileges may receive remuneration for:

(1) [the provision of flight instruction for the PPL(H);]

(2) the conduct of skill tests and proficiency checks for these licences;

(3) the ratings and certificates attached to these licences.

LIC.210.H PPL(H) — Experience requirements and crediting

(a) Applicants for a PPL(H) shall have completed at least 45 hours of flight instruction on helicopters, 5 of which may have been completed in an FNPT or FFS, including at least:

(1) 25 hours of dual flight instruction; and

(2) 10 hours of supervised solo flight time, including at least 5 hours of solo cross-country flight time with at least 1 cross-country flight of at least 185 km (100 NM), with full stop landings at 2 aerodromes different from the aerodrome of departure.

(3) 35 of the 45 hours of flight instruction have to be completed on the same type of helicopter as the one used for the skill test.

(b) [Specific requirements for an applicant holding an LAPL(H) issued prior to 01 January 2021.

Applicants for a PPL(H) holding an LAPL(H) shall complete a training course at an ATO. This training course shall include at least 5 hours of dual flight instruction time and at least 1 supervised solo cross-country flight of at least 185 km (100 NM), with full stop landings at 2 aerodromes different from the aerodrome of departure.]

(c) Applicants holding a pilot licence for another category of aircraft, with the exception of balloons, shall be credited with 10 % of their total flight time as PIC on such aircraft up to a maximum of 6 hours. The amount of credit given shall in any case not include the requirements in (a)(2).

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SECTION 4

Specific requirements for the PPL airships — PPL(As)

LIC.205.As PPL(As) — Privileges

(a) The privileges of the holder of a PPL(As) are to act without remuneration as PIC or co-pilot on airships engaged in non-commercial operations.

(b) Notwithstanding the paragraph above, the holder of a PPL(As) with instructor or examiner privileges may receive remuneration for:

(1) the provision of flight instruction for the PPL(As);

(2) the conduct of skill tests and proficiency checks for this licence; (3) the ratings or certificates attached to this licence.

LIC.210.As PPL(As) — Experience requirements and crediting

(a) Applicants for a PPL(As) shall have completed at least 35 hours of flight instruction in airships, 5 of which may have been completed in an FSTD, including at least:

(1) 25 hours of dual flight instruction, including:

(i) 3 hours of cross-country flight training, including 1 cross-country flight of at least 65 km (35 NM);

(ii) 3 hours of instrument instruction;

(2) 8 take-offs and landings at an aerodrome, including masting and unmasting procedures; (3) 8 hours of supervised solo flight time.

(b) Applicants holding a BPL and qualified to fly hot-air airships shall be credited with 10 % of their total flight time as PIC on such airships up to a maximum of 5 hours.

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SECTION 5

Specific requirements for the sailplane pilot licence (SPL)

LIC.205.S SPL — Privileges and conditions

(a) The privileges of the holder of an SPL are to act as PIC on sailplanes and powered sailplanes. In order to exercise the privileges on a TMG, the holder shall have to comply with the requirements in LIC.135.S.

(b) Holders of an SPL shall:

(1) carry passengers only when having completed, after the issuance of the licence, at least 10 hours of flight time or 30 launches as PIC on sailplanes or powered sailplanes;

(2) be restricted to act without remuneration in non-commercial operations until they have:

(i) attained the age of 18 years;

(ii) completed, after the issuance of the licence, 75 hours of flight time or 200 launches as PIC on sailplanes or powered sailplanes;

(iii) passed a proficiency check with an examiner.

(c) Notwithstanding (b)(2), the holder of an SPL with instructor or examiner privileges may receive remuneration for:

(1) [the provision of flight instruction for the SPL;]

(2) the conduct of skill tests and proficiency checks for these licences;

(3) the ratings and certificates attached to these licences.

LIC.210.S SPL — Experience requirements and crediting

(a) Applicants for an SPL shall have completed at least 15 hours of flight instruction on sailplanes or powered sailplanes, including at least the requirements specified in LIC.110.S.

(b) [Applicants for an SPL holding an LAPL(S) issued prior to 01 January 2021, shall be fully credited towards the requirements for the issue of an SPL. Applicants for an SPL who held an LAPL(S) within the period of 2 years before the application shall be fully credited towards the requirements of theoretical knowledge and flight instruction.]

(a) Crediting. Applicants holding a pilot licence for another category of aircraft, with the exception of balloons, shall be credited with 10 % of their total flight time as PIC on such aircraft up to a maximum of 7 hours. The amount of credit given shall in any case not include the requirements in of LIC.110.S(a)(2) to (a)(4).

LIC.220.S SPL — Launch methods

The privileges of the SPL shall be limited to the launch method included in the skill test. This limitation may be removed and the new privileges exercised when the pilot complies with the requirements in LIC.130.S.

LIC.230.S SPL — Recency requirements

Holders of an SPL shall only exercise the privileges of their licence when complying with the recency requirements in LIC.140.S.

SECTION 6

Specific requirements for the balloon pilot licence (BPL)

LIC.205.B BPL — Privileges and conditions

(a) The privileges of the holder of a BPL are to act as PIC on balloons and hot-air airships.

(b) Holders of a BPL shall be restricted to act without remuneration in non-commercial operations until they have:

(1) attained the age of 18 years;

(2) completed 50 hours of flight time and 50 take-offs and landings as PIC on balloons;

(3) passed a proficiency check with an examiner on a balloon in the specific class.

(c) Notwithstanding paragraph (b), the holder of a BPL with instructor or examiner privileges may receive remuneration for:

(1) [the provision of flight instruction for the BPL;]

(2) the conduct of skill tests and proficiency checks for these licences;

(3) the ratings and certificates attached to these licences.

LIC.210.B BPL — Experience requirements and crediting

(a) Applicants for a BPL shall have completed on balloons in the same class and group at least 16 hours of flight instruction, including at least:

(1) 12 hours of dual flight instruction;

(2) 10 inflations and 20 take-offs and landings; and

(3) 1 supervised solo flight with a minimum flight time of at least 30 minutes.

(b) [Applicants for a BPL holding an LAPL(B) issued prior to 01 January 2021, shall be fully credited towards the requirements for the issue of a BPL. Applicants for a BPL who held an LAPL(B) within the period of 2 years before the application shall be fully credited towards the requirements of theoretical knowledge and flight instruction.]

LIC.220.B BPL — Extension of privileges to tethered flights

The privileges of the BPL shall be limited to non-tethered flights. This limitation may be removed when the pilot complies with the requirements in LIC.130.B.

LIC.225.B BPL — Extension of privileges to another balloon class or group

The privileges of the BPL shall be limited to the class and group of balloons in which the skill test was taken. This limitation may be removed when the pilot has:

(a) in the case of an extension to another class within the same group, complied with the requirements in LIC.135.B;

(b) in the case of an extension to another group within the same class of balloons, completed at least:

(1) 2 instruction flights on a balloon of the relevant group; and

(2) the following hours of flight time as PIC on balloons:

(i) for balloons with an envelope capacity between 3 401 m3 and 6 000 m^3, at least 100 hours;

(ii) for balloons with an envelope capacity between 6 001 m3 and 10 500 m^3, at least 200 hours;

(iii) for balloons with an envelope capacity of more than 10 500 m^3, at least 300 hours;

(iv) for gas balloons with an envelope capacity of more than 1 260 m^3, at least 50 hours.

LIC.230.B BPL — Recency requirements

(a) Holders of a BPL shall only exercise the privileges of their licence when they have completed in one class of balloons in the last 24 months at least:

(1) 6 hours of flight time as PIC, including 10 take-offs and landings; and

(2) 1 training flight with an instructor in a balloon within the appropriate class and with the maximum envelope capacity they have privileges for;

(3) in addition, in the case of pilots qualified to fly more than one class of balloons, in order to exercise their privileges in the other class, they shall have completed at least 3 hours of flight time on that class within the last 24 months, including 3 take-offs and landings.

(b) Holders of a BPL who do not comply with the requirements in (a) shall, before they resume the exercise of their privileges:

(1) pass a proficiency check with an examiner in a balloon within the appropriate class and with the maximum envelope capacity they have privileges for; or

(2) perform the additional flight time or take-offs and landings, flying dual or solo under the supervision of an instructor, in order to fulfil the requirements in (a).

SUBPART D

COMMERCIAL PILOT LICENCE — CPL

SECTION 1

Common requirements

LIC.300 CPL — Minimum age

An applicant for a CPL shall be at least 18 years of age.

LIC.305 CPL — Privileges and conditions

(a) Privileges. The privileges of the holder of a CPL are, within the appropriate aircraft category, to:

(1) [exercise all the privileges of the holder of a PPL;]

(2) act as PIC or co-pilot of any aircraft engaged in operations other than commercial air transport;

(3) act as PIC in commercial air transport of any single-pilot aircraft subject to the restrictions specified in LIC.060 and in this Subpart;

(4) act as co-pilot in commercial air transport subject to the restrictions specified in LIC.060.

(b) Conditions. An applicant for the issue of a CPL shall have fulfilled the requirements for the class or type rating of the aircraft used in the skill test.

LIC.310 CPL — Theoretical knowledge examinations

An applicant for a CPL shall demonstrate a level of knowledge appropriate to the privileges granted in the following subjects:

— Air Law,

— Aircraft General Knowledge — Airframe/Systems/Powerplant,

— Aircraft General Knowledge — Instrumentation,

— Mass and Balance,

— Performance,

— Flight Planning and Monitoring,

— Human Performance,

— Meteorology,

— General Navigation,

— Radio Navigation,

— Operational Procedures,

— Principles of Flight,

— Visual Flight Rules (VFR) Communications.

LIC.315 CPL — Training course

An applicant for a CPL shall have completed theoretical knowledge instruction and flight instruction at an ATO, in accordance with Appendix 3 to these regulations.

LIC.320 CPL — Skill test

An applicant for a CPL shall pass a skill test in accordance with Appendix 4 to these regulations to demonstrate the ability to perform, as PIC of the appropriate aircraft category, the relevant procedures and manoeuvres with the competency appropriate to the privileges granted.

SECTION 2

Specific requirements for the aeroplane category — CPL(A)

LIC.325.A CPL(A) — Specific conditions

(a) [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 Authority shall 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. Credit for such experience shall be limited to a maximum of 20 hours.]

(b) Before exercising the privileges of a CPL(A), the holder of an MPL shall have completed in aeroplanes, 70 hours of flight time:

(1) as PIC; or

(2) made up of at least 10 hours as PIC and the additional flight time as PIC under supervision (PICUS).

Of these 70 hours, 20 shall be of VFR cross-country flight time as PIC, or cross-country flight time made up of at least 10 hours as PIC and 10 hours as PICUS. This shall include a VFR cross-country flight of at least 540 km (300 NM) in the course of which full-stop landings at two different aerodromes shall be flown as PIC;

(3) the elements of the CPL(A) modular course as specified in paragraphs 10(a) and 11 of Appendix 3, E to these regulations; and

(4) the CPL(A) skill test, in accordance with LIC.320.

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SUBPART E

MULTI-CREW PILOT LICENCE — MPL

LIC.400.A MPL — Minimum age

An applicant for an MPL shall be at least 18 years of age.

LIC.405.A MPL — Privileges

(a) The privileges of the holder of an MPL are to act as co-pilot in an aeroplane required to be operated with a co-pilot.

(b) The holder of an MPL may obtain the extra privileges of:

(1) the holder of a PPL(A), provided that the requirements for the PPL(A) specified in Subpart C are met;

(2) a CPL(A), provided that the requirements specified in LIC.325.A are met.

(c) The holder of an MPL shall have the privileges of his/her IR(A) limited to aeroplanes required to be operated with a co-pilot. The privileges of the IR(A) may be extended to single-pilot operations in aeroplanes, provided that the licence holder has completed the training necessary to act as PIC in single-pilot operations exercised solely by reference to instruments and passed the skill test of the IR(A) as a single-pilot.

LIC.410.A MPL — Training course and theoretical knowledge examinations

(a) Course. An applicant for an MPL shall have completed a training course of theoretical knowledge and flight instruction at an ATO in accordance with Appendix 5 to these regulations.

(b) Examination. An applicant for an MPL shall have demonstrated a level of knowledge appropriate to the holder of an ATPL(A), in accordance with LIC.515, and of a multi-pilot type rating.

LIC.415.A MPL — Practical skill

(a) An applicant for an MPL shall have demonstrated through continuous assessment the skills required for fulfilling all the competency units specified in Appendix 5 to these regulations, as pilot flying and pilot not flying, in a multi-engine turbine-powered multi-pilot aeroplane, under VFR and IFR.

(b) On completion of the training course, the applicant shall pass a skill test in accordance with Appendix 9 to these regulations, to demonstrate the ability to perform the relevant procedures and manoeuvres with the competency appropriate to the privileges granted. The skill test shall be taken in the type of aeroplane used on the advanced phase of the MPL integrated training course or in an FFS representing the same type.

(c) [During the skill test required under (b) above, the applicant shall satisfactorily demonstrate the competencies identified in an adapted competency model to perform as a co-pilot of a turbine-powered air transport aeroplane certificated for operation with a minimum crew of at least two pilots. The adapted competency model shall be approved by the Authority, using as a basis the ICAO aeroplane pilot competency framework contained in the *Procedures for Air Navigation Services—Training* (PANS-TRG, Doc 9868).]

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SUBPART F

AIRLINE TRANSPORT PILOT LICENCE — ATPL

SECTION 1

Common requirements

LIC.500 ATPL — Minimum age

Applicants for an ATPL shall be at least 21 years of age.

LIC.505 ATPL — Privileges

(a) The privileges of the holder of an ATPL are, within the appropriate aircraft category, to:

(1) [exercise all the privileges of the holder of a PPL and a CPL;]

(2) act as PIC of aircraft engaged in commercial air transport.

(b) Applicants for the issue of an ATPL shall have fulfilled the requirements for the type rating of the aircraft used in the skill test.

LIC.515 ATPL — Training course and theoretical knowledge examinations

(a) Course. Applicants for an ATPL shall have completed a training course at an ATO. The course shall be either an integrated training course or a modular course, in accordance with Appendix 3 to these regulations.

(b) Examination. Applicants for an ATPL shall demonstrate a level of knowledge appropriate to the privileges granted in the following subjects:

— Air Law,

— Aircraft General Knowledge — Airframe/Systems/Power plant,

— Aircraft General Knowledge — Instrumentation,

— Mass and Balance,

— Performance,

— Flight Planning and Monitoring,

— Human Performance,

— Meteorology,

— General Navigation,

— Radio Navigation,

— Operational Procedures,

- Principles of Flight,
- VFR Communications,
- IFR Communications.

SECTION 2

Specific requirements for the aeroplane category — ATPL(A)

LIC.505.A ATPL(A) — Restriction of privileges for pilots previously holding an MPL

When the holder of an ATPL(A) has previously held only an MPL, the privileges of the licence shall be restricted to multi- pilot operations, unless the holder has complied with LIC.405.A(b)(2) and (c) for single-pilot operations.

LIC.510.A ATPL(A) — Pre-requisites, experience and crediting

(a) Pre-requisites. Applicants for an ATPL(A) shall hold:

(1) an MPL; or

(2) a CPL(A) and a multi-engine IR for aeroplanes. In this case, the applicant shall also have received instruction in MCC.

(b) Experience. Applicants for an ATPL(A) shall have completed a minimum of 1 500 hours of flight time in aeroplanes, including at least:

(1) 500 hours in multi-pilot operations on aeroplanes;

(2) (i) 500 hours as PIC under supervision; or

(ii) 250 hours as PIC; or

(iii) 250 hours, including at least 70 hours as PIC, and the remaining as PIC under supervision;

(3) 200 hours of cross-country flight time of which at least 100 hours shall be as PIC or as PIC under supervision;

(4) 75 hours of instrument time of which not more than 30 hours may be instrument ground time; and

(5) 100 hours of night flight as PIC or co-pilot.

Of the 1 500 hours of flight time, up to 100 hours of flight time may have been completed in an FFS and FNPT. Of these 100 hours, only a maximum of 25 hours may be completed in an FNPT.

(c) Crediting.

(1) [When the applicant has flight time as a pilot of aircraft in other categories, the Authority shall determine whether such experience is acceptable and, if so, the extent to which the flight time requirements can be reduced accordingly.

Note: The extent to which flight time experience may be reduced by the Authority can be dependent on the applicant having demonstrated the final competency standard of an approved competency-based type rating training programme in the aeroplane category.

(2) In accordance with (1) above, the Authority has determined that holders of a pilot licence for the following categories of aircraft shall be credited with flight time up to a maximum of:]

(i) for TMG or sailplanes, 30 hours flown as PIC;

(ii) for helicopters, 50 % of all the flight time requirements of paragraph (b).

(3) Holders of a flight engineer licence shall be credited with 50 % of the flight engineer time up to a maximum credit of 250 hours. These 250 hours may be credited against the 1 500 hours requirement of paragraph (a), and the 500 hours requirement of paragraph (b)(1), provided that the total credit given against any of these paragraphs does not exceed 250 hours.

(d) The experience required in (b) shall be completed before the skill test for the ATPL(A) is taken.

LIC.520.A ATPL(A) — Skill test

Applicants for an ATPL(A) shall pass a skill test in accordance with Appendix 9 to these regulations to demonstrate the ability to perform, as PIC of a multi-pilot aeroplane under IFR, the relevant procedures and manoeuvres with the competency appropriate to the privileges granted. The skill test shall be taken in the aeroplane or an adequately qualified FFS representing the same type.

SECTION 3

Specific requirements for the helicopter category — ATPL(H)

LIC.510.H ATPL(H) — Pre-requisites, experience and crediting

Applicants for an ATPL(H) shall:

(a) hold a CPL(H) and a multi-pilot helicopter type rating and have received instruction in MCC;

(b) have completed as a pilot of helicopters a minimum of 1 000 hours of flight time including at least:

(1) 350 hours in multi-pilot helicopters;

(2) (i) 250 hours as PIC; or

(ii) 100 hours as PIC and 150 hours as PIC under supervision; or

(iii) 250 hours as PIC under supervision in multi-pilot helicopters. In this case, the ATPL(H) privileges shall be limited to multi-pilot operations only, until 100 hours as PIC have been completed;

(3) 200 hours of cross-country flight time of which at least 100 hours shall be as PIC or as PIC under supervision;

(4) 30 hours of instrument time of which not more than 10 hours may be instrument ground time; and

(5) 100 hours of night flight as PIC or as co-pilot.

Of the 1 000 hours, a maximum of 100 hours may have been completed in an FSTD, of which not more than 25 hours may be completed in an FNPT.

(c) [When the applicant has flight time as a pilot of aircraft in other categories, the Authority shall determine whether such experience is acceptable and, if so, the extent to which the flight time requirements can be reduced accordingly.

Note: The extent to which flight time experience may be reduced by the Authority can be dependent on the applicant having demonstrated the final competency standard of an approved competency-based type rating training programme in the aeroplane category.

(d) In accordance with (c) above, the Authority has determined that flight time in aeroplanes shall be credited up to 50 % against the flight time requirements of paragraph (b).]

(e) The experience required in (b) shall be completed before the skill test for the ATPL(H) is taken.

LIC.520.H ATPL(H) — Skill test

Applicants for an ATPL(H) shall pass a skill test in accordance with Appendix 9 to these regulations to demonstrate the ability to perform as PIC of a multi-pilot helicopter the relevant procedures and manoeuvres with the competency appropriate to the privileges granted. The skill test shall be taken in the helicopter or an adequately qualified FFS representing the same type.

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SUBPART G

INSTRUMENT RATING — IR

SECTION 1

Common requirements

LIC.600 IR — General

Operations under IFR on an aeroplane, helicopter, airship or powered-lift aircraft shall only be conducted by holders of a PPL, CPL, MPL and ATPL with an IR appropriate to the category of aircraft or when undergoing skill testing or dual instruction.

LIC.605 IR — Privileges

(a) The privileges of a holder of an IR are to fly aircraft under IFR with a minimum decision height of 200 feet (60 m).

(b) In the case of a multi-engine IR, these privileges may be extended to decision heights lower than 200 feet (60 m) when the applicant has undergone specific training at an ATO and has passed section 6 of the skill test prescribed in Appendix 9 to these regulations in multi-pilot aircraft.

(c) Holders of an IR shall exercise their privileges in accordance with the conditions established in Appendix 8 to these regulations.

(d) Helicopters only. To exercise privileges as PIC under IFR in multi-pilot helicopters, the holder of an IR(H) shall have at least 70 hours of instrument time of which up to 30 hours may be instrument ground time.

LIC.610 IR — Pre-requisites and crediting

Applicants for an IR shall: (a) hold:

(1) at least a PPL in the appropriate aircraft category, and:

(i) the privileges to fly at night in accordance with LIC.810; or

(ii) an ATPL in another category of aircraft; or

(2) a CPL, in the appropriate aircraft category;

(b) have completed at least 50 hours of cross-country flight time as PIC in aeroplanes, helicopters or airships of which at least 10 or, in the case of airships, 20 hours shall be in the relevant aircraft category.

(c) Helicopters only. Applicants who have completed an ATP(H)/IR, ATP(H), CPL(H)/IR or CPL(H) integrated training course shall be exempted from the requirement in (b).

LIC.615 IR — Theoretical knowledge and flight instruction

(a) Course. Applicants for an IR shall have received a course of theoretical knowledge and flight instruction at an ATO. The course shall be:

(1) an integrated training course which includes training for the IR, in accordance with Appendix 3 to these regulations; or

(2) a modular course in accordance with Appendix 6 to these regulations.

(b) Examination. Applicants shall demonstrate a level of theoretical knowledge appropriate to the privileges granted in the following subjects:

— Air Law,

— Aircraft General Knowledge — Instrumentation,

— Flight Performance and Monitoring,

— Human Performance,

— Meteorology,

— Radio Navigation,

— IFR Communications.

LIC.620 IR — Skill test

(a) Applicants for an IR shall pass a skill test in accordance with Appendix 7 to these regulations to demonstrate the ability to perform the relevant procedures and manoeuvres with a degree of competency appropriate to the privileges granted.

(b) For a multi-engine IR, the skill test shall be taken in a multi-engine aircraft. For a single-engine IR, the test shall be taken in a single-engine aircraft. A multi-engine centreline thrust aeroplane shall be considered a single-engine aeroplane for the purposes of this paragraph.

LIC.625 IR — Validity, revalidation and renewal

(a) Validity. An IR shall be valid for 1 year.

(b) Revalidation.

(1) An IR shall be revalidated within the 3 months immediately preceding the expiry date of the rating.

(2) Applicants who fail to pass the relevant section of an IR proficiency check before the expiry date of the IR shall not exercise the IR privileges until they have passed the proficiency check.

(c) Renewal. If an IR has expired, in order to renew their privileges applicants shall:

(1) go through refresher training at an ATO to reach the level of proficiency needed to pass the instrument element of the skill test in accordance with Appendix 9 to these regulations; and

(2) complete a proficiency check in accordance with Appendix 9 to these regulations, in the relevant aircraft category.

(d) If the IR has not been revalidated or renewed within the preceding 7 years, the holder will be required to pass again the IR theoretical knowledge examination and skill test.

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SECTION 2

Specific requirements for the aeroplane category

LIC.625.A IR(A) — Revalidation

(a) Revalidation. Applicants for the revalidation of an IR(A):

(1) when combined with the revalidation of a class or type rating, shall pass a proficiency check in accordance with Appendix 9 to these regulations;

(2) when not combined with the revalidation of a class or type rating, shall:

(i) for single-pilot aeroplanes, complete section 3b and those parts of Section 1 relevant to the intended flight, of the proficiency check prescribed in Appendix 9 to these regulations; and

(ii) for multi-engine aeroplanes, complete Section 6 of the proficiency check for single-pilot aeroplanes in accordance with Appendix 9 to these regulations by sole reference to instruments.

(3) An FNPT II or an FFS representing the relevant class or type of aeroplane may be used in the case of paragraph (2), but at least each alternate proficiency check for the revalidation of an IR(A) in these circumstances shall be performed in an aeroplane.

(b) Cross-credit shall be given in accordance with Appendix 8 to these regulations.

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SECTION 3

Specific requirements for the helicopter category

LIC.625.H IR(H) — Revalidation

(a) Applicants for the revalidation of an IR(H):

(1) when combined with the revalidation of a type rating, shall complete a proficiency check in accordance with Appendix 9 to these regulations, for the relevant type of helicopter;

(2) when not combined with the revalidation of a type rating, shall complete only Section 5 and the relevant parts of Section 1 of the proficiency check established in Appendix 9 to these regulations for the relevant type of helicopter. In this case, an FTD II/III or an FFS representing the relevant type of helicopter may be used, but at least each alternate proficiency check for the revalidation of an IR(H) in these circumstances shall be performed in a helicopter.

(b) Cross-credit shall be given in accordance with Appendix 8 to these regulations.

LIC.630.H IR(H) — Extension of privileges from single-engine to multi-engine helicopters

Holders of an IR(H) valid for single-engine helicopters wishing to extend for the first time the IR(H) to multi-engine helicopters shall complete:

(a) a training course at an ATO comprising at least 5 hours dual instrument instruction time, of which 3 hours may be in an FFS or FTD 2/3 or FNPT II/III; and

(b) section 5 of the skill test in accordance with Appendix 9 to these regulations on multi-engine helicopters.

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SECTION 4

Specific requirements for the airship category

LIC.625.As IR(As) — Revalidation

Applicants for the revalidation of an IR(As):

(a) when combined with the revalidation of a type rating, shall complete a proficiency check in accordance with Appendix 9 to these regulations, for the relevant type of airship;

(b) when not combined with the revalidation of a type rating, shall complete Section 5 and those parts of Section 1 relevant to the intended flight of the proficiency check for airships in accordance with Appendix 9 of these regulations. In this case, an FTD 2/3 or FFS representing the relevant type may be used, but at least each alternate proficiency check for the revalidation of an IR(As) in these circumstances shall be performed in an airship.

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SUBPART H

CLASS AND TYPE RATINGS

SECTION 1

Common requirements

LIC.700 Circumstances in which class or type ratings are required

(a) [Except in the case of the SPL and BPL, holders of a pilot licence shall not act in any capacity as pilots of an aircraft, including a RPA or RPS, unless they have a valid and appropriate class or type rating, except when undergoing skill tests, or proficiency checks for renewal of class or type ratings, or receiving flight instruction.]

(b) Notwithstanding (a), in the case of flights related to the introduction or modification of aircraft types, pilots may hold a special certificate given by the Authority, authorising them to perform the flights. This authorisation shall have its validity limited to the specific flights.

(c) Without prejudice to (a) and (b), in the case of flights related to the introduction or modification of aircraft types conducted by design or production organisations within the scope of their privileges, as well as instruction flights for the issue of a flight test rating, when the requirements of this Subpart may not be complied with, pilots may hold a flight test rating issued in accordance with LIC.820.

(d) For the purpose of training, testing, or specific special purpose non-revenue flights, special authorisation may be provided in writing to the remote pilot licence holder by the Authority in place of issuing the class or type rating. This authorisation shall be limited in validity to the time needed to complete the specific flight.

LIC.705 Privileges of the holder of a class or type rating

The privileges of the holder of a class or type rating are to act as pilot on the class or type of aircraft specified in the rating.

LIC.710 Class and type ratings — variants

(a) In order to extend his/her privileges to another variant of aircraft within one class or type rating, the pilot shall undertake differences or familiarisation training. In the case of variants within a type rating, the differences or familiarisation training shall include the relevant elements defined in the operational suitability data established.

(b) If the variant has not been flown within a period of 2 years following the differences raining, further differences training or a proficiency check in that variant shall be required to maintain the privileges, except for types or variants within the single-engine piston and TMG class ratings.

(c) The differences training shall be entered in the pilot's logbook or equivalent record and signed by the instructor as appropriate.

LIC.725 Requirements for the issue of class and type ratings

(a) Training course. An applicant for a class or type rating shall complete a training course either at an ATO or as approved by the Authority. The type rating training course shall include the mandatory training elements for the relevant type as defined in the operational suitability data established.

(d) Theoretical knowledge examination. The applicant for a class or type rating shall pass a theoretical knowledge examination approved by the Authority to demonstrate the level of theoretical knowledge required for the safe operation of the applicable aircraft class or type.

(1) For multi-pilot aircraft, the theoretical knowledge examination shall be written and comprise at least 100 multiple-choice questions distributed appropriately across the main subjects of the syllabus.

(2) For single-pilot multi-engine aircraft and RPA or RPS, the theoretical knowledge examination shall be written and the number of multiple-choice questions shall depend on the complexity of the aircraft.

(3) For single-engine aircraft, the theoretical knowledge examination shall be conducted verbally by the examiner during the skill test to determine whether or not a satisfactory level of knowledge has been achieved.

(4) For single-pilot aeroplanes that are classified as high performance aeroplanes, the examination shall be written and comprise at least 60 multiple-choice questions distributed appropriately across the main subjects of the syllabus.

(c) Skill test. Unless otherwise authorised by the Authority, an applicant for a class or type rating shall pass a skill test in accordance with Appendix 9 to these regulations to demonstrate the skill required for the safe operation of the applicable class or type of aircraft. The applicant shall pass the skill test within a period of 6 months after commencement of the class or type rating training course and within a period of 6 months preceding the application for the issue of the class or type rating.

(d) An applicant who already holds a type rating for an aircraft type, with the privilege for either single-pilot or multi-pilot operations, shall be considered to have already fulfilled the theoretical requirements when applying to add the privilege for the other form of operation on the same aircraft type.

(e) Notwithstanding the paragraphs above, pilots holding a flight test rating issued in accordance with LIC.820 who were involved in development, certification or production flight tests for an aircraft type, and have completed either 50 hours of total flight time or 10 hours of flight time as PIC on test flights in that type, shall be entitled to apply for the issue of the relevant type rating, provided that they comply with the experience requirements and the pre-requisites for the issue of that type rating, as established in this Subpart for the relevant aircraft category.

LIC.740 Validity and renewal of class and type ratings

(a) The period of validity of class and type ratings shall be 1 year, except for single-pilot single-engine class ratings and RPA or RPS, for which the period of validity shall be 2 years, unless otherwise determined by the operational suitability data.

(b) Renewal. If a class or type rating has expired, the applicant shall:

(1) take approved refresher training, when necessary to reach the level of proficiency necessary to safely operate the relevant class or type of aircraft; and

(2) pass a proficiency check in accordance with Appendix 9 to these regulations, unless for RPA licence, has been exempted by the Authority.

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SECTION 2

Specific requirements for the aeroplane category

LIC.720.A Experience requirements and pre-requisites for the issue of class or type ratings — aeroplanes

Unless otherwise determined in the operational suitability data established in accordance with CAR 21, an applicant for a class or type rating shall comply with the following experience requirements and pre-requisites for the issue of the relevant rating:

(a) Single-pilot multi-engine aeroplanes. An applicant for a first class or type rating on a single-pilot multi-engine aeroplane shall have completed at least 70 hours as PIC on aeroplanes.

(b) Single-pilot high performance non-complex aeroplanes. Before starting flight training, an applicant for a first class or type rating for a single-pilot aeroplane classified as a high performance aeroplane shall:

(1) have at least 200 hours of total flying experience, of which 70 hours as PIC on aeroplanes; and

(2) (i) hold a certificate of satisfactory completion of a course for additional theoretical knowledge undertaken at an ATO; or

(ii) have passed the ATPL(A) theoretical knowledge examinations in accordance with these regulations; or

(iii) hold, in addition to a licence issued in accordance with these regulations, an ATPL(A) or CPL(A)/IR with theoretical knowledge credit for ATPL(A), issued in accordance with ICAO Annex 1;

(3) in addition, pilots seeking the privilege to operate the aeroplane in multi-pilot operations shall meet the requirements of (d)(4).

(c) Single-pilot high performance complex aeroplanes. Applicants for the issue of a first type rating for a complex single- pilot aeroplane classified as a high performance aeroplane shall, in addition to meeting the requirements of (b), have fulfilled the requirements for a multi-engine IR(A), as established in Subpart G.

(d) Multi-pilot aeroplanes. An applicant for the first type rating course for a multi-pilot aeroplane shall be a student pilot currently undergoing training on an MPL training course or comply with the following requirements:

(1) have at least 70 hours of flight experience as PIC on aeroplanes;

(2) hold a multi-engine IR(A);

(3) have passed the ATPL(A) theoretical knowledge examinations in accordance with these regulations; and

(4) except when the type rating course is combined with an MCC course:

(i) hold a certificate of satisfactory completion of an MCC course in aeroplanes; or

(ii) hold a certificate of satisfactory completion of MCC in helicopters and have more than 100 hours of flight experience as a pilot on multi-pilot helicopters; or

(iii) have at least 500 hours as a pilot on multi-pilot helicopters; or

(iv) have at least 500 hours as a pilot in multi-pilot operations on single-pilot multi-engine aeroplanes, in commercial air transport in accordance with the applicable air operations requirements.

(e) Notwithstanding paragraph (d), the Authority may issue a type rating with restricted privileges for multi-pilot aeroplane that allows the holder of such rating to act as a cruise relief co-pilot above Flight Level 200, provided that two other members of the crew have a type rating in accordance with paragraph (d).

(f) Additional multi-pilot and single-pilot high performance complex aeroplane type ratings. An applicant for the issue of additional multi-pilot type ratings and single-pilot high performance complex aeroplanes type ratings shall hold a multi-engine IR(A).

(g) When so determined in the operational suitability data established in accordance with CAR 21, the exercise of the privileges of a type rating may be initially limited to flight under the supervision of an instructor. The flight hours under supervision shall be entered in the pilot's logbook or equivalent record and signed by the instructor. The limitation shall be removed when the pilot demonstrates that the hours of flight under supervision required by the operational suitability data have been completed.

LIC.725.A Theoretical knowledge and flight instruction for the issue of class and type ratings — aeroplanes

Unless otherwise determined in the operational suitability data established in accordance with CAR 21:

(a) Single-pilot multi-engine aeroplanes.

(1) The theoretical knowledge course for a single-pilot multi-engine class rating shall include at least 7 hours of instruction in multi-engine aeroplane operations.

(2) The flight training course for a single-pilot multi-engine class or type rating shall include at least 2 hours and 30 minutes of dual flight instruction under normal conditions of multi-engine aeroplane operations, and not less than 3 hours 30 minutes of dual flight instruction in engine failure procedures and asymmetric flight techniques.

(b) Single-pilot aeroplanes-sea. The training course for single-pilot aeroplane-sea ratings shall include theoretical knowledge and flight instruction. The flight training for a class or type rating-sea for single-pilot aeroplanes-sea shall include at least 8 hours of dual flight instruction if the applicant holds the land version of the relevant class or type rating, or 10 hours if the applicant does not hold such a rating.

LIC.730.A Specific requirements for pilots undertaking a zero flight time type rating (ZFTT) course — aeroplanes

(a) A pilot undertaking instruction at a ZFTT course shall have completed, on a multi-pilot turbo-jet aeroplane certificated to the standards of CS-25 or equivalent airworthiness code or on a multi-pilot turbo-prop aeroplane having a maximum certificated take-off mass of not less than 10 tonnes or a certificated passenger seating configuration of more than 19 passengers, at least:

(1) if an FFS qualified to level CG, C or interim C is used during the course, 1 500 hours flight time or 250 route sectors;

(2) if an FFS qualified to level DG or D is used during the course, 500 hours flight time or 100 route sectors.

(b) When a pilot is changing from a turbo-prop to a turbo-jet aeroplane or from a turbo-jet to a turbo-prop aeroplane, additional simulator training shall be required.

LIC.735.A Multi-crew cooperation training course — aeroplanes

(a) The MCC training course shall comprise at least:

(1) 25 hours of theoretical knowledge instruction and exercises; and

(2) 20 hours of practical MCC training, or 15 hours in the case of student pilots attending an ATP integrated course. An FNPT II MCC or an FFS shall be used. When the MCC training is combined with initial type rating training, the practical MCC training may be reduced to no less than 10 hours if the same FFS is used for both the MCC and type rating training.

(b) The MCC training course shall be completed within 6 months at an ATO.

(c) Unless the MCC course has been combined with a type rating course, on completion of the MCC training course the applicant shall be given a certificate of completion.

(d) An applicant having completed MCC training for any other category of aircraft shall be exempted from the requirement in (a)(1).

LIC.740.A Revalidation of class and type ratings — aeroplanes

(a) Revalidation of multi-engine class ratings and type ratings. For revalidation of multi-engine class ratings and type ratings, the applicant shall:

(1) pass a proficiency check in accordance with Appendix 9 to these regulations in the relevant class or type of aeroplane or an FSTD representing that class or type, within the 3 months immediately preceding the expiry date of the rating; and

(2) complete during the period of validity of the rating, at least:

(i) 10 route sectors as pilot of the relevant class or type of aeroplane; or

(ii) 1 route sector as pilot of the relevant class or type of aeroplane or FFS, flown with an examiner. This route sector may be flown during the proficiency check.

(3) A pilot working for a commercial air transport operator approved in accordance with the applicable air operations requirements who has passed the operators proficiency check combined with the proficiency check for the revalidation of the class or type rating shall be exempted from complying with the requirement in (2).

(4) The revalidation of an IR(A), if held, may be combined with a proficiency check for the revalidation of a class or type rating.

(b) Revalidation of single-pilot single-engine class ratings.

(1) Single-engine piston aeroplane class ratings and TMG ratings. For revalidation of single-pilot single-engine piston aeroplane class ratings or TMG class ratings the applicant shall:

(i) within the 3 months preceding the expiry date of the rating, pass a proficiency check in the relevant class in accordance with Appendix 9 to these regulations with an examiner; or

(ii) within the 12 months preceding the expiry date of the rating, complete 12 hours of flight time in the relevant class, including:

— 6 hours as PIC,

— 12 take-offs and 12 landings, and

— a training flight of at least 1 hour with a flight instructor (FI) or a class rating instructor (CRI). Applicants shall be exempted from this flight if they have passed a class or type rating proficiency check or skill test in any other class or type of aeroplane.

(2) When applicants hold both a single-engine piston aeroplane-land class rating and a TMG rating, they may complete the requirements of (1) in either class, and achieve revalidation of both ratings.

(3) When applicants hold both a single-engine piston aeroplane-land class rating and a single-engine piston aeroplane-sea class rating, they may complete the requirements of (b)(1)(ii) in either class or a combination thereof, and achieve the fulfilment of these requirements for both ratings. At least 1 hour of required PIC time and 6 of the required 12 take-offs and landings shall be completed in each class.

(4) Single-pilot single-engine turbo-prop aeroplanes. For revalidation of single-engine turbo-prop class ratings applicants shall pass a proficiency check on the relevant class in accordance with Appendix 9 to these regulations with an examiner, within the 3 months preceding the expiry date of the rating.

(c) Applicants who fail to achieve a pass in all sections of a proficiency check before the expiry date of a class or type rating shall not exercise the privileges of that rating until a pass in the proficiency check has been achieved.

LIC.750.A Type ratings for aeroplanes where two pilots are required

For aircraft certificated for operation with a minimum crew of at least two pilots the applicant shall have:

(a) gained, under appropriate supervision, experience in the applicable type of aircraft and/or flight simulator in the following:

(1) normal flight procedures and manoeuvres during all phases of flight;

(2) abnormal and emergency procedures and manoeuvres in the event of failures and malfunctions of equipment, such as engine, systems and airframe;

(3) where applicable, instrument procedures, including instrument approach, missed approach and landing procedures under normal, abnormal and emergency conditions, including simulated engine failure;

(4) for the issue of an aeroplane category type rating, upset prevention and recovery training; and

(5) procedures for crew incapacitation and crew coordination including allocation of pilot tasks; crew cooperation and use of checklists;

(b) demonstrated the skill and knowledge required for the safe operation of the applicable type of aircraft, relevant to the duties of a pilot-in-command or a co-pilot as applicable; and

(c) demonstrated, at the airline transport pilot licence level, an extent of knowledge determined by the Authority on the basis of the requirements specified in Subpart F.

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SECTION 3

Specific requirements for the helicopter category

LIC.720.H Experience requirements and pre-requisites for the issue of type ratings — helicopters

Unless otherwise determined in the operational suitability data established in accordance with CAR 21, an applicant for the issue of the first helicopter type rating shall comply with the following experience requirements and pre-requisites for the issue of the relevant rating:

(a) Multi-pilot helicopters. An applicant for the first type rating course for a multi-pilot helicopter type shall:

(1) have at least 70 hours as PIC on helicopters;

(2) except when the type rating course is combined with an MCC course:

(i) hold a certificate of satisfactory completion of an MCC course in helicopters; or

(ii) have at least 500 hours as a pilot on multi-pilot aeroplanes; or

(iii) have at least 500 hours as a pilot in multi-pilot operations on multi-engine helicopters; (3) have passed the ATPL(H) theoretical knowledge examinations.

(b) An applicant for the first type rating course for a multi-pilot helicopter type who is a graduate from an ATP(H)/IR, ATP(H), CPL(H)/IR or CPL(H) integrated course and who does not comply with the requirement of (a)(1), shall have the type rating issued with the privileges limited to exercising functions as co-pilot only. The limitation shall be removed once the pilot has:

(1) completed 70 hours as PIC or pilot-in-command under supervision of helicopters;

(2) passed the multi-pilot skill test on the applicable helicopter type as PIC.

(c) Single-pilot multi-engine helicopters. An applicant for the issue of a first type rating for a single-pilot multi-engine helicopter shall:

(1) before starting flight training:

(i) have passed the ATPL(H) theoretical knowledge examinations; or

(ii) hold a certificate of completion of a pre-entry course conducted by an ATO. The course shall cover the following subjects of the ATPL(H) theoretical knowledge course:

— Aircraft General Knowledge: airframe/systems/power plant, and instrument/electronics,

— Flight Performance and Planning: mass and balance, performance;

(2) in the case of applicants who have not completed an ATP(H)/IR, ATP(H), or CPL(H)/IR integrated training course, have completed at least 70 hours as PIC on helicopters.

LIC.735.H Multi-crew cooperation training course — helicopters

(a) The MCC training course shall comprise at least:

(1) for MCC/IR:

(i) 25 hours of theoretical knowledge instruction and exercises; and

(ii) 20 hours of practical MCC training or 15 hours, in the case of student pilots attending an ATP(H)/IR integrated course. When the MCC training is combined with the initial type rating training for a multi- pilot helicopter, the practical MCC training may be reduced to not less than 10 hours if the same FSTD is used for both MCC and type rating;

(2) for MCC/VFR:

(i) 25 hours of theoretical knowledge instruction and exercises; and

(ii) 15 hours of practical MCC training or 10 hours, in the case of student pilots attending an ATP(H)/IR integrated course. When the MCC training is combined with the initial type rating training for a multi- pilot helicopter, the practical MCC training may be reduced to not less than 7 hours if the same FSTD is used for both MCC and type rating.

(b) The MCC training course shall be completed within 6 months at an ATO. An FNPT II or III qualified for MCC, an FTD 2/3 or an FFS shall be used.

(c) Unless the MCC course has been combined with a multi-pilot type rating course, on completion of the MCC training course the applicant shall be given a certificate of completion.

(d) An applicant having completed MCC training for any other category of aircraft shall be exempted from the requirement in (a)(1)(i) or (a)(2)(i), as applicable.

(e) An applicant for MCC/IR training who has completed MCC/VFR training shall be exempted from the requirement in (a)(1)(i), and shall complete 5 hours of practical MCC/IR training.

LIC.740.H Revalidation of type ratings — helicopters

(a) Revalidation. For revalidation of type ratings for helicopters, the applicant shall:

(1) pass a proficiency check in accordance with Appendix 9 to these regulations in the relevant type of helicopter or an FSTD representing that type within the 3 months immediately preceding the expiry date of the rating; and

(2) complete at least 2 hours as a pilot of the relevant helicopter type within the validity period of the rating. The duration of the proficiency check may be counted towards the 2 hours.

(3) When applicants hold more than 1 type rating for single-engine piston helicopters, they may achieve revalidation of all the relevant type ratings by completing the proficiency check in only 1 of the relevant types held, provided that they have completed at least 2 hours of flight time as PIC on the other types during the validity period. The proficiency check shall be performed each time on a different type.

(4) When applicants hold more than 1 type rating for single-engine turbine helicopters with a maximum certificated take-off mass up to 3 175 kg, they may achieve revalidation of all the relevant type ratings by completing the proficiency check in only 1 of the relevant types held, provided that they have completed:

(i) 300 hours as PIC on helicopters;

(ii) 15 hours on each of the types held; and

(iii) at least 2 hours of PIC flight time on each of the other types during the validity period. The proficiency check shall be performed each time on a different type.

(5) A pilot who successfully completes a skill test for the issue of an additional type rating shall achieve revalidation for the relevant type ratings in the common groups, in accordance with (3) and (4).

(6) The revalidation of an IR(H), if held, may be combined with a proficiency check for a type rating.

(b) An applicant who fails to achieve a pass in all sections of a proficiency check before the expiry date of a type rating shall not exercise the privileges of that rating until a pass in the proficiency check has been achieved. In the case of (a)(3) and (4), the applicant shall not exercise his/her privileges in any of the types.

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SECTION 4

Specific requirements for the powered-lift aircraft category

LIC.720.PL Experience requirements and pre-requisites for the issue of type ratings — powered-lift aircraft

Unless otherwise determined in the operational suitability data established in accordance with CAR 21, an applicant for the first issue of a powered-lift type rating shall comply with the following experience requirements and pre-requisites:

(a) for pilots of aeroplanes:

(1) hold a CPL/IR(A) with ATPL theoretical knowledge or an ATPL(A);

(2) hold a certificate of completion of an MCC course;

(3) have completed more than 100 hours as pilot on multi-pilot aeroplanes;

(4) have completed 40 hours of flight instruction in helicopters;

(b) for pilots of helicopters:

(1) hold a CPL/IR(H) with ATPL theoretical knowledge or an ATPL/IR(H);

(2) hold a certificate of completion of an MCC course;

(3) have completed more than 100 hours as a pilot on multi-pilot helicopters;

(4) have completed 40 hours of flight instruction in aeroplanes;

(c) for pilots qualified to fly both aeroplanes and helicopters:

(1) hold at least a CPL(H);

(2) hold an IR and ATPL theoretical knowledge or an ATPL in either aeroplanes or helicopters;

(3) hold a certificate of completion of an MCC course in either helicopters or aeroplanes;

(4) have completed at least 100 hours as a pilot on multi-pilot helicopters or aeroplanes;

(5) have completed 40 hours of flight instruction in aeroplanes or helicopters, as applicable, if the pilot has no experience as ATPL or on multi-pilot aircraft.

LIC.725.PL Flight instruction for the issue of type ratings — powered-lift aircraft

The flight instruction part of the training course for a powered-lift type rating shall be completed in both the aircraft and an FSTD representing the aircraft and adequately qualified for this purpose.

LIC.740.PL Revalidation of type ratings — powered-lift aircraft

(a) Revalidation. For revalidation of powered-lift type ratings, the applicant shall:

(1) pass a proficiency check in accordance with Appendix 9 to these regulations in the relevant type of powered-lift within the 3 months immediately preceding the expiry date of the rating;

(2) complete during the period of validity of the rating, at least:

(i) 10 route sectors as pilot of the relevant type of powered-lift aircraft; or

(ii) 1 route sector as pilot of the relevant type of powered-lift aircraft or FFS, flown with an examiner. This route sector may be flown during the proficiency check.

(3) A pilot working for a commercial air transport operator approved in accordance with the applicable air operations requirements who has passed the operators proficiency check combined with the proficiency check for the revalidation of the type rating shall be exempted from complying with the requirement in (2).

(b) An applicant who fails to achieve a pass in all sections of a proficiency check before the expiry date of a type rating shall not exercise the privileges of that rating until the a pass in the proficiency check has been achieved.

SECTION 5

Specific requirements for the airship category

LIC.720.As Pre-requisites for the issue of type ratings — airships

Unless otherwise determined in the operational suitability data established in accordance with CAR 21, an applicant for the first issue of an airship type rating shall comply with the following experience requirements and pre-requisites:

(a) for multi-pilot airships:

(1) have completed 70 hours of flight time as PIC on airships;

(2) hold a certificate of satisfactory completion of MCC on airships.

(3) An applicant who does not comply with the requirement in (2) shall have the type rating issued with the privileges limited to exercising functions as co-pilot only. The limitation shall be removed once the pilot has completed 100 hours of flight time as PIC or pilot-in-command under supervision of airships.

LIC.735.As Multi-crew cooperation training course — airships

(a) The MCC training course shall comprise at least:

(1) 12 hours of theoretical knowledge instruction and exercises; and

(2) 5 hours of practical MCC training;

(3) An FNPT II, or III qualified for MCC, an FTD 2/3 or an FFS shall be used. (b) The MCC training course shall be completed within 6 months at an ATO.

(c) Unless the MCC course has been combined with a multi-pilot type rating course, on completion of the MCC training course the applicant shall be given a certificate of completion.

(d) An applicant having completed MCC training for any other category of aircraft shall be exempted from the requirements in (a).

LIC.740.As Revalidation of type ratings — airships

(a) Revalidation. For revalidation of type ratings for airships, the applicant shall:

(1) pass a proficiency check in accordance with Appendix 9 to these regulations in the relevant type of airship within the 3 months immediately preceding the expiry date of the rating; and

(2) complete at least 2 hours as a pilot of the relevant airship type within the validity period of the rating. The duration of the proficiency check may be counted towards the 2 hours.

(3) The revalidation of an IR(As), if held, may be combined with a proficiency check for the revalidation of a class or type rating.

(b) An applicant who fails to achieve a pass in all sections of a proficiency check before the expiry date of a type rating shall not exercise the privileges of that rating until a pass in the proficiency check has been achieved.

SECTION 6

Specific requirements for the Remotely Piloted Aircraft Category

LIC.720.RPA Pre-requisites for the issue of type ratings — RPA

Note: Refer to Subpart P for pre-requisites for all categories.

LIC.725.RPA Flight instruction for the issue of type ratings — RPA

Note: Refer to Subpart P for flight instruction requirements.

LIC.740.RPA Revalidation of type ratings — RPA

Note: Refer to Subpart P for revalidation requirements.

LIC.750.RPA Type ratings — RPA

The following type ratings have been established for RPA and RPS with MTOM of more than 25 kg;

(a) Aircraft type with the following restrictions (where appropriate) as part of the rating;

(1) VLOS only;

(2) External pilot only;

(3) Co-pilot only;

(4) Cruise phase only.

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SUBPART I

ADDITIONAL RATINGS

LIC.800 Aerobatic rating

(a) Holders of a pilot licence for aeroplanes, TMG or sailplanes shall only undertake aerobatic flights when they hold the appropriate rating.

(b) Applicants for an aerobatic rating shall have completed:

(1) at least 40 hours of flight time or, in the case of sailplanes, 120 launches as PIC in the appropriate aircraft category, completed after the issue of the licence;

(2) a training course at an ATO, including:

(i) theoretical knowledge instruction appropriate for the rating;

(ii) at least 5 hours or 20 flights of aerobatic instruction in the appropriate aircraft category.

(c) The privileges of the aerobatic rating shall be limited to the aircraft category in which the flight instruction was completed. The privileges will be extended to another category of aircraft if the pilot holds a licence for that aircraft category and has successfully completed at least 3 dual training flights covering the full aerobatic training syllabus in that category of aircraft.

LIC.805 Sailplane towing and banner towing ratings

(a) Holders of a pilot licence with privileges to fly aeroplanes or TMGs shall only tow sailplanes or banners when they hold the appropriate sailplane towing or banner towing rating.

(b) Applicants for a sailplane towing rating shall have completed:

(1) at least 30 hours of flight time as PIC and 60 take-offs and landings in aeroplanes, if the activity is to be carried out in aeroplanes, or in TMGs, if the activity is to be carried out in TMGs, completed after the issue of the licence;

(2) a training course at an ATO including:

(i) theoretical knowledge instruction on towing operations and procedures;

(ii) at least 10 instruction flights towing a sailplane, including at least 5 dual instruction flights; and

(iii) [except for holders of a SPL, 5 familiarisation flights in a sailplane which is launched by an aircraft.]

(c) Applicants for a banner towing rating shall have completed:

(1) at least 100 hours of flight time and 200 take-offs and landings as PIC on aeroplanes or TMG, after the issue of the licence. At least 30 of these hours shall be in aeroplanes, if the activity is to be carried out in aeroplanes, or in TMG, if the activity is to be carried out in TMGs;

(2) a training course at an ATO including:

(i) theoretical knowledge instruction on towing operations and procedures;

(ii) at least 10 instruction flights towing a banner, including at least 5 dual flights.

(d) The privileges of the sailplane and banner towing ratings shall be limited to aeroplanes or TMG, depending on which aircraft the flight instruction was completed. The privileges will be extended if the pilot holds a licence for aeroplanes or TMG and has successfully completed at least 3 dual training flights covering the full towing training syllabus in either aircraft, as relevant.

(e) In order to exercise the privileges of the sailplane or banner towing ratings, the holder of the rating shall have completed a minimum of 5 tows during the last 24 months.

(f) When the pilot does not comply with the requirement in (e), before resuming the exercise of his/her privileges, the pilot shall complete the missing tows with or under the supervision of an instructor.

LIC.810 Night rating

(a) Aeroplanes, TMGs, airships.

(1) [If the privileges of a PPL for aeroplanes, TMGs, or airships are to be exercised in VFR conditions at night, applicants shall have completed a training course at an ATO. The course shall comprise:]

(i) theoretical knowledge instruction;

(ii) at least 5 hours of flight time in the appropriate aircraft category at night, including at least 3 hours of dual instruction, including at least 1 hour of cross-country navigation with at least one dual cross-country flight of at least 50 km and 5 solo take-offs and 5 solo full-stop landings.

(2) [Before completing the training at night, holders of a LAPL issued prior to 01 January 2021 shall have completed the basic instrument flight training required for the issue of the PPL.]

(3) When applicants hold both a single-engine piston aeroplane (land) and a TMG class rating, they may complete the requirements in (1) above in either class or both classes.

(b) Helicopters. If the privileges of a PPL for helicopters are to be exercised in VFR conditions at night, the applicant shall have:

(1) completed at least 100 hours of flight time as pilot in helicopters after the issue of the licence, including at least 60 hours as PIC on helicopters and 20 hours of cross-country flight;

(2) completed a training course at an ATO. The course shall be completed within a period of 6 months and comprise:

(i) 5 hours of theoretical knowledge instruction;

(ii) 10 hours of helicopter dual instrument instruction time; and

(iii) 5 hours of flight time at night, including at least 3 hours of dual instruction, including at least 1 hour of cross-country navigation and 5 solo night circuits. Each circuit shall include a take-off and a landing.

(3) An applicant who holds or has held an IR in an aeroplane or TMG, shall be credited with 5 hours towards the requirement in (2)(ii) above.

(c) Balloons. [If the privileges of a BPL are to be exercised in VFR conditions at night, applicants shall complete at least 2 instruction flights at night of at least 1 hour each.]

(d) Remotely Piloted Aircraft or Remote Pilot Station.

(1) If the privileges of RPA or RPS are to be exercised in VFR conditions at night, applicants shall have completed an approved training course. The course shall comprise:

(i) theoretical knowledge instruction;

(ii) at least 5 hours of flight time in the appropriate aircraft category at night, including at least 3 hours of dual instruction, including at least 1 hour of cross-country navigation and 5 solo take-offs and 5 solo full-stop landings.

LIC.815 Mountain rating

(a) Privileges. The privileges of the holder of a mountain rating are to conduct flights with aeroplanes or TMG to and from surfaces designated as requiring such a rating by the appropriate authorities designated by the Authority. The initial mountain rating may be obtained either on:

(1) wheels, to grant the privilege to fly to and from such surfaces when they are not covered by snow; or

(2) skis, to grant the privilege to fly to and from such surfaces when they are covered by snow.

(3) The privileges of the initial rating may be extended to either wheel or ski privileges when the pilot has undertaken an appropriate additional familiarisation course, including theoretical knowledge instruction and flight training, with a mountain flight instructor.

(b) Training course. Applicants for a mountain rating shall have completed, within a period of 24 months, a course of theoretical knowledge instruction and flight training at an ATO. The content of the course shall be appropriate to the privileges sought.

(c) Skill test. After the completion of the training, the applicant shall pass a skill test with an FE qualified for this purpose. The skill test shall contain:

(1) a verbal examination of theoretical knowledge;

(2) 6 landings on at least 2 different surfaces designated as requiring a mountain rating other than the surface of departure.

(d) Validity. A mountain rating shall be valid for a period of 24 months.

(e) Revalidation. For revalidation of a mountain rating, the applicant shall:

(1) have completed at least 6 mountain landings in the past 24 months; or

(2) pass a proficiency check. The proficiency check shall comply with the requirements in (c).

(f) Renewal. If the rating has lapsed, the applicant shall comply with the requirement in (e)(2).

LIC.820 Flight test rating

(a) Holders of a pilot licence for aeroplanes or helicopters shall only act as PIC in category 1 or 2 flight tests, as defined in CAR DEF, when they hold a flight test rating.

(b) The obligation to hold a flight test rating established in (a) shall only apply to flight tests conducted on:

(1) helicopters certificated or to be certificated in accordance with the standards of CS-27 or CS-29 or equivalent airworthiness codes; or

(2) aeroplanes certificated or to be certificated in accordance with:

(i) the standards of CS-25 or equivalent airworthiness codes; or

(ii) the standards of CS-23 or equivalent airworthiness codes, except for aeroplanes with a maximum take-off mass of less than 2 000 kg.

(c) The privileges of the holder of a flight test rating are to, within the relevant aircraft category:

(1) in the case of a category 1 flight test rating, conduct all categories of flight tests, either as PIC or co-pilot;

(2) in the case of a category 2 flight test rating:

(i) conduct category 1 flight tests,:

— as a co-pilot, or

— as PIC, in the case of aeroplanes referred to in (b)(2)(ii), except for those within the commuter category or having a design diving speed above 0.6 mach or a maximum ceiling above 25 000 feet;

(ii) conduct all other categories of flight tests, either as PIC or co-pilot;

(3) in addition, for both category 1 or 2 flight test ratings, to conduct flights specifically related to the activity of design and production organisations, within the scope of their privileges, when the requirements of Subpart H may not be complied with.

(d) Applicants for the first issue of a flight test rating shall:

(1) hold at least a CPL and an IR in the appropriate aircraft category;

(2) have completed at least 1 000 hours of flight time in the appropriate aircraft category, of which at least 400 hours as PIC;

(3) have completed a training course at an ATO appropriate to the intended aircraft and category of flights. The training shall cover at least the following subjects:

— Performance,

— Stability and control/Handling qualities,

— Systems,

— Test management,

— Risk/Safety management.

(e) The privileges of holders of a flight test rating may be extended to another category of flight test and another category of aircraft when they have completed an additional course of training at an ATO.

LIC.825 High Altitude endorsement to existing RPA rating

No person shall act as remote pilot in command of a RPA capable of operating at high altitudes (a RPA that has a service ceiling or maximum operating altitude, whichever is lower, above 29,000 MSL) unless the person has:

(a) received and logged ground training from a RPAS instructor and received an endorsement in the logbook from the RPAS instructor certifying the person has satisfactorily accomplished ground training in at least the in the following subjects:

(1) High-altitude aerodynamics and meteorology;

(2) Airspace flight rules related to high altitude operations.

(b) received and logged RPA flight training from a RPAS instructor and received an endorsement in the logbook from the RPAS instructor certifying the person has satisfactorily accomplished flight training on a RPAS or in an FSTD that is representative of a high altitude RPA, in at least the in the following subjects:

(1) normal cruise flight operations while operating above 29,000 feet MSL;

(2) emergency descent procedures;

(3) loss of communication/data link;

(4) airframe ice accumulation;

(5) lighting strike and electrical disruption; and

(6) clear air turbulence.

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SUBPART J

INSTRUCTORS

SECTION 1

Common requirements

LIC.900 Instructor certificates

(a) General. A person shall only carry out:

(1) flight instruction in aircraft when he/she holds:

(i) a pilot licence issued or accepted in accordance with this Regulation;

(ii) an instructor certificate appropriate to the instruction given, issued in accordance with this Subpart;

(2) synthetic flight instruction or MCC instruction when he/she holds an instructor certificate appropriate to the instruction given, issued in accordance with this Subpart.

(b) Special conditions:

(1) In the case of introduction of new aircraft in San Marino or in an operator's fleet, when compliance with the requirements established in this Subpart is not possible, the Authority may issue a specific certificate giving privileges for flight instruction. Such a certificate shall be limited to the instruction flights necessary for the introduction of the new type of aircraft and its validity shall not, in any case, exceed 1 year.

(2) Holders of a certificate issued in accordance with (b)(1) who wish to apply for the issue of an instructor certificate shall comply with the pre-requisites and revalidation requirements established for that category of instructor. Notwithstanding LIC.905.TRI(b), a TRI certificate issued in accordance with this (sub)paragraph will include the privilege to instruct for the issue of a TRI or SFI certificate for the relevant type.

(c) Instruction outside the territory of the San Marino:

(1) Notwithstanding paragraph (a), in the case of flight instruction provided in an ATO located outside the territory of San Marino, the Authority may issue an instructor certificate to an applicant holding a pilot licence issued by another country in accordance with Annex 1 to the Chicago Convention, provided that the applicant:

(i) holds at least an equivalent licence, rating, or certificate to the one for which they are authorised to instruct and in any case at least a CPL;

(ii) complies with the requirements established in this Subpart for the issue of the relevant instructor certificate;

(iii) demonstrates to the Authority an adequate level of knowledge of aviation safety rules to be able to exercise instructional privileges in accordance with these regulations.

(2) The certificate shall be limited to providing flight instruction:

(i) in ATOs located outside the territory of San Marino;

(ii) to student pilots who have sufficient knowledge of the language in which flight instruction is given.

LIC.915 General pre-requisites and requirements for instructors

(a) General. An applicant for an instructor certificate shall be at least 18 years of age.

(b) Additional requirements for instructors providing flight instruction in aircraft. An applicant for or the holder of an instructor certificate with privileges to conduct flight instruction in an aircraft shall:

(1) hold at least the licence and, where relevant, the rating for which flight instruction is to be given;

(2) except in the case of the flight test instructor, have:

(i) completed at least 15 hours of flight as a pilot on the class or type of aircraft on which flight instruction is to be given, of which a maximum of 7 hours may be in an FSTD representing the class or type of aircraft, if applicable; or

(ii) passed an assessment of competence for the relevant category of instructor on that class or type of aircraft;

(3) be entitled to act as PIC on the aircraft during such flight instruction.

(c) Credit towards further ratings and for the purpose of revalidation:

(1) Applicants for further instructor certificates may be credited with the teaching and learning skills already demonstrated for the instructor certificate held.

(2) Hours flown as an examiner during skill tests or proficiency checks shall be credited in full towards revalidation requirements for all instructor certificates held.

LIC.920 Instructor competencies and assessment

All instructors shall be trained to achieve the following competences:

— Prepare resources,

— Create a climate conducive to learning,

— Present knowledge,

— Integrate Threat and Error Management (TEM) and crew resource management,

— Manage time to achieve training objectives,

— Facilitate learning,

— Assess trainee performance,

— Monitor and review progress,

— Evaluate training sessions,

— Report outcome.

LIC.925 Additional requirements for instructors for the MPL

(a) Instructors conducting training for the MPL shall:

(1) have successfully completed an MPL instructor training course at an ATO; and

(2) additionally, for the basic, intermediate and advanced phases of the MPL integrated training course:

(i) be experienced in multi-pilot operations; and

(ii) have completed initial crew resource management training with a commercial air transport operator approved in accordance with the applicable air operations requirements.

(b) MPL instructors training course

(1) The MPL instructor training course shall comprise at least 14 hours of training. Upon completion of the training course, the applicant shall undertake an assessment of instructor competencies and of knowledge of the competency-based approach to training.

(2) The assessment shall consist of a practical demonstration of flight instruction in the appropriate phase of the MPL training course. This assessment shall be conducted by an examiner qualified in accordance with Subpart K.

(3) Upon successful completion of the MPL training course, the ATO shall issue an MPL instructor qualification certificate to the applicant.

(c) In order to maintain the privileges, the instructor shall have, within the preceding 12 months, conducted within an MPL training course:

(1) 1 simulator session of at least 3 hours; or

(2) 1 air exercise of at least 1 hour comprising at least 2 take-offs and landings.

(d) If the instructor has not fulfilled the requirements of (c), before exercising the privileges to conduct flight instruction for the MPL he/she shall:

(1) receive refresher training at an ATO to reach the level of competence necessary to pass the assessment of instructor competencies; and

(2) pass the assessment of instructor competencies as set out in (b)(2).

LIC.930 Training course

Applicants for an instructor certificate shall have completed a course of theoretical knowledge and flight instruction at an ATO. In addition to the specific elements prescribed in these regulations for each category of instructor, the course shall contain the elements required in LIC.920.

LIC.935 Assessment of competence

(a) Except for the multi-crew cooperation instructor (MCCI), the synthetic training instructor (STI), the mountain rating instructor (MI) and the flight test instructor (FTI), an applicant for an instructor certificate shall pass an assessment of competence in the appropriate aircraft category to demonstrate to an examiner qualified in accordance with Subpart K the ability to instruct a student pilot to the level required for the issue of the relevant licence, rating or certificate.

(b) This assessment shall include:

(1) the demonstration of the competencies described in LIC.920, during pre-flight, post-flight and theoretical knowledge instruction;

(2) oral theoretical examinations on the ground, pre-flight and post-flight briefings and in-flight demonstrations in the appropriate aircraft class, type or FSTD;

(3) exercises adequate to evaluate the instructor's competencies.

(c) The assessment shall be performed on the same class or type of aircraft or FSTD used for the flight instruction.

(d) When an assessment of competence is required for revalidation of an instructor certificate, an applicant who fails to achieve a pass in the assessment before the expiry date of an instructor certificate shall not exercise the privileges of that certificate until the assessment has successfully been completed.

LIC.940 Validity of instructor certificates

With the exception of the MI, and without prejudice to LIC.900(b)(1), instructor certificates shall be valid for a period of 3 years.

SECTION 2

Specific requirements for the flight instructor — FI (non-RPA)

Note: Refer to Section 12 for specific requirements for the Remotely Piloted Aircraft Flight Instructor.

LIC.905.FI FI — Privileges and conditions

The privileges of an FI are to conduct flight instruction for the issue, revalidation or renewal of:

(a) [a PPL, SPL or BPL in the appropriate aircraft category;]

(b) class and type ratings for single-pilot, single-engine aircraft, except for single-pilot high performance complex aeroplanes; class and group extensions for balloons and class extensions for sailplanes;

(c) type ratings for single or multi-pilot airship;

(d) a CPL in the appropriate aircraft category, provided that the FI has completed at least 500 hours of flight time as a pilot on that aircraft category, including at least 200 hours of flight instruction;

(e) the night rating, provided that the FI:

(1) is qualified to fly at night in the appropriate aircraft category;

(2) has demonstrated the ability to instruct at night to an FI qualified in accordance with (i) below; and

(3) complies with the night experience requirement of LIC.060(b)(2);

(f) a towing or aerobatic rating, provided that such privileges are held and the FI has demonstrated the ability to instruct for that rating to an FI qualified in accordance with (i) below;

(g) an IR in the appropriate aircraft category, provided that the FI has:

(1) at least 200 hours of flight time under IFR, of which up to 50 hours may be instrument ground time in an FFS, an FTD 2/3 or FNPT II;

(2) completed as a student pilot the IRI training course and has passed an assessment of competence for the IRI certificate; and

(3) in addition:

(i) for multi-engine aeroplanes, met the requirements for the issue of a CRI certificate;

(ii) for multi-engine helicopters, met the requirements for the issue of a TRI certificate;

(h) single-pilot multi-engine class or type ratings, except for single-pilot high performance complex aeroplanes, provided that the FI meets:

(1) in the case of aeroplanes, the pre-requisites for the CRI training course established in LIC.915.CRI(a) and the requirements of LIC.930.CRI and LIC.935;

(2) in the case of helicopters, the requirements established in LIC.910.TRI(c)(1) and the pre-requisites for the TRI(H) training course established in LIC.915.TRI(b)(2);

(i) an FI, IRI, CRI, STI or MI certificate provided that the FI has:

(1) completed at least:

(i) in the case of a FI(S), at least 50 hours or 150 launches of flight instruction on sailplanes;

(ii) in the case of a FI(B), at least 50 hours or 50 take-offs of flight instruction on balloons;

(iii) in all other cases, 500 hours of flight instruction in the appropriate aircraft category or as established by the Authority;

(2) passed an assessment of competence in accordance with LIC.935 in the appropriate aircraft category to demonstrate to a Flight Instructor Examiner (FIE) the ability to instruct for the FI certificate;

(j) an MPL, provided that the FI:

(1) for the core flying phase of the training, has completed at least 500 hours of flight time as a pilot on aeroplanes, including at least 200 hours of flight instruction;

(2) for the basic phase of the training:

(i) holds a multi-engine aeroplane IR and the privilege to instruct for an IR; and

(ii) has at least 1 500 hours of flight time in multi-crew operations;

(3) in the case of an FI already qualified to instruct on ATP(A) or CPL(A)/IR integrated courses, the requirement of (2)(ii) may be replaced by the completion of a structured course of training consisting of:

(i) MCC qualification;

(ii) observing 5 sessions of flight instruction in Phase 3 of an MPL course;

(iii) observing 5 sessions of flight instruction in Phase 4 of an MPL course;

(iv) observing 5 operator recurrent line oriented flight training sessions;

(v) the content of the MCCI instructor course.

In this case, the FI shall conduct its first 5 instructor sessions under the supervision of a TRI(A), MCCI(A) or SFI(A) qualified for MPL flight instruction.

LIC.910.FI FI — Restricted privileges

(a) An FI shall have his/her privileges limited to conducting flight instruction under the supervision of an FI for the same category of aircraft nominated by the ATO for this purpose, in the following cases:

(1) [for the issue of the PPL, SPL or BPL;]

(2) in all integrated courses at PPL level, in case of aeroplanes and helicopters;

(3) for class and type ratings for single-pilot, single-engine aircraft, class and group extensions in the case of balloons and class extensions in the case of sailplanes;

(4) for the night, towing or aerobatic ratings.

(b) While conducting training under supervision, in accordance with (a), the FI shall not have the privilege to authorise student pilots to conduct first solo flights and first solo cross-country flights.

(c) The limitations in (a) and (b) shall be removed from the FI certificate when the FI has completed at least:

(1) for the FI(A), 100 hours of flight instruction in aeroplanes or TMGs and, in addition has supervised at least 25 student solo flights;

(2) for the FI(H) 100 hours of flight instruction in helicopters and, in addition has supervised at least 25 student solo flight air exercises;

(3) for the FI(As), FI(S) and FI(B), 15 hours or 50 take-offs of flight instruction covering the full training syllabus for the issue of a PPL(As), SPL or BPL in the appropriate aircraft category.

(4) for the FI(RPA), as established by the Authority.

LIC.915.FI FI — Pre-requisites

An applicant for an FI certificate shall:

(a) in the case of the FI(A) and FI(H):

(1) have received at least 10 hours of instrument flight instruction on the appropriate aircraft category, of which not more than 5 hours may be instrument ground time in an FSTD;

(2) have completed 20 hours of VFR cross-country flight on the appropriate aircraft category as PIC; and

(b) additionally, for the FI(A):

(1) hold at least a CPL(A); or

(2) hold at least a PPL(A) and have:

(i) [met the requirements for CPL theoretical knowledge; and]

(ii) completed at least 200 hours of flight time on aeroplanes or TMGs, of which 150 hours as PIC;

(3) have completed at least 30 hours on single-engine piston powered aeroplanes of which at least 5 hours shall have been completed during the 6 months preceding the pre-entry flight test set out in LIC.930.FI(a);

(4) have completed a VFR cross-country flight as PIC, including a flight of at least 540 km (300 NM) in the course of which full stop landings at 2 different aerodromes shall be made;

(c) additionally, for the FI(H), have completed 250 hours total flight time as pilot on helicopters of which:

(1) at least 100 hours shall be as PIC, if the applicant holds at least a CPL(H); or

(2) at least 200 hours as PIC, if the applicant holds at least a PPL(H) and has met the requirements for CPL theoretical knowledge;

(d) for a FI(As), have completed 500 hours of flight time on airships as PIC, of which 400 hours shall be as PIC holding a CPL(As);

(e) for a FI(S), have completed 100 hours of flight time and 200 launches as PIC on sailplanes. Additionally, where the applicant wishes to give flight instruction on TMGs, he/she shall have completed 30 hours of flight time as PIC on TMGs and an additional assessment of competence on a TMG in accordance with LIC.935 with an FI qualified in accordance with LIC.905.FI(j);

(f) for a FI(B), have completed 75 hours of balloon flight time as PIC, of which at least 15 hours have to be in the class for which flight instruction will be given.

LIC.930.FI FI — Training course

(a) Applicants for the FI certificate shall have passed a specific pre-entry flight test with an FI qualified in accordance with LIC.905.FI(i) within the 6 months preceding the start of the course, to assess their ability to undertake the course. This pre-entry flight test shall be based on the proficiency check for class and type ratings as set out in Appendix 9 to these regulations.

(b) The FI training course shall include:

(1) 25 hours of teaching and learning;

(2) (i) in the case of a FI(A), (H) and (As), at least 100 hours of theoretical knowledge instruction, including progress tests;

(ii) in the case of a FI(B) or FI(S), at least 30 hours of theoretical knowledge instruction, including progress tests;

(3) (i) in the case of a FI(A) and (H), at least 30 hours of flight instruction, of which 25 hours shall be dual flight instruction, of which 5 hours may be conducted in an FFS, an FNPT I or II or an FTD 2/3;

(ii) in the case of a FI(As), at least 20 hours of flight instruction, of which 15 hours shall be dual flight instruction;

(iii) in the case of a FI(S), at least 6 hours or 20 take-offs of flight instruction;

(iv) in the case of a FI(S) providing training on TMGs, at least 6 hours of dual flight instruction on TMGs;

(v) in the case of a FI(B), at least 3 hours including 3 take-offs of flight instruction.

(c) When applying for an FI certificate in another category of aircraft, pilots holding or having held:

(1) a FI(A), (H) or (As) shall be credited with 55 hours towards the requirement in (b)(2)(i) or with 18 hours towards the requirements in (b)(2)(ii).

LIC.940.FI FI — Revalidation and renewal

(a) For revalidation of an FI certificate, the holder shall fulfil 2 of the following 3 requirements:

(1) complete:

(i) in the case of a FI(A) and (H), at least 50 hours of flight instruction in the appropriate aircraft category during the period of validity of the certificate as, FI, TRI, CRI, IRI, MI or examiner. If the privileges to instruct for the IR are to be revalidated, 10 of these hours shall be flight instruction for an IR and shall have been completed within the last 12 months preceding the expiry date of the FI certificate;

(ii) in the case of a FI(As), at least 20 hours of flight instruction in airships as FI, IRI or as examiner during the period of validity of the certificate. If the privileges to instruct for the IR are to be revalidated, 10 of these hours shall be flight instruction for an IR and shall have been completed within the last 12 months preceding the expiry date of the FI certificate;

(iii) in the case of a FI(S), at least 30 hours or 60 take-offs of flight instruction in sailplanes, powered sailplanes or TMG as, FI or as examiner during the period of validity of the certificate;

(iv) in the case of a FI(B), at least 6 hours of flight instruction in balloons as, FI or as examiner during the period of validity of the certificate;

(2) attend an instructor refresher seminar, within the validity period of the FI certificate;

(3) pass an assessment of competence in accordance with LIC.935, within the 12 months preceding the expiry date of the FI certificate.

(b) For the at least each alternate subsequent revalidation in the case of FI(A) or FI(H), or each third revalidation, in the case of FI(As), (S) and (B), the holder shall have to pass an assessment of competence in accordance with LIC.935.

(c) Renewal. If the FI certificate has lapsed, the applicant shall, within a period of 12 months before renewal:

(1) attend an instructor refresher seminar;

(2) pass an assessment of competence in accordance with LIC.935.

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SECTION 3

Specific requirements for the type rating instructor — TRI

LIC.905.TRI TRI — Privileges and conditions

The privileges of a TRI are to instruct for:

(a) the revalidation and renewal of IRs, provided the TRI holds a valid IR;

(b) the issue of a TRI or SFI certificate, provided that the holder has 3 years of experience as a TRI; and

(c) in the case of the TRI for single-pilot aeroplanes:

(1) the issue, revalidation and renewal of type ratings for single-pilot high performance complex aeroplanes when the applicant seeks privileges to operate in single-pilot operations. The privileges of the TRI(SPA) may be extended to flight instruction for single-pilot high performance complex aeroplanes type ratings in multi-pilot operations, provided that the TRI:

(i) holds an MCCI certificate; or

(ii) holds or has held a TRI certificate for multi-pilot aeroplanes;

(2) the MPL course on the basic phase, provided that he/she has the privileges extended to multi-pilot operations and holds or has held a FI(A) or an IRI(A) certificate;

(d) in the case of the TRI for multi-pilot aeroplanes:

(1) the issue, revalidation and renewal of type ratings for:

(i) multi-pilot aeroplanes;

(ii) single-pilot high performance complex aeroplanes when the applicant seeks privileges to operate in multi-pilot operations;

(2) MCC training;

(3) the MPL course on the basic, intermediate and advanced phases, provided that, for the basic phase, they hold or have held a FI(A) or IRI(A) certificate;

(e) in the case of the TRI for helicopters:

(1) the issue, revalidation and renewal of helicopter type ratings;

(2) MCC training, provided he/she holds a multi-pilot helicopter type rating;

(3) the extension of the single-engine IR(H) to multi-engine IR(H);

(f) in the case of the TRI for powered-lift aircraft:

(1) the issue, revalidation and renewal of powered-lift type ratings;

(2) MCC training.

LIC.910.TRI TRI — Restricted privileges

(a) General. If the TRI training is carried out in an FFS only, the privileges of the TRI shall be restricted to training in the FFS. In this case, the TRI may conduct line flying under supervision, provided that the TRI training course has included additional training for this purpose.

(b) TRI for aeroplanes and for powered-lift aircraft — TRI(A) and TRI(PL). The privileges of a TRI are restricted to the type of aeroplane or powered-lift aircraft in which the training and the assessment of competence was taken. The privileges of the TRI shall be extended to further types when the TRI has:

(1) completed within the 12 months preceding the application, at least 15 route sectors, including take-offs and landings on the applicable aircraft type, of which 7 sectors may be completed in an FFS;

(2) completed the technical training and flight instruction parts of the relevant TRI course;

(3) passed the relevant sections of the assessment of competence in accordance with LIC.935 in order to demonstrate to an FIE or a TRE qualified in accordance with Subpart K his/her ability to instruct a pilot to the level required for the issue of a type rating, including pre-flight, post-flight and theoretical knowledge instruction.

(c) TRI for helicopters — TRI(H).

(1) The privileges of a TRI(H) are restricted to the type of helicopter in which the skill test for the issue of the TRI certificate was taken. The privileges of the TRI shall be extended to further types when the TRI has:

(i) completed the appropriate type technical part of the TRI course on the applicable type of helicopter or an FSTD representing that type;

(ii) conducted at least 2 hours of flight instruction on the applicable type, under the supervision of an adequately qualified TRI(H); and

(iii) passed the relevant sections of the assessment of competence in accordance with LIC.935 in order to demonstrate to an FIE or TRE qualified in accordance with Subpart K his/her ability to instruct a pilot to the level required for the issue of a type rating, including pre-flight, post-flight and theoretical knowledge instruction.

(2) Before the privileges of a TRI(H) are extended from single-pilot to multi-pilot privileges on the same type of helicopters, the holder shall have at least 100 hours in multi-pilot operations on this type.

(d) Notwithstanding the paragraphs above, holders of a TRI certificate who have been issued with a type rating in accordance with LIC.725(e) shall be entitled to have their TRI privileges extended to that new type of aircraft.

LIC.915.TRI TRI — Pre-requisites

An applicant for a TRI certificate shall:

(a) hold a CPL, MPL or ATPL pilot licence on the applicable aircraft category;

(b) for a TRI(MPA) certificate:

(1) have completed 1 500 hours flight time as a pilot on multi-pilot aeroplanes; and

(2) have completed, within the 12 months preceding the date of application, 30 route sectors, including take-offs and landings, as PIC or co-pilot on the applicable aeroplane type, of which 15 sectors may be completed in an FFS representing that type;

(c) for a TRI(SPA) certificate:

(1) have completed, within the 12 months preceding the date of application, 30 route sectors, including take-offs and landings, as PIC on the applicable aeroplane type, of which 15 sectors may be completed in an FFS representing that type; and

(2) (i) have competed at least 500 hours flight time as pilot on aeroplanes, including 30 hours as PIC on the applicable type of aeroplane; or

(ii) hold or have held an FI certificate for multi-engine aeroplanes with IR(A) privileges;

(d) for TRI(H):

(1) for a TRI(H) certificate for single-pilot single-engine helicopters, have completed 250 hours as a pilot on helicopters;

(2) for a TRI(H) certificate for single-pilot multi-engine helicopters, have completed 500 hours as pilot of helicopters, including 100 hours as PIC on single-pilot multi-engine helicopters;

(3) for a TRI(H) certificate for multi-pilot helicopters, have completed 1 000 hours of flight time as a pilot on helicopters, including:

(i) 350 hours as a pilot on multi-pilot helicopters; or

(ii) for applicants already holding a TRI(H) certificate for single-pilot multi-engine helicopters, 100 hours as pilot of that type in multi-pilot operations.

(4) Holders of a FI(H) certificate shall be fully credited towards the requirements of (1) and (2) in the relevant single- pilot helicopter;

(e) for TRI(PL):

(1) have completed 1 500 hours flight time as a pilot on multi-pilot aeroplanes, powered-lift, or multi-pilot helicopters; and

(2) have completed, within the 12 months preceding the application, 30 route sectors, including take-offs and landings, as PIC or co-pilot on the applicable powered-lift type, of which 15 sectors may be completed in an FFS representing that type.

LIC.930.TRI TRI — Training course

(a) The TRI training course shall include, at least:

(1) 25 hours of teaching and learning;

(2) 10 hours of technical training, including revision of technical knowledge, the preparation of lesson plans and the development of classroom/simulator instructional skills;

(3) 5 hours of flight instruction on the appropriate aircraft or a simulator representing that aircraft for single-pilot aircraft and 10 hours for multi-pilot aircraft or a simulator representing that aircraft.

(b) Applicants holding or having held an instructor certificate shall be fully credited towards the requirement of (a)(1).

(c) An applicant for a TRI certificate who holds an SFI certificate for the relevant type shall be fully credited towards the requirements of this paragraph for the issue of a TRI certificate restricted to flight instruction in simulators.

LIC.935.TRI TRI — Assessment of competence

If the TRI assessment of competence is conducted in an FFS, the TRI certificate shall be restricted to flight instruction in FFSs. The restriction shall be lifted when the TRI has passed the assessment of competence on an aircraft.

LIC.940.TRI TRI — Revalidation and renewal

(a) Revalidation

(1) Aeroplanes. For revalidation of a TRI(A) certificate, the applicant shall, within the last 12 months preceding the expiry date of the certificate, fulfil one of the following 3 requirements:

(i) conduct one of the following parts of a complete type rating training course: simulator session of at least 3 hours or one air exercise of at least 1 hour comprising a minimum of 2 take-offs and landings;

(ii) receive instructor refresher training as a TRI at an ATO;

(iii) pass the assessment of competence in accordance with LIC.935.

(2) Helicopters and powered lift. For revalidation of a TRI (H) or TRI(PL) certificate, the applicant shall, within the validity period of the TRI certificate, fulfil 2 of the following 3 requirements:

(i) complete 50 hours of flight instruction on each of the types of aircraft for which instructional privileges are held or in an FSTD representing those types, of which at least 15 hours shall be within the 12 months preceding the expiry date of the TRI certificate. In the case of TRI(PL), these hours of flight instruction shall be flown as a TRI or type rating examiner (TRE), or SFI or synthetic flight examiner (SFE). In the case of TRI(H), time flown as FI, instrument rating instructor (IRI), synthetic training instructor (STI) or as any kind of examiner shall also be relevant for this purpose;

(ii) receive instructor refresher training as a TRI at an ATO;

(iii) pass the assessment of competence in accordance with LIC.935.

(3) For at least each alternate revalidation of a TRI certificate, the holder shall have to pass the assessment of competence in accordance with LIC.935.

(4) If a person holds a TRI certificate on more than one type of aircraft within the same category, the assessment of competence taken on one of those types shall revalidate the TRI certificate for the other types held within the same category of aircraft.

(5) Specific requirements for revalidation of a TRI(H). A TRI(H) holding a FI(H) certificate on the relevant type shall have full credit towards the requirements in (a) above. In this case, the TRI(H) certificate will be valid until the expiry date of the FI(H) certificate.

(b) Renewal

(1) Aeroplanes. If the TRI (A) certificate has lapsed the applicant shall have:

(i) completed within the last 12 months preceding the application at least 30 route sectors, to include take-offs and landings on the applicable aeroplane type, of which not more than 15 sectors may be completed in a flight simulator;

(ii) completed the relevant parts of a TRI course at an approved ATO;

(iii) conducted on a complete type rating course at least 3 hours of flight instruction on the applicable type of aeroplane under the supervision of a TRI(A).

(2) Helicopters and powered lift. If the TRI (H) or TRI(PL) certificate has lapsed, the applicant shall, within a period of 12 months before renewal:

(i) receive instructor refresher training as a TRI at an ATO, which should cover the relevant elements of the TRI training course; and

(ii) pass the assessment of competence in accordance with LIC.935 in each of the types of aircraft in which renewal of the instructional privileges is sought.

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SECTION 4

Specific requirements for the class rating instructor — CRI

LIC.905.CRI CRI — Privileges and conditions

(a) The privileges of a CRI are to instruct for:

(1) the issue, revalidation or renewal of a class or type rating for non-complex non-high performance single-pilot aeroplanes, when the privileges sought by the applicant are to fly in single-pilot operations;

(2) a towing or aerobatic rating for the aeroplane category, provided the CRI holds the relevant rating and has demonstrated the ability to instruct for that rating to an FI qualified in accordance with LIC.905.FI(i).

(b) The privileges of a CRI are restricted to the class or type of aeroplane in which the instructor assessment of competence was taken. The privileges of the CRI shall be extended to further classes or types when the CRI has completed, within the last 12 months:

(1) 15 hours flight time as PIC on aeroplanes of the applicable class or type of aeroplane;

(2) one training flight from the right hand seat under the supervision of another CRI or FI qualified for that class or type occupying the other pilot's seat.

LIC.915.CRI CRI — Pre-requisites

An applicant for a CRI certificate shall have completed at least:

(a) for multi-engine aeroplanes:

(1) 500 hours flight time as a pilot on aeroplanes;

(2) 30 hours as PIC on the applicable class or type of aeroplane;

(b) for single-engine aeroplanes:

(1) 300 hours flight time as a pilot on aeroplanes;

(2) 30 hours as PIC on the applicable class or type of aeroplane.

LIC.930.CRI CRI — Training course

(a) The training course for the CRI shall include, at least:

(1) 25 hours of teaching and learning instruction;

(2) 10 hours of technical training, including revision of technical knowledge, the preparation of lesson plans and the development of classroom/simulator instructional skills;

(3) 5 hours of flight instruction on multi-engine aeroplanes, or 3 hours of flight instruction on single-engine aeroplanes, given by a FI(A) qualified in accordance with LIC.905.FI(i).

(b) Applicants holding or having held an instructor certificate shall be fully credited towards the requirement of (a)(1).

LIC.940.CRI CRI — Revalidation and renewal

(a) For revalidation of a CRI certificate the applicant shall, within the 12 months preceding the expiry date of the CRI certificate:

(1) conduct at least 10 hours of flight instruction in the role of a CRI. If the applicant has CRI privileges on both single-engine and multi-engine aeroplanes, the 10 hours of flight instruction shall be equally divided between single-engine and multi-engine aeroplanes; or

(2) receive refresher training as a CRI at an ATO; or

(3) pass the assessment of competence in accordance with LIC.935 for multi-engine or single-engine aeroplanes, as relevant.

(b) For at least each alternate revalidation of a CRI certificate, the holder shall have to comply with the requirement of (a)(3).

(c) Renewal. If the CRI certificate has lapsed, the applicant shall, within a period of 12 months before renewal:

(1) receive refresher training as a CRI at an ATO;

(2) pass the assessment of competence established in LIC.935.

SECTION 5

Specific requirements for the instrument rating instructor — IRI

LIC.905.IRI IRI — Privileges and conditions

(a) The privileges of an IRI are to instruct for the issue, revalidation and renewal of an IR on the appropriate aircraft category.

(b) Specific requirements for the MPL course. To instruct for the basic phase of training on an MPL course, the IRI(A) shall:

(1) hold an IR for multi-engine aeroplanes; and

(2) have completed at least 1 500 hours of flight time in multi-crew operations.

(3) In the case of IRI already qualified to instruct on ATP(A) or CPL(A)/IR integrated courses, the requirement of (b)(2) may be replaced by the completion of the course provided for in paragraph LIC.905.FI(j)(3).

LIC.915.IRI IRI — Pre-requisites

An applicant for an IRI certificate shall:

(a) for an IRI(A):

(1) have completed at least 800 hours of flight time under IFR, of which at least 400 hours shall be in aeroplanes; and

(2) in the case of applicants of an IRI(A) for multi-engine aeroplanes, meet the requirements of paragraph LIC.915.CRI(a);

(b) for an IRI(H):

(1) have completed at least 500 hours of flight time under IFR, of which at least 250 hours shall be instrument flight time in helicopters; and

(2) in the case of applicants for an IR(H) for multi-pilot helicopters, meet the requirements of LIC.905.FI(g)(3)(ii);

(c) for an IRI(As), have completed at least 300 hours of flight time under IFR, of which at least 100 hours shall be instrument flight time in airships.

LIC.930.IRI IRI — Training course

(a) The training course for the IRI shall include, at least:

(1) 25 hours of teaching and learning instruction;

(2) 10 hours of technical training, including revision of instrument theoretical knowledge, the preparation of lesson plans and the development of classroom instructional skills;

(3) (i) for the IRI(A), at least 10 hours of flight instruction on an aeroplane, FFS, FTD 2/3 or FPNT II. In the case of applicants holding a FI(A) certificate, these hours are reduced to 5;

(ii) for the IRI(H), at least 10 hours of flight instruction on a helicopter, FFS, FTD 2/3 or FNPT II/III;

(iii) for the IRI(As), at least 10 hours of flight instruction on an airship, FFS, FTD 2/3 or FNPT II.

(b) Flight instruction shall be given by an FI qualified in accordance with LIC.905.FI(i).

(c) Applicants holding or having held an instructor certificate shall be fully credited towards the requirement of (a)(1).

LIC.940.IRI IRI — Revalidation and renewal

For revalidation and renewal of an IRI certificate, the holder shall meet the requirements for revalidation and renewal of an FI certificate, in accordance with LIC.940.FI.

SECTION 6

Specific requirements for the synthetic flight instructor — SFI

LIC.905.SFI SFI — Privileges and conditions

The privileges of an SFI are to carry out synthetic flight instruction, within the relevant aircraft category, for:

(a) the issue, revalidation and renewal of an IR, provided that he/she holds or has held an IR in the relevant aircraft category and has completed an IRI training course; and

(b) in the case of SFI for single-pilot aeroplanes:

(1) the issue, revalidation and renewal of type ratings for single-pilot high performance complex aeroplanes, when the applicant seeks privileges to operate in single-pilot operations. The privileges of the SFI(SPA) may be extended to flight instruction for single-pilot high performance complex aeroplanes type ratings in multi-pilot operations, provided that he/she:

(i) holds an MCCI certificate; or

(ii) holds or has held a TRI certificate for multi-pilot aeroplanes; and

(2) provided that the privileges of the SFI(SPA) have been extended to multi-pilot operations in accordance with (1):

(i) MCC;

(ii) the MPL course on the basic phase;

(c) in the case of SFI for multi-pilot aeroplanes:

(1) the issue, revalidation and renewal of type ratings for:

(i) multi-pilot aeroplanes;

(ii) single-pilot high performance complex aeroplanes when the applicant seeks privileges to operate in multi-pilot operations;

(2) MCC;

(3) the MPL course on the basic, intermediate and advanced phases, provided that, for the basic phase, he/she holds or has held a FI(A) or an IRI(A) certificate;

(d) in the case of SFI for helicopters:

(1) the issue, revalidation and renewal of helicopter type ratings;

(2) MCC training, when the TRI has privileges to instruct for multi-pilot helicopters.

LIC.910.SFI SFI — Restricted privileges

The privileges of the SFI shall be restricted to the FTD 2/3 or FFS of the aircraft type in which the SFI training course was taken. The privileges may be extended to other FSTDs representing further types of the same category of aircraft when the holder has:

(a) satisfactorily completed the simulator content of the relevant type rating course; and

(b) conducted on a complete type rating course at least 3 hours of flight instruction related to the duties of an SFI on the applicable type under the supervision and to the satisfaction of a TRE qualified for this purpose.

LIC.915.SFI SFI — Pre-requisites

An applicant for an SFI certificate shall:

(a) hold or have held a CPL, MPL or ATPL in the appropriate aircraft category;

(b) have completed the proficiency check for the issue of the specific aircraft type rating in an FFS representing the applicable type, within the 12 months preceding the application; and

(c) additionally, for an SFI(A) for multi-pilot aeroplanes or SFI(PL), have:

(1) at least 1 500 hours flight time as a pilot on multi-pilot aeroplanes or powered-lift, as applicable;

(2) completed, as a pilot or as an observer, within the 12 months preceding the application, at least:

(i) 3 route sectors on the flight deck of the applicable aircraft type; or

(ii) 2 line-orientated flight training-based simulator sessions conducted by qualified flight crew on the flight deck of the applicable type. These simulator sessions shall include 2 flights of at least 2 hours each between 2 different aerodromes, and the associated pre-flight planning and de-briefing;

(d) additionally, for an SFI(A) for single-pilot high performance complex aeroplanes:

(1) have completed at least 500 hours of flight time as PIC on single-pilot aeroplanes;

(2) hold or have held a multi-engine IR(A) rating; and

(3) have met the requirements in (c)(2);

(e) additionally, for an SFI(H), have:

(1) completed, as a pilot or as an observer, at least 1 hour of flight time on the flight deck of the applicable type, within the 12 months preceding the application; and

(2) in the case of multi-pilot helicopters, at least 1 000 hours of flying experience as a pilot on helicopters, including at least 350 hours as a pilot on multi-pilot helicopters;

(3) in the case of single-pilot multi-engine helicopters, completed 500 hours as pilot of helicopters, including 100 hours as PIC on single-pilot multi-engine helicopters;

(4) in the case of single-pilot single-engine helicopters, completed 250 hours as a pilot on helicopters.

LIC.930.SFI SFI — Training course

(a) The training course for the SFI shall include:

(1) the FSTD content of the applicable type rating course;

(2) the content of the TRI training course.

(b) An applicant for an SFI certificate who holds a TRI certificate for the relevant type shall be fully credited towards the requirements of this paragraph.

LIC.940.SFI SFI — Revalidation and renewal

(a) Revalidation. For revalidation of an SFI certificate the applicant shall, within the validity period of the SFI certificate, fulfil 2 of the following 3 requirements:

(1) complete 50 hours as an instructor or an examiner in FSTDs, of which at least 15 hours shall be within the 12 months preceding the expiry date of the SFI certificate;

(2) receive instructor refresher training as an SFI at an ATO;

(3) pass the relevant sections of the assessment of competence in accordance with LIC.935.

(b) Additionally, the applicant shall have completed, on an FFS, the proficiency checks for the issue of the specific aircraft type ratings representing the types for which privileges are held.

(c) For at least each alternate revalidation of an SFI certificate, the holder shall have to comply with the requirement of (a)(3).

(d) Renewal. If the SFI certificate has lapsed, the applicant shall, within the 12 months preceding the application:

(1) complete the simulator content of the SFI training course;

(2) fulfil the requirements specified in (a)(2) and (3).

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SECTION 7

Specific requirements for the multi-crew cooperation instructor — MCCI

LIC.905.MCCI MCCI — Privileges and conditions

(a) The privileges of an MCCI are to carry out flight instruction during:

(1) the practical part of MCC courses when not combined with type rating training; and

(2) in the case of MCCI(A), the basic phase of the MPL integrated training course, provided he/she holds or has held a FI(A) or an IRI(A) certificate.

LIC.910.MCCI MCCI — Restricted privileges

The privileges of the holder of an MCCI certificate shall be restricted to the FNPT II/III MCC, FTD 2/3 or FFS in which the MCCI training course was taken. The privileges may be extended to other FSTDs representing further types of aircraft when the holder has completed the practical training of the MCCI course on that type of FNPT II/III MCC, FTD 2/3 or FFS.

LIC.915.MCCI MCCI — Pre-requisites

An applicant for an MCCI certificate shall:

(a) hold or have held a CPL, MPL or ATPL in the appropriate aircraft category;

(b) have at least:

(1) the case of aeroplanes, airships and powered-lift aircraft, 1 500 hours of flying experience as a pilot on multi- pilot operations;

(2) in the case of helicopters, 1 000 hours of flying experience as a pilot in multi-crew operations, of which at least 350 hours in multi-pilot helicopters.

LIC.930.MCCI MCCI — Training course

(a) The training course for the MCCI shall include, at least:

(1) 25 hours of teaching and learning instruction;

(2) technical training related to the type of FSTD where the applicant wishes to instruct;

(3) 3 hours of practical instruction, which may be flight instruction or MCC instruction on the relevant FNPT II/III MCC, FTD 2/3 or FFS, under the supervision of a TRI, SFI or MCCI nominated by the ATO for that purpose. These hours of flight instruction under supervision shall include the assessment of the applicant's competence as described in LIC.920.

(b) Applicants holding or having held an FI, TRI, CRI, IRI or SFI certificate shall be fully credited towards the requirement of (a)(1).

LIC.940.MCCI MCCI — Revalidation and renewal

(a) For revalidation of an MCCI certificate the applicant shall have completed the requirements of LIC.930.MCCI(a)(3) on the relevant type of FNPT II/III, FTD 2/3 or FFS, within the last 12 months of the validity period of the MCCI certificate.

(b) Renewal. If the MCCI certificate has lapsed, the applicant shall complete the requirements of LIC.930.MCCI(a)(2) and (3) on the relevant type of FNPT II/III MCC, FTD 2/3 or FFS.

SECTION 8

Specific requirements for the synthetic training instructor — STI

LIC.905.STI STI — Privileges and conditions

(a) The privileges of an STI are to carry out synthetic flight instruction in the appropriate aircraft category for:

(1) the issue of a licence;

(2) the issue, revalidation or renewal of an IR and a class or type rating for single-pilot aircraft, except for single-pilot high performance complex aeroplanes.

(b) Additional privileges for the STI(A). The privileges of an STI(A) shall include synthetic flight instruction during the core flying skills training of the MPL integrated training course.

LIC.910.STI STI — Restricted privileges

The privileges of an STI shall be restricted to the FNPT II/III, FTD 2/3 or FFS in which the STI training course was taken. The privileges may be extended to other FSTDs representing further types of aircraft when the holder has:

(a) completed the FFS content of the TRI course on the applicable type;

(b) passed the proficiency check for the specific aircraft type rating on an FFS of the applicable type, within the 12 months preceding the application;

(c) conducted, on a type rating course, at least one FSTD session related to the duties of an STI with a minimum duration of 3 hours on the applicable type of aircraft, under the supervision of a flight instructor examiner (FIE).

LIC.915.STI STI — Pre-requisites

An applicant for an STI certificate shall:

(a) hold, or have held within the 3 years prior to the application, a pilot licence and instructional privileges appropriate to the courses on which instruction is intended;

(b) have completed in an FNPT the relevant proficiency check for the class or type rating, within a period of 12 months preceding the application. An applicant for an STI(A) wishing to instruct on BITDs only, shall complete only the exercises appropriate for a skill test for the issue of a PPL(A);

(c) additionally, for an STI(H), have completed at least 1 hour of flight time as an observer on the flight deck of the applicable type of helicopter, within the 12 months preceding the application.

LIC.930.STI STI — Training course

(a) The training course for the STI shall comprise at least 3 hours of flight instruction related to the duties of an STI in an FFS, FTD 2/3 or FNPT II/III, under the supervision of an FIE. These hours of flight instruction under supervision shall include the assessment of the applicant's competence as described in LIC.920.

(b) Applicants for an STI(A) wishing to instruct on a BITD only, shall complete the flight instruction on a BITD.

(a) For applicants for an STI(H), the course shall also include the FFS content of the applicable TRI course.

LIC.940.STI Revalidation and renewal of the STI certificate

(a) Revalidation. For revalidation of an STI certificate the applicant shall have, within the last 12 months of the validity period of the STI certificate:

(1) conducted at least 3 hours of flight instruction in an FFS or FNPT II/III or BITD, as part of a complete CPL, IR, PPL or class or type rating course; and

(2) passed in the FFS, FTD 2/3 or FNPT II/III on which flight instruction is routinely conducted, the applicable sections of the proficiency check in accordance with Appendix 9 to these regulations for the appropriate class or type of aircraft. For an STI(A) instructing on BITDs only, the proficiency check shall include only the exercises appropriate for a skill test for the issue of a PPL(A).

(b) Renewal. If the STI certificate has lapsed, the applicant shall:

(1) receive refresher training as an STI at an ATO;

(2) pass in the FFS, FTD 2/3 or FNPT II/III on which flight instruction is routinely conducted, the applicable sections of the proficiency check in accordance with Appendix 9 to these regulations for the appropriate class or type of aircraft. For an STI(A) instructing on BITDs only, the proficiency check shall include only the exercises appropriate for a skill test for the issue of a PPL(A);

(3) conduct on a complete CPL, IR, PPL or class or type rating course, at least 3 hours of flight instruction under the supervision of an FI, CRI(A), IRI or TRI(H) nominated by the ATO for this purpose. At least 1 hour of flight instruction shall be supervised by an FIE(A).

SECTION 9

Specific requirements for the mountain rating instructor — MI

LIC.905.MI MI — Privileges and conditions

The privileges of an MI are to carry out flight instruction for the issue of a mountain rating.

LIC.915.MI MI — Pre-requisites

An applicant for an MI certificate shall:

(a) hold a, FI, CRI, or TRI certificate, with privileges for single-pilot aeroplanes;

(b) hold a mountain rating.

LIC.930.MI MI — Training course

(a) The training course for the MI shall include the assessment of the applicant's competence as described in LIC.920.

(b) Before attending the course, applicants shall have passed a pre-entry flight test with an MI holding an FI certificate to assess their experience and ability to undertake the training course.

LIC.940.MI Validity of the MI certificate

The MI certificate is valid as long as the, FI, TRI or CRI certificate is valid.

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SECTION 10

Specific requirements for the flight test instructor — FTI

LIC.905.FTI FTI — Privileges and conditions

(a) The privileges of a flight test instructor (FTI) are to instruct, within the appropriate aircraft category, for:

(1) the issue of category 1 or 2 flight test ratings, provided he/she holds the relevant category of flight test rating;

(2) the issue of an FTI certificate, within the relevant category of flight test rating, provided that the instructor has at least 2 years of experience instructing for the issue of flight test ratings.

(b) The privileges of an FTI holding a category 1 flight test rating include the provision of flight instruction also in relation to category 2 flight test ratings.

LIC.915.FTI FTI — Pre-requisites

An applicant for an FTI certificate shall:

(a) hold a flight test rating issued in accordance with LIC.820;

(b) have completed at least 200 hours of category 1 or 2 flight tests.

LIC.930.FTI FTI — Training course

(a) The training course for the FTI shall include, at least:

(1) 25 hours of teaching and learning;

(2) 10 hours of technical training, including revision of technical knowledge, the preparation of lesson plans and the development of classroom/simulator instructional skills;

(3) 5 hours of practical flight instruction under the supervision of an FTI qualified in accordance with LIC.905.FTI(b). These hours of flight instruction shall include the assessment of the applicant’s competence as described in LIC.920.

(b) Crediting:

(1) Applicants holding or having held an instructor certificate shall be fully credited towards the requirement of (a)(1).

(2) In addition, applicants holding or having held an FI or TRI certificate in the relevant aircraft category shall be fully credited towards the requirements of (a)(2).

LIC.940.FTI FTI — Revalidation and renewal

(a) Revalidation. For revalidation of an FTI certificate, the applicant shall, within the validity period of the FTI certificate, fulfil one of the following requirements:

(1) complete at least:

(i) 50 hours of flight tests, of which at least 15 hours shall be within the 12 months preceding the expiry date of the FTI certificate; and

(ii) 5 hours of flight test flight instruction within the 12 months preceding the expiry date of the FTI certificate; or

(2) receive refresher training as an FTI at an ATO. The refresher training shall be based on the practical flight instruction element of the FTI training course, in accordance with LIC.930.FTI(a)(3), and include at least 1 instruction flight under the supervision of an FTI qualified in accordance with LIC.905.FTI(b).

(b) Renewal. If the FTI certificate has lapsed, the applicant shall receive refresher training as an FTI at an ATO. The refresher training shall comply at least with the requirements of LIC.930.FTI(a)(3).

SECTION 11

Specific requirements for the flight instructor (Remotely Piloted Aircraft) — FI(RPA)

LIC.905.FI RPA — Privileges and conditions

The privileges of the holder of an RPAS instructor rating shall be:

(a) to supervise solo flights by student remote pilots; and

(b) to carry out remote pilot licence training for the issue of a remote pilot licence and an RPAS instructor rating provided that the RPAS instructor:

(1) holds at least the remote pilot licence and rating for which instruction is being given, in the appropriate RPA category and associated RPS;

(2) holds the remote pilot licence and rating necessary to act as the remote pilot-in-command of the RPA category and associated RPS on which the instruction is given;

(3) has the RPAS instructor privileges granted endorsed on the remote pilot licence and.

(4) in order to carry out remote pilot licence training in a multi-crew operational environment, shall have also met all the instructor qualification requirements.

LIC.915.FI(RPA) — Pre-requisites

An applicant for an FI (RPA) certificate shall:

(a) The applicant shall have met the requirements for the issue of a remote pilot licence, shall maintain competencies and meet the recent experience requirements for the licence.

(b) The applicant shall have sufficient training and experience to attain the required level of proficiency in all of the required tasks, manoeuvres, operations and principles, and relevant methods of instruction.

LIC.930.FI(RPA) — Training course

The applicant shall, under the supervision of an RPAS instructor authorised by the Licensing Authority for that purpose:

(a) have received training in RPAS instructional techniques including demonstration, student practices, recognition and correction of common student errors; and

(b) have practiced instructional techniques in those flight manoeuvres and procedures in which it is intended to provide remote pilot licence training.

(c) The applicant shall demonstrate the ability to effectively assess trainees against the adapted competency model used in the approved training programme.

(d) The applicant shall successfully complete the training and meet the qualifications of an approved training organization appropriate to the delivery of competency-based training programmes.

(e) The RPAS instructor training programme shall focus on the development of competence in the following specific areas:

(1) the adapted competency model of the remote pilot training programme according to the defined grading system used by the RPAS operator or approved training organization;

(2) in accordance with the assessment and grading system of the RPAS operator or approved training organization, making assessments by observing behaviours; gathering objective evidence regarding the observable behaviours of the adapted competency model used;

(3) recognising and highlighting performance that meets competency standards;

(4) determining root causes for deviations below the expected standards of performance; and

(5) identifying situations that could result in unacceptable reductions in safety margins.

(f) The applicant shall have met the competency requirements for the issue of a remote pilot licence as appropriate to the category of RPA and associated RPS.

(g) In addition, the applicant shall have demonstrated a level of competency appropriate to the privileges granted to the holder of an RPAS instructor rating, in at least the following areas:

(1) techniques of applied instruction;

(2) assessment of student performance in those subjects in which ground instruction is given;

(3) the learning process;

(4) elements of effective teaching;

(5) competency-based training principles, including student assessments;

(6) evaluation of the training programme effectiveness;

(7) lesson planning;

(8) classroom instructional techniques;

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

(10) analysis and correction of student errors;

(11) human performance relevant to RPAS, instrument flight and remote pilot licence training, including principles of threat and error management; and

(12) hazards involved in simulating system failures and malfunctions in the aircraft.

LIC.935.FI(RPA) — Assessment of competence

(a) The applicant shall have successfully performed a formal competency assessment, prior to conducting instruction and assessment within a competency-based training programme.

(b) The competency assessment shall be conducted during a practical training session in the category of RPA and associated RPS for which RPAS instructor privileges are sought, including pre-flight, post-flight and ground instruction as appropriate.

(c) The competency assessment shall be conducted by a person authorised by the Authority.

LIC.940.FI(RPA) — Revalidation and renewal

(a) Revalidation. For revalidation of a FI(RPA) certificate, the applicant shall, within the validity period of the FI(RPA) certificate, fulfil one of the following requirements:

(1) complete at least 5 hours of flight test flight instruction within the 12 months preceding the expiry date of the FI(RPA) certificate; or

(2) receive refresher training as an FI(RPA) at an ATO. The refresher training shall be based on the practical flight instruction element of the FI(RPA) training course, in accordance with LIC.930.FI(RPA)(a)(3), and include at least 1 instruction flight under the supervision of an FI(RPA) qualified in accordance with LIC.905.FI(RPA)(b).

(b) Renewal. If the FI(RPA) certificate has lapsed, the applicant shall receive refresher training as an FI(RPA) at an ATO. The refresher training shall comply at least with the requirements of sub-paragraph (a)(2) above.

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SUBPART K

EXAMINERS

SECTION 1

Common requirements

LIC.1000 Examiner certificates

(a) General. Holders of an examiner certificate shall:

(1) hold an equivalent licence, rating or certificate to the ones for which they are authorised to conduct skill tests, proficiency checks or assessments of competence and the privilege to instruct for them;

(2) be qualified to act as PIC on the aircraft during a skill test, proficiency check or assessment of competence when conducted on the aircraft.

(b) Special conditions:

(1) In the case of introduction of new aircraft in San Marino or in an operator's fleet, when compliance with the requirements in this Subpart is not possible, the Authority may issue a specific certificate giving privileges for the conduct of skill tests and proficiency checks. Such a certificate shall be limited to the skill tests and proficiency checks necessary for the introduction of the new type of aircraft and its validity shall not, in any case, exceed 1 year.

(2) Holders of a certificate issued in accordance with (b)(1) who wish to apply for an examiner certificate shall comply with the pre-requisites and revalidation requirements for that category of examiner.

(c) Examination outside the territory of San Marino:

(1) Notwithstanding paragraph (a), in the case of skill tests and proficiency checks provided in an ATO located outside San Marino, the Authority may issue an examiner certificate to an applicant holding a pilot licence issued by another country in accordance with ICAO Annex 1, provided that the applicant:

(i) holds at least an equivalent licence, rating, or certificate to the one for which they are authorised to conduct skill tests, proficiency checks or assessments of competence, and except for a RPA examiner, at least a CPL;

(ii) complies with the requirements established in this Subpart for the issue of the relevant examiner certificate; and

(iii) demonstrates to the Authority an adequate level of knowledge of aviation safety rules to be able to exercise examiner privileges in accordance with these regulations.

(2) The certificate referred to in paragraph (1) shall be limited to providing skill tests and proficiency tests/checks:

(i) outside the territory of San Marino; and

(ii) to pilots who have sufficient knowledge of the language in which the test/check is given.

LIC.1005 Limitation of privileges in case of vested interests

Examiners shall not conduct:

(a) skill tests or assessments of competence of applicants for the issue of a licence, rating or certificate:

(1) to whom they have provided flight instruction for the licence, rating or certificate for which the skill test or assessment of competence is being taken; or

(2) when they have been responsible for the recommendation for the skill test, in accordance with LIC.030(b);

(b) skill tests, proficiency checks or assessments of competence whenever they feel that their objectivity may be affected.

LIC.1010 Pre-requisites for examiners

Applicants for an examiner certificate shall demonstrate:

(a) relevant knowledge, background and appropriate experience related to the privileges of an examiner;

(b) that they have not been subject to any sanctions, including the suspension, limitation or revocation of any of their licences, ratings or certificates issued in accordance with these regulations, or for non-compliance with the regulations of the State that issued the licence during the last 3 years.

LIC.1015 Examiner standardisation

(a) Applicants for an examiner certificate shall undertake a standardisation course provided by the Authority or by an ATO and approved by the Authority.

(b) The standardisation course shall consist of theoretical and practical instruction and shall include, at least:

(1) the conduct of 2 skill tests, proficiency checks or assessments of competences for the licences, ratings or certificates for which the applicant seeks the privilege to conduct tests and checks;

(2) instruction on the applicable requirements in these regulations and the applicable air operations requirements, the conduct of skill tests, proficiency checks and assessments of competence, and their documentation and reporting;

(3) a briefing on the national administrative procedures, requirements for protection of personal data, liability, accident insurance and fees.

(c) Holders of an examiner certificate shall not conduct skill tests, proficiency checks or assessments of competence of an applicant for which the Authority is not the same that issued the examiner's certificate, unless:

(1) they have informed the Authority of the applicant of their intention to conduct the skill test, proficiency check or assessment of competence and of the scope of their privileges as examiners;

(2) they have received a briefing from the Authority of the applicant on the elements mentioned in (b)(3).

LIC.1020 Examiners assessment of competence

Applicants for an examiner certificate shall demonstrate their competence to an inspector from the Authority or a senior examiner specifically authorised to do so by the Authority responsible for the examiner's certificate through the conduct of a skill test, proficiency check or assessment of competence in the examiner role for which privileges are sought, including briefing, conduct of the skill test, proficiency check or assessment of competence, and assessment of the person to whom the test, check or assessment is given, debriefing and recording documentation.

LIC.1025 Validity, revalidation and renewal of examiner certificates

(a) Validity. An examiner certificate shall be valid for 3 years.

(b) Revalidation. An examiner certificate shall be revalidated when the holder has, during the validity period of the certificate:

(1) conducted at least 2 skill tests, proficiency checks or assessments of competence every year;

(2) attended an examiner refresher seminar provided by the Authority or by an ATO and approved by the Authority, during the last year of the validity period.

(3) One of the skill tests or proficiency checks completed during the last year of the validity period in accordance with (1) shall have been assessed by an inspector from the Authority or by a senior examiner specifically authorised to do so by the Authority responsible for the examiner's certificate.

(4) When the applicant for the revalidation holds privileges for more than one category of examiner, combined revalidation of all examiner privileges may be achieved when the applicant complies with the requirements in (b)(1) and (2) and LIC.1020 for one of the categories of examiner certificate held, in agreement with the Authority.

(c) Renewal. If the certificate has expired, applicants shall comply with the requirements of (b)(2) and LIC.1020 before they can resume the exercise of the privileges.

(d) An examiner certificate shall only be revalidated or renewed if the applicant demonstrates continued compliance with the requirements in LIC.1010 and LIC.1030.

LIC.1030 Conduct of skill tests, proficiency checks and assessments of competence

(a) When conducting skill tests, proficiency checks and assessments of competence, examiners shall:

(1) ensure that communication with the applicant can be established without language barriers;

(2) verify that the applicant complies with all the qualification, training and experience requirements in these regulations for the issue, revalidation or renewal of the licence, rating or certificate for which the skill test, proficiency check or assessment of competence is taken;

(3) make the applicant aware of the consequences of providing incomplete, inaccurate or false information related to their training and flight experience.

(b) After completion of the skill test or proficiency check, the examiner shall:

(1) inform the applicant of the result of the test. In the event of a partial pass or fail, the examiner shall inform the applicant that he/she may not exercise the privileges of the rating until a full pass has been obtained. The examiner shall detail any further training requirement and explain the applicant's right of appeal;

(2) in the event of a pass in a proficiency check or assessment of competence for revalidation or renewal, endorse the applicant's licence or certificate with the new expiry date of the rating or certificate, if specifically authorised for that purpose by the Authority responsible for the applicant's licence;

(3) provide the applicant with a signed report of the skill test or proficiency check and submit without delay copies of the report to the Authority responsible for the applicant's licence, and to the Authority that issued the examiner certificate. The report shall include:

(i) a declaration that the examiner has received information from the applicant regarding his/her experience and instruction, and found that experience and instruction complying with the applicable requirements in these regulations;

(ii) confirmation that all the required manoeuvres and exercises have been completed, as well as information on the verbal theoretical knowledge examination, when applicable. If an item has been failed, the examiner shall record the reasons for this assessment;

(iii) the result of the test, check or assessment of competence.

(c) Examiners shall maintain records for 5 years with details of all skill tests, proficiency checks and assessments of competence performed and their results.

(d) Upon request by the Authority responsible for the examiner certificate, or the Authority responsible for the applicant's licence, examiners shall submit all records and reports, and any other information, as required for oversight activities.

SECTION 2

Specific requirements for flight examiners — FE

LIC.1005.FE FE — Privileges and conditions

(a) FE(A). The privileges of an FE for aeroplanes are to conduct:

(1) skill tests for the issue of the PPL(A) and skill tests and proficiency checks for associated single-pilot class and type ratings, except for single-pilot high performance complex aeroplanes, provided that the examiner has completed at least 1 000 hours of flight time as a pilot on aeroplanes or TMGs, including at least 250 hours of flight instruction;

(2) skill tests for the issue of the CPL(A) and skill tests and proficiency checks for the associated single-pilot class and type ratings, except for single-pilot high performance complex aeroplanes, provided that the examiner has completed at least 2 000 hours of flight time as a pilot on aeroplanes or TMGs, including at least 250 hours of flight instruction; [ ]

(3) skill tests for the issue of a mountain rating, provided that the examiner has completed at least 500 hours of flight time as a pilot on aeroplanes or TMGs, including at least 500 take-offs and landings of flight instruction for the mountain rating.

(b) FE(H). The privileges of an FE for helicopters are to conduct:

(1) skill tests for the issue of the PPL(H) and skill tests and proficiency checks for single-pilot single-engine helicopter type ratings entered in a PPL(H), provided that the examiner has completed 1 000 hours of flight time as a pilot on helicopters, including at least 250 hours of flight instruction;

(2) skill tests for the issue of the CPL(H) and skill tests and proficiency checks for single-pilot single-engine helicopter type ratings entered in a CPL(H), provided the examiner has completed 2 000 hours of flight time as pilot on helicopters, including at least 250 hours of flight instruction;

(3) skill tests and proficiency checks for single-pilot multi-engine helicopter type ratings entered in a PPL(H) or a CPL(H), provided the examiner has completed the requirements in (1) or (2), as applicable, and holds a CPL(H) or ATPL(H) and, when applicable, an IR(H); [ ]

(c) FE(As). The privileges of an FE for airships are to conduct skill tests for the issue of the PPL(As) and CPL(As) and skill tests and proficiency checks for the associated airship type ratings, provided that the examiner has completed 500 hours of flight time as a pilot on airships, including 100 hours of flight instruction.

(d) FE(S). The privileges of an FE for sailplanes are to conduct:

(1) skill tests and proficiency checks for the SPL and the LAPL(S), provided that the examiner has completed 300 hours of flight time as a pilot on sailplanes or powered sailplanes, including 150 hours or 300 launches of flight instruction;

(2) proficiency checks for the extension of the SPL privileges to commercial operations, provided that the examiner has completed 300 hours of flight time as a pilot on sailplanes or powered sailplanes, including 90 hours of flight instruction; [ ]

(e) FE(B). The privileges of an FE for balloons are to conduct:

(1) [skill tests for the issue of the BPL and skill tests and proficiency checks for the extension of the privileges to another balloon class or group, provided that the examiner has completed 250 hours of flight time as a pilot on balloons, including 50 hours of flight instruction;]

(2) proficiency checks for the extension of the BPL privileges to commercial operations, provided that the examiner has completed 300 hours of flight time as a pilot on balloons, of which 50 hours in the same group of balloons for which the extension is sought. The 300 hours of flight time shall include 50 hours of flight instruction.

LIC.1010.FE FE — Pre-requisites

An applicant for an FE certificate shall hold an FI certificate in the appropriate aircraft category.

SECTION 3

Specific requirements for type rating examiners — TRE

LIC.1005.TRE TRE — Privileges and conditions

(a) TRE(A) and TRE(PL). The privileges of a TRE for aeroplanes or powered-lift aircraft are to conduct:

(1) skill tests for the initial issue of type ratings for aeroplanes or powered-lift aircraft, as applicable;

(2) proficiency checks for revalidation or renewal of type and IRs;

(3) skill tests for ATPL(A) issue;

(4) skill tests for MPL issue, provided that the examiner has complied with the requirements in LIC.925;

(5) assessments of competence for the issue, revalidation or renewal of a TRI or SFI certificate in the applicable aircraft category, provided that the examiner has completed at least 3 years as a TRE.

(b) TRE(H). The privileges of a TRE(H) are to conduct:

(1) skill tests and proficiency checks for the issue, revalidation or renewal of helicopter type ratings;

(2) proficiency checks for the revalidation or renewal of IRs, or for the extension of the IR(H) from single-engine helicopters to multi-engine helicopters, provided the TRE(H) holds a valid IR(H);

(3) skill tests for ATPL(H) issue;

(4) assessments of competence for the issue, revalidation or renewal of a TRI(H) or SFI(H) certificate, provided that the examiner has completed at least 3 years as a TRE.

LIC.1010.TRE TRE — Pre-requisites

(a) TRE(A) and TRE(PL). Applicants for a TRE certificate for aeroplanes and powered-lift aircraft shall:

(1) in the case of multi-pilot aeroplanes or powered-lift aircraft, have completed 1 500 hours of flight time as a pilot of multi-pilot aeroplanes or powered-lift aircraft, as applicable, of which at least 500 hours shall be as PIC;

(2) in the case of single-pilot high performance complex aeroplanes, have completed 500 hours of flight time as a pilot of single-pilot aeroplanes, of which at least 200 hours shall be as PIC;

(3) hold a CPL or ATPL and a TRI certificate for the applicable type;

(4) for the initial issue of an TRE certificate, have completed at least 50 hours of flight instruction as a TRI, FI or SFI in the applicable type or an FSTD representing that type.

(b) TRE(H). Applicants for a TRE (H) certificate for helicopters shall:

(1) hold a TRI(H) certificate or, in the case of single-pilot single-engine helicopters, a valid FI(H) certificate, for the applicable type;

(2) for the initial issue of a TRE certificate, have completed 50 hours of flight instruction as a TRI, FI or SFI in the applicable type or an FSTD representing that type;

(3) in the case of multi-pilot helicopters, hold a CPL(H) or ATPL(H) and have completed 1 500 hours of flight as a pilot on multi-pilot helicopters, of which at least 500 hours shall be as PIC;

(4) in the case of single-pilot multi-engine helicopters:

(i) have completed 1 000 hours of flight as pilot on helicopters, of which at least 500 hours shall be as PIC;

(ii) hold a CPL(H) or ATPL(H) and, when applicable, a valid IR(H);

(5) in the case of single-pilot single-engine helicopters:

(i) have completed 750 hours of flight as a pilot on helicopters, of which at least 500 hours shall be as PIC;

(ii) hold a professional helicopter pilot licence.

(6) Before the privileges of a TRE(H) are extended from single-pilot multi-engine to multi-pilot multi-engine privileges on the same type of helicopter, the holder shall have at least 100 hours in multi-pilot operations on this type.

(7) In the case of applicants for the first multi-pilot multi-engine TRE certificate, the 1 500 hours of flight experience on multi-pilot helicopters required in (b)(3) may be considered to have been met if they have completed the 500 hours of flight time as PIC on a multi-pilot helicopter of the same type.

SECTION 4

Specific requirements for Class Rating Examiner — CRE

LIC.1005.CRE CRE — Privileges

The privileges of a CRE are to conduct, for single-pilot aeroplanes, except for single-pilot high performance complex aeroplanes:

(a) skill tests for the issue of class and type ratings;

(b) proficiency checks for:

(1) revalidation or renewal of class and type ratings;

(2) revalidation and renewal of IRs, provided that the CRE complies with the requirements in LIC.1010.IRE(a).

LIC.1010.CRE CRE — Pre-requisites

Applicants for a CRE certificate shall:

(a) hold a CPL(A), MPL(A) or ATPL(A) with single-pilot privileges or have held it and hold a PPL(A);

(b) hold a CRI certificate for the applicable class or type;

(c) have completed 500 hours of flight time as a pilot on aeroplanes.

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SECTION 5

Specific requirements for Instrument Rating Examiner — IRE

LIC.1005.IRE IRE — Privileges

The privileges of the holder of an IRE certificate are to conduct skill tests for the issue, and proficiency checks for the revalidation or renewal of IRs.

LIC.1010.IRE IRE — Pre-requisites

(a) IRE(A). Applicants for an IRE certificate for aeroplanes shall hold an IRI(A) and have completed:

- (1) 2 000 hours of flight time as a pilot of aeroplanes; and
- (2) 450 hours of flight time under IFR, of which 250 hours shall be as an instructor.

(b) IRE(H). Applicants for an IRE certificate for helicopters shall hold an IRI(H) and have completed:

- (1) 2 000 hours of flight time as a pilot on helicopters; and
- (2) 300 hours of instrument flight time on helicopters, of which 200 hours shall be as an instructor.

(c) IRE(As). Applicants for an IRE certificate for airships shall hold an IRI(As) and have completed:

- (1) 500 hours of flight time as a pilot on airships; and
- (2) 100 hours of instrument flight time on airships, of which 50 hours shall be as an instructor.

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SECTION 6

Specific requirements for Synthetic Flight Examiner — SFE

LIC.1005.SFE SFE — Privileges and conditions

(a) SFE(A) and SFE(PL). The privileges of an SFE on aeroplanes or powered-lift aircraft are to conduct in an FFS:

(1) skill tests and proficiency checks for the issue, revalidation or renewal of type ratings for multi-pilot aeroplanes or powered-lift aircraft, as applicable;

(2) proficiency checks for revalidation or renewal of IRs, provided that the SFE complies with the requirements in LIC.1010.IRE for the applicable aircraft category;

(3) skill tests for ATPL(A) issue;

(4) skill tests for MPL issue, provided that the examiner has complied with the requirements in LIC.925;

(5) assessments of competence for the issue, revalidation or renewal of an SFI certificate in the relevant aircraft category, provided that the examiner has completed at least 3 years as an SFE.

(b) SFE(H). The privileges of an SFE for helicopters are to conduct in an FFS:

(1) skill tests and proficiency checks for the issue, revalidation and renewal of type ratings; and

(2) proficiency checks for the revalidation and renewal of IRs, provided that the SFE complies with the requirements in LIC.1010.IRE(b);

(3) skill tests for ATPL(H) issue;

(4) skill tests and proficiency checks for the issue, revalidation or renewal of an SFI(H) certificate, provided that the examiner has completed at least 3 years as an SFE.

LIC.1010.SFE SFE — Pre-requisites

(a) SFE(A). Applicants for an SFE certificate for aeroplanes shall:

(1) hold or have held an ATPL(A), a class or type rating and an SFI(A) certificate for the applicable type of aeroplane;

(2) have at least 1 500 hours of flight time as a pilot on multi-pilot aeroplanes;

(3) for the initial issue of an SFE certificate, have completed at least 50 hours of synthetic flight instruction as an SFI(A) on the applicable type.

(b) SFE(H). Applicants for an SFE certificate for helicopters shall:

(1) hold or have held an ATPL(H), a type rating and an SFI(H) certificate for the applicable type of helicopter;

(2) have at least 1 000 hours of flight time as a pilot on multi-pilot helicopters;

(3) for the initial issue of an SFE certificate, have completed at least 50 hours of synthetic flight instruction as an SFI(H) on the applicable type.

SECTION 7

Specific requirements for the flight instructor examiner — FIE

LIC.1005.FIE FIE — Privileges and conditions

(a) FIE(A). The privileges of an FIE on aeroplanes are to conduct assessments of competence for the issue, revalidation or renewal of certificates for FI(A), CRI(A), IRI(A) and TRI(A) on single-pilot aeroplanes, provided that the relevant instructor certificate is held.

(b) FIE(H). The privileges of an FIE on helicopters are to conduct assessments of competence for the issue, revalidation or renewal of certificates for FI(H), IRI(H) and TRI(H) on single-pilot helicopters, provided that the relevant instructor certificate is held.

(c) FIE(As), (S), (B). The privileges of an FIE on sailplanes, powered sailplanes, balloons and airships are to conduct assessments of competence for the issue, revalidation or renewal of instructor certificates on the applicable aircraft category, provided that the relevant instructor certificate is held.

LIC.1010.FIE FIE — Pre-requisites

(a) FIE(A). Applicants for an FIE certificate for aeroplanes shall in case of applicants wishing to conduct assessments of competence:

(1) hold the relevant instructor certificate, as applicable;

(2) have completed 2 000 hours of flight time as a pilot on aeroplanes or TMGs; and

(3) have at least 100 hours of flight time instructing applicants for an instructor certificate.

(b) FIE(H). Applicants for an FIE certificate for helicopters shall:

(1) hold the relevant instructor certificate, as applicable;

(2) have completed 2 000 hours of flight time as pilot on helicopters;

(3) have at least 100 hours of flight time instructing applicants for an instructor certificate.

(c) FIE(As). Applicants for an FIE certificate for airships shall:

(1) have completed 500 hours of flight time as a pilot on airships;

(2) have at least 20 hours of flight time instructing applicants for a FI(AS) certificate; (3) hold the relevant instructor certificate.

(d) FIE(S). Applicants for an FIE certificate for sailplanes shall:

(1) hold the relevant instructor certificate;

(2) have completed 500 hours of flight time as a pilot on sailplanes or powered sailplanes;

(3) have completed:

(i) for applicants wishing to conduct assessments of competence on TMGs, 10 hours or 30 take-offs instructing applicants for an instructor certificate in TMGs;

(ii) in all other cases, 10 hours or 30 launches instructing applicants for an instructor certificate.

(e) FIE(B). Applicants for an FIE certificate for balloons shall:

(1) hold the relevant instructor certificate;

(2) have completed 350 hours of flight time as a pilot on balloons;

(3) have completed 10 hours instructing applicants for an instructor certificate.

SUBPART L

FLIGHT ENGINEER LICENCE

LIC.1050 Requirements for the issue of the licence

(a) An applicant shall, before being issued with a flight engineer licence, meet such requirements in respect of age, knowledge, experience, skill and medical fitness as are specified for the licence.

(b) An applicant for a flight engineer licence shall demonstrate such requirements for knowledge and skill as are specified for the licence, in a manner determined by the Authority.

LIC.1060 General licence requirements

Requirements for the issue of the licence

(a) Age

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

(b) 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:

(1) Air law

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;

(2) Aircraft general knowledge

(i) basic principles of engines, 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;

(ii) principles of operation, handling procedures and operating limitations of aircraft engines; effects of atmospheric conditions on engine performance;

(iii) airframes, flight controls, structures, wheel assemblies, brakes and anti-skid units, corrosion and fatigue life; identification of structural damage and defects;

(iv) ice and rain protection systems;

(v) pressurization and air-conditioning systems, oxygen systems;

(vi) hydraulic and pneumatic systems;

(vii) basic electrical theory, electric systems (AC and DC), aircraft wiring systems, bonding and screening;

(viii) principles of operation of instruments, compasses, autopilots, radio communication equipment, radio and radar navigation aids, flight management systems, displays and avionics;

(ix) limitations of appropriate aircraft;

(x) fire protection, detection, suppression and extinguishing systems;

(xi) use and serviceability checks of equipment and systems of appropriate aircraft;

(5) Flight performance, planning and loading

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

(ii) use and practical application of performance data including procedures for cruise control;

(6) Human performance

human performance relevant to the flight engineer including principles of threat and error management;

(7) Operational procedures

(i) 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;

(ii) normal, abnormal and emergency procedures;

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

(8) Principles of flight

fundamentals of aerodynamics;

(9) Radiotelephony

communication procedures and phraseology.

LIC.1070 Experience

(a) The applicant shall have completed, under the supervision of a person accepted by the Authority for that purpose, not less than 100 hours of flight time in the performance of the duties of a flight engineer. The 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.

(b) When the applicant has flight time as a pilot, the Authority shall determine whether such experience is acceptable and, if so, the extent to which the flight time requirements of sub-paragraph (a) above can be reduced accordingly.

(c) 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 Authority for that purpose, in at least the following areas:

(1) 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

(2) Abnormal and alternate (standby) procedures

— recognition of abnormal functioning of aircraft systems

— use of abnormal and alternate (standby) procedures

(3) Emergency procedures

— recognition of emergency conditions

— use of appropriate emergency procedures.

LIC.1080 Skill

(a) The applicant shall have demonstrated the ability to perform as flight engineer of an aircraft, the duties and procedures described in LIC.1070(c) with a degree of competency appropriate to the privileges granted to the holder of a flight engineer licence, and to:

(1) recognise and manage threats and errors;

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

(3) exercise good judgement and airmanship;

(4) apply aeronautical knowledge;

(5) perform all the duties as part of an integrated crew with the successful outcome assured; and

(6) communicate effectively with the other flight crew members.

(b) The use of a flight simulation training device for performing any of the procedures required during the demonstration of skill described in sub-paragraph (a) above shall be approved by the Authority, which shall ensure that the flight simulation training device is appropriate to the task.

LIC.1090 Medical fitness

The applicant shall hold a current Medical Assessment issued in accordance with the provisions of CAR MED.

LIC.1095 Privileges and conditions to be observed in exercising such privileges

(a) The privileges of the holder of a flight engineer licence shall be to act as flight engineer of any type of aircraft on which the holder has demonstrated a level of knowledge and skill, as determined by the Authority on the basis of those requirements specified in LIC.1060(b) and LIC.1080 which are applicable to the safe operation of that type of aircraft.

(b) The types of aircraft on which the holder of a flight engineer licence is authorised to exercise the privileges of that licence, shall be either entered on the licence or recorded elsewhere in a manner acceptable to the Authority.

SUBPART M

AIRCRAFT AND RPA MAINTENANCE ENGINEER LICENCE

LIC.1100 Requirements for the Issue of the Licence

(a) An applicant for an Aircraft Maintenance Engineer licence or a Remotely Piloted Aircraft (RPA) Maintenance Engineer licence shall, before being issued with any licence, meet such requirements in respect of age, knowledge, experience and skill, as are specified for the licence.

(b) An applicant for an Aircraft Maintenance Engineer licence or a RPA Maintenance Engineer licence shall demonstrate, in a manner determined by the Authority, such requirements in respect of knowledge and skill as are specified for that licence or rating.

LIC.1110 General licence requirements

Requirements for the issue of the licence

(a) Age

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

(b) Knowledge

The applicant shall have demonstrated a level of knowledge relevant to the privileges to be granted and appropriate to the responsibilities of a licence holder, in at least the following subjects:

(1) Air law and airworthiness requirements

(i) rules and regulations relevant to a licence holder including applicable airworthiness requirements governing certification and continuing airworthiness of aircraft and approved aircraft maintenance organisation and procedures;

(ii) Natural science and aircraft general knowledge

basic mathematics; units of measurement; fundamental principles and theory of physics and chemistry applicable to aircraft maintenance;

(iii) Aircraft engineering

characteristics and applications of the materials of aircraft construction including principles of construction and functioning of aircraft structures, fastening techniques; powerplants and their associated systems; mechanical, fluid, electrical and electronic power sources; aircraft instrument and display systems; aircraft control systems; and airborne navigation and communication systems;

(iv) Aircraft maintenance

tasks required to ensure the continuing airworthiness of an aircraft including methods and procedures for the overhaul, repair, inspection, replacement, modification or defect rectification of aircraft structures, components and systems in accordance with the methods prescribed in the relevant Maintenance Manuals and the applicable airworthiness regulations; and

(v) Human performance

(vi) human performance relevant to aircraft maintenance.

LIC.1120 Experience

The applicant shall have had the following experience in the inspection, servicing and maintenance of aircraft or its components:

(a) for the issue of a licence with privileges for the aircraft in its entirety, at least:

(1) four years; or

(2) two years if the applicant has satisfactorily completed an approved training course; and

(b) for the issue of a licence with privileges restricted in accordance with LIC.1150(b)(2)(ii) and (iii), a period of time that will enable a level of competency equivalent to that required in (a) above to be attained, provided that this is not less than:

(1) two years; or

(2) such a period as the Authority considers necessary to provide an equivalent level of practical experience to applicants who have satisfactorily completed an approved training course.

LIC.1130 Training

The applicant should have completed a course of training appropriate to the privileges to be granted.

LIC.1140 Skill

The applicant shall have demonstrated the ability to perform those functions applicable to the privileges to be granted.

LIC.1150 Privileges and conditions to be observed in exercising such privileges

(a) Subject to compliance with the requirements specified in (b) and (c) below, the privileges of the holder of an aircraft maintenance licence, or a RPA maintenance engineer licence, shall be to certify the aircraft or parts of the aircraft as airworthy after an authorised repair, modification or installation of a powerplant, accessory, instrument, and/or item of equipment, and to sign a maintenance release following inspection, maintenance operations and/or routine servicing.

(b) The privileges of the holder of an aircraft maintenance licence or a RPA maintenance engineer licence specified in (a) shall be exercised only:

(1) in respect of such RPA or RPS as are entered on the licence either specifically or under broad categories, or RPAS and associated C2 Link as are entered on the licence either specifically or under broad categories after appropriate knowledge and practical training on maintenance of the RPAS and associated C2 Link system.

(2) in respect of an aircraft maintenance engineer licence:

(i) aircraft as are entered on the licence in their entirety either specifically or under broad categories; or

(ii) airframes and powerplants and aircraft systems or components as are entered on the licence either specifically or under broad categories; and/or

(iii) aircraft avionic systems or components as are entered on the licence either specifically or under broad categories;

(3) provided that the licence holder is familiar with all the relevant information relating to the maintenance and airworthiness of the particular aircraft for which the licence holder is signing a Maintenance Release, or such airframe, powerplant, aircraft system or component and aircraft avionic system or component which the licence holder is certifying as being airworthy; and

(4) on condition that, within the preceding 24 months, the licence holder has either had experience in the inspection, servicing or maintenance of an aircraft or components in accordance with the privileges granted by the licence held for not less than six months, or has met the provision for the issue of a licence with the appropriate privileges, to the satisfaction of the Authority.

(c) The Authority shall prescribe, in a letter of authorisation, the scope of the privileges of the aircraft maintenance engineer licence holder in terms of the complexity of the tasks to which the certification relates. For a RPA maintenance engineer licence holder, the scope of privileges shall be contained in the maintenance control manual, as accepted by the Authority.

(d) When the Authority authorises an approved maintenance organisation to appoint non-licensed personnel to exercise the privileges of this regulation, the person appointed shall meet the requirements specified in this Subpart.

LIC.1160 Validity and renewal

(a) An aircraft maintenance engineer licence or a RPA maintenance engineer licence issued under this Subpart shall be valid for 5 years unless suspended or revoked.

(b) To be eligible for the renewal of an aircraft maintenance engineer or a RPA maintenance engineer licence issued under this Subpart, the licence holder shall within the preceding 24 months, either had experience in the inspection, servicing or maintenance of an aircraft or components in accordance with the privileges granted by the licence held for not less than six months.

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SUBPART N

APPROVED TRAINING AND APPROVED TRAINING ORGANISATION

LIC.1200 Issue of approval

(a) The issuance of an approval for a training organisation and the continued validity of the approval shall depend upon the training organisation being in compliance with the requirements of this Subpart.

(b) The approval document shall contain at least the following:

(1) organisation's name and location;

(2) date of issue and period of validity (where appropriate);

(3) terms of approval.

LIC.1210 Training and procedures manual

(a) The training organisation shall provide a training and procedures manual for the use and guidance of personnel concerned. This manual may be issued in separate parts and shall contain at least the following information:

(1) a general description of the scope of training authorised under the organisation's terms of approval;

(2) the content of the training programmes offered including the courseware and equipment to be used;

(3) a description of the organisation's quality assurance system;

(4) a description of the organisation's facilities;

(5) the name, duties and qualification of the person designated as responsible for compliance with the requirements of the approval;

(6) a description of the duties and qualification of the personnel designated as responsible for planning, performing and supervising the training;

(7) a description of the procedures used to establish and maintain the competence of instructional personnel;

(8) a description of the method used for the completion and retention of the training records;

(9) a description, when applicable, of additional training needed to comply with an operator's procedures and requirements; and

(10) when the Authority has authorised an approved training organisation to conduct the testing required for the issuance of a licence or rating, a description of the selection, role and duties of the authorised personnel, as well as the applicable requirements established by the Authority.

(b) The training organisation shall ensure that the training and procedures manual is amended as necessary to keep the information contained therein up to date.

(c) Copies of all amendments to the training and procedures manual shall be furnished promptly to all organisations or persons to whom the manual has been issued.

LIC.1220 Training programmes

(a) The Authority may approve a training programme for a private pilot licence, commercial pilot licence, remotely piloted aircraft licence, an instrument rating or an aircraft maintenance (technician/engineer/mechanic) licence that allows an alternative means of compliance with the experience requirements provided that the approved training organisation demonstrates to the satisfaction of the 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.

[Note: Procedures supporting the development of competency-based training and assessment for aeroplane pilots and aircraft maintenance personnel, including ICAO competency frameworks, are contained in the Procedures for Air Navigation Services —Training *(Doc 9868, PANS-TRG).]*

(b) When the Authority approves a training programme for a multi-crew pilot licence, the approved training organisation shall demonstrate to the satisfaction of the 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.

LIC.1230 Quality assurance system

The training organisation shall establish a quality assurance system, acceptable to the Authority granting the approval, which ensures that training and instructional practices comply with all relevant requirements.

LIC.1240 Facilities

(a) The facilities and working environment shall be appropriate for the task to be performed and be acceptable to the Authority.

(b) The training organisation shall have, or have access to, the necessary information, equipment, training devices and material to conduct the courses for which it is approved.

(c) Synthetic training devices shall be qualified according to requirements established by the State and their use shall be approved by the Authority to ensure that they are appropriate to the task.

LIC.1250 Personnel

(a) The training organisation shall nominate a person responsible for ensuring that it is in compliance with the requirements for an approved organisation.

(b) The organisation shall employ the necessary personnel to plan, perform and supervise the training to be conducted.

(c) The competence of instructional personnel shall be in accordance with procedures and to a level acceptable to the Authority.

(d) The training organisation shall ensure that all instructional personnel receive initial and continuation training appropriate to their assigned tasks and responsibilities. The training programme established by the training organisation shall include training in knowledge and skills related to human performance.

LIC.1260 Records

(a) The training organisation shall retain detailed student records to show that all requirements of the training course have been met as agreed by the Authority.

(b) The training organisation shall maintain a system for recording the qualifications and training of instructional and examining staff, where appropriate.

(c) The records shall be kept for a minimum period of two years after completion of the training. The records shall be retained for a minimum period of two years after the instructor or examiner ceases to perform a function for the training organisation.

LIC.1270 Oversight

The Authority shall maintain an effective oversight programme of the approved training organisation to ensure continuing compliance with the approval requirements.

LIC.1280 Evaluation and checking

When an approved training organisation is authorised to conduct the testing required for the issuance of a licence or rating, the testing shall be conducted by personnel authorised by the Authority or designated by the training organisation in accordance with criteria approved by the Authority.

LIC.1290 Safety Management System
(See Appendix 11)

The SMS of an approved training organisation shall be;

(a) established in accordance with the framework elements contained in Appendix 11; and

(b) commensurate with the size of the service provider and the complexity of its aviation services;

(c) if exposed to safety risks related to aircraft operations during the provision of its services shall be made acceptable to the Authority.

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SUBPART O

CABIN CREW ATTESTATION

LIC.1300 Scope

This Subpart establishes the requirements for the issue of cabin crew attestations for commercial air transport operations and the conditions for their validity and use by their holders.

LIC.1305 Application for a cabin crew attestation

The application for a cabin crew attestation shall be made in a form and manner established by the Authority.

LIC.1310 Minimum age

The applicant for a cabin crew attestation shall be at least 18 years of age.

LIC.1315 Privileges and conditions

(a) The privileges of holders of a cabin crew attestation are to act as cabin crew members in commercial air transport operation of aircraft.

(b) Cabin crew members may exercise the privileges specified in (a) only if they:

(1) hold a valid cabin crew attestation; and

(2) comply with the applicable requirements of CAR OPS 1 and CAR MED, Subpart C.

LIC.1320 Documents and record-keeping

To show compliance with the applicable requirements as specified in LIC.1315(b), each holder shall keep, and provide upon request, the cabin crew attestation, the list and the training and checking records of his/her aircraft type or variant qualification(s), unless the operator employing his/her services keeps such records and can make them readily available upon request by a competent authority or by the holder.

LIC.1325 Issue of the cabin crew attestation

(a) Cabin crew attestations shall only be issued to applicants who have passed the examination following completion of the initial training course in accordance with this Subpart.

(b) Cabin crew attestations shall be issued:

(1) by the Authority; and/or

(2) [by an organisation approved to do so by EASA, UK CAA or the Authority.]

LIC.1330 Validity of the cabin crew attestation

The cabin crew attestation shall be issued with unlimited duration and shall remain valid unless:

(a) it is suspended or revoked by the Authority; or

(b) its holder has not exercised the associated privileges during the preceding 60 months on at least one aircraft type.

LIC.1335 Suspension and revocation of the cabin crew attestation

(a) If holders do not comply with this Subpart, their cabin crew attestation may be suspended or revoked by the Authority.

(b) In case of suspension or revocation of their cabin crew attestation by the Authority, holders shall:

(1) be informed in writing of this decision, and of their right of appeal in accordance with national law;

(2) not exercise the privileges granted by their cabin crew attestation;

(3) inform, without undue delay, the operator(s) employing their services; and

(4) return their attestation in accordance with the applicable procedure established by the Authority.

LIC.1340 Provision of training

Training required in this Subpart shall be:

(a) [provided by training organisations or commercial air transport operators approved to do so by EASA, the UK CAA or the Authority;]

(b) performed by personnel suitably experienced and qualified for the training elements to be covered; and

(c) conducted according to a training programme and syllabus documented in the organisation's approval.

LIC.1345 Initial training course and examination

(a) Applicants for a cabin crew attestation shall complete an initial training course to familiarise themselves with the aviation environment and to acquire sufficient general knowledge and basic proficiency required to perform the duties and discharge the responsibilities related to the safety of passengers and flight during normal, abnormal and emergency operations.

(b) The programme of the initial training course shall cover at least the elements specified in Appendix 1 to CAR OPS 1.1005. It shall include theoretical and practical training.

(c) Applicants for a cabin crew attestation shall undergo an examination covering all elements of the training programme specified in (b), except CRM training, to demonstrate that they have attained the level of knowledge and proficiency required in (a).

LIC.1350 Aircraft type or variant qualification(s)

(a) Holders of a valid cabin crew attestation shall only operate on an aircraft if they are qualified in accordance with CAR OPS 1, Subpart O.

(b) To be qualified for an aircraft type or a variant, the holder:

(1) shall comply with the applicable training, checking and validity requirements, covering as relevant to the aircraft to be operated:

(i) aircraft-type specific training, operator conversion training and familiarisation;

(ii) differences training;

(iii) recurrent training; and

(2) shall have operated within the preceding 6 months on the aircraft type, or shall have completed the relevant refresher training and checking before operating again on that aircraft type.

LIC.1355 Acceptance of other State's attestation/licence

A cabin crew attestation or cabin crew licence issued by an ICAO Contracting State shall be accepted by the Authority for operations under CAR OPS 1 provided the applicable regulations of CAR OPS 1, Subpart O and CAR MED, Subpart C are complied with.

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SUBPART P

REMOTE PILOT LICENCES

SECTION 1

Common requirements

LIC.1400 Minimum age and medical fitness

(a) The applicant for a RPL shall be at least 18 years of age.

(b) The applicant for a RPL shall hold a current;

(1) Class 2 medical certificate; or a

(2) Class 1 medical certificate when the Authority determines that it may be essential for a particular individual based on their work environment and responsibilities in the context of a specific RPAS application.

LIC.1405 Privileges and conditions

(a) Privileges.

The privileges of the holder of a RPL are;

(1) to act as remote pilot in command of a RPA, and associated RPS, certificated for single-pilot or multi-pilot operation.

(2) to act as remote co-pilot of a RPA, and associated RPS, required to be operated with a remote co-pilot.

(3) to act as a remote pilot-in-command of an RPA and the associated RPS, required to be operated with a remote co-pilot; and

(4) to act either as remote pilot-in-command or as remote co-pilot of an RPAS under IFR.

(b) Before exercising the privileges at night, the remote pilot licence holder shall have received dual instruction in an RPA and associated RPS in night flying, including take-off, landing and navigation. (See LIC.810(d)

LIC.1410 Theoretical knowledge

An applicant for a RPL shall receive and log ground training from a RPAS instructor, and shall demonstrate a level of knowledge appropriate to the privileges granted to the holder of a remote pilot licence and appropriate to the category of RPA and associated RPS intended to be included in the remote pilot licence, in at least the following subjects:

Air law

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

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

General RPAS knowledge

(c) principles of operation and the functioning of engines, systems and instruments;

(d) operating limitations of the relevant category of RPA and engines; relevant operational information from the flight manual or other appropriate document;

(e) use and serviceability checks of equipment and systems of appropriate RPA;

(f) maintenance procedures for airframes, systems and engines of appropriate RPA;

(g) for rotorcraft and powered-lifts, transmission (power trains) where applicable;

(h) use, limitation and serviceability of avionics, electronic devices and instruments necessary for the control and navigation of an RPA under IFR and in instrument meteorological conditions;

(i) flight instruments; gyroscopic instruments, operational limits and precession effects; practices and procedures in the event of malfunctions of various flight instruments;

(j) for airships, physical properties and practical application of gases;

(k) RPS general knowledge:

(1) principles of operation and function of systems and instruments;

(2) use and serviceability checks of equipment and systems of appropriate RPS;

(3) procedures in the event of malfunctions;

(l) C2 Link general knowledge:

(1) different types of C2 Links and their operating characteristics and limitations;

(2) use and serviceability checks of C2 Link systems;

(3) procedures in the event of C2 Link malfunction;

(m) detect and avoid capabilities for RPAS;

Flight performance, planning and loading

(n) effects of loading and mass distribution on RPA handling, flight characteristics and performance; mass and balance calculations;

(o) use and practical application of take-off, landing and other performance data;

(p) pre-flight and en-route flight planning appropriate to RPAS operations under IFR; preparation and submission of air traffic services flight plans under IFR; appropriate air traffic services procedures; altimeter setting procedures;

(q) in the case of airships, rotorcraft and powered-lifts, effects of external loading on handling;

Human performance

(r) human performance relevant to RPAS and instrument flight, including principles of threat and error management;

(s) interpretation and application of aeronautical meteorological reports, charts and forecasts; use of, and procedures for obtaining, meteorological information, pre-flight and in-flight; altimetry;

(t) aeronautical meteorology; climatology of relevant areas with respect to the elements having an effect on 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;

(u) causes, recognition and effects of icing; frontal zone penetration procedures; hazardous weather avoidance;

(v) in the case of rotorcraft and powered-lifts, effects of rotor icing;

(w) in the case of high altitude operations, practical high altitude meteorology, including interpretation and use of weathers reports, charts and forecasts; jetstreams;

Navigation

(x) 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 RPAS equipment;

(y) use, limitation and serviceability of avionics and instruments necessary for control and navigation;

(z) use, accuracy and reliability of navigation systems used in departure, en-route, approach and landing phases of flight; identification of radio navigation aids;

(aa) principles and characteristics of self-contained and external-referenced navigation systems; operation of RPAS equipment;

Operational procedures

(bb) application of threat and error management to operational performance;

(cc) 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;

(dd) altimeter setting procedures;

(ee) appropriate precautionary and emergency procedures; safety practices associated with flight under IFR; obstacle clearance criteria;

(ff) operational procedures for carriage of freight; potential hazards associated with dangerous goods and their management;

(gg) requirements and practices for safety briefings to remote flight crew members (hh) in the case of rotorcraft, and if applicable, powered-lifts, settling with power; ground resonance; retreating blade stall; dynamic rollover and other operating hazards; safety procedures, associated with flight in visual meteorological conditions (VMC);

(ii) operational procedures for handovers and coordination;

(jj) operational procedures for normal and abnormal C2 Link operations;

Principles of flight

(kk) principles of flight; and

Radiotelephony

(ll) communication procedures and phraseology; action to be taken in case of communication failure.

LIC.1415 Experience and RPAS flight instruction

An applicant for a RPL shall have completed the experience and RPAS instruction provisions appropriate to the RPA category.

(a) gained, under appropriate supervision, experience in the applicable type of RPA and associated RPS and/or flight simulation training device (FSTD) in the following:

(1) normal flight procedures and manoeuvres during all phases of flight;

(2) abnormal and emergency procedures and manoeuvres in the event of failures and malfunctions of equipment, such as engine, C2 Link, systems and airframe;

(3) instrument procedures, including instrument approach, missed approach and landing procedures under normal, abnormal and emergency conditions, including simulated engine failure; and

(4) for the issue of an aeroplane category type rating, upset prevention and recovery training.

(b) demonstrated the competencies required for the safe operation of the applicable type of RPA and associated RPS and demonstrated C2 Link management skills, relevant to the duties of a remote pilot-in-command or a remote co-pilot as applicable.

(c) In order to meet the requirements of the remote pilot licence, the applicant shall have completed an approved training course. The training shall be competency-based and, if applicable, conducted in a multi-crew operational environment.

(d) During the training, the applicant shall have acquired the competencies and underpinning skills required for performing as a remote pilot of an RPA certificated for operation under IFR.

(e) The applicant shall have received dual remote pilot licence training in an RPA and associated RPS, sought from an authorised RPAS instructor in accordance with Subpart J, Section 12 of these regulations. The RPAS instructor shall ensure that the applicant has operational experience in all phases of flight and the entire operating envelope of an RPAS, including abnormal and emergency conditions, upset prevention and recovery training for the categories concerned, as well as IFR operations.

(f) If the privileges of the remote pilot are to be exercised on a multi-engined RPA, the applicant shall have received dual instrument remote pilot licence training in a multi-engined RPA within the appropriate category from an authorised RPAS instructor. The RPAS instructor shall ensure that the applicant has operational experience in the operation of the RPA within the appropriate category with engines inoperative or simulated inoperative.

LIC.1420 Skill test

An applicant for a RPL shall demonstrate by passing a skill test in accordance with the ability to perform as RPIC of a RPA, with a degree of competency appropriate to the privileges granted to the holder of a RPL;

(a) operate the RPA within its limitations;

(b) complete all manoeuvres with smoothness and accuracy;

(c) exercise good judgement and airmanship;

(d) apply aeronautical knowledge; and

(e) maintain control of the RPA at all times in a manner such that the successful outcome of a procedure or manoeuvre is never seriously in doubt.

(f) If the privileges of the remote pilot are to be exercised on a multi-engined RPA, the applicant shall have demonstrated the ability to operate under IFR with degraded propulsion capabilities.

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SECTION 2

Specific provisions for the RPA category aeroplanes - RPL(A)

LIC.1425A RPL(A) Experience

(a) The applicant for a RPL(A) shall have completed not less than 40 hours of RPAS flight time, as a remote pilot of RPA(A), of which 25 hours may have been completed in an FSTD.

(b) The applicant shall have completed in RPA(A) not less than:

(1) 15 hours as RPIC;

(2) 5 hours of cross-country flight time as RPIC;

(3) 20 take-offs and landings;

(4) at least 20 hours of IFR flight time of which 15 hours may have been completed in an FSTD.

(c) The applicant for a RPL(A) shall receive and log not less than 25 hours of dual RPAS instruction in a RPA(A) from a RPAS instructor. These 25 hours may include 5 hours completed in an FSTD.

(d) Crediting. An applicant holding a RPL for another category of RPA, shall be credited with 10% of their total flight time as RPIC on such RPA up to a maximum of 4 hours.

(e) The applicant for a RPL(A) for “External Pilot Only” limitation shall have completed RPAS flight time, acceptable to the Authority, as an external remote pilot of RPA(A).

LIC.1430.A RPL(A) RPAS instruction

The RPAS instructor shall ensure that the applicant has operational experience in at least the following areas to the level of performance required for the remote pilot:

(a) Recognise and manage threats and errors;

(b) Pre-flight operations, including RPA(A) and RPAS inspection and servicing, communication checks and control function verification, setup of RPS, loading and validation of flight planning information, and obtaining ATC clearances where appropriate;

(c) Aerodrome and traffic pattern operations where applicable, ground and airborne collision avoidance precautions and procedures including use of RPA observers and communication services if required;

(d) Control of the RPA(A) by visual reference unless the RPAS does not provide for manoeuvers by visual reference;

(e) Recovery from flight at critically slow airspeeds; high sink rates and, in case of a RPA(A), spin avoidance;

(f) Flight with asymmetrical power for multi-engine class or type ratings;

(g) Recovery from unusual attitudes using flight instrumentation or by use of payload;

(h) Normal and cross-wind take-offs and landings;

(i) Maximum performance (short field and obstacle clearance take-offs, short-field landings;

(j) Navigation procedures using all available means including change of destination or in flight lost link procedures and flight plan programming;

(k) Hazardous weather identification and avoidance procedures;

(l) Abnormal and emergency procedures and manoeuvres including simulated aircraft power plant and electrical system failures, software failures, loss of control link, failures and malfunctions limited to the RPS, communication failure;

(m) Operations to, from and transiting controlled aerodromes, compliance with air traffic services procedures;

(n) Communication procedures and phraseology; and

(o) IFR procedures appropriate to RPAS operations

SECTION 3

Specific provisions for the RPA category rotorcraft - RPL(R)

LIC.1425.R RPL(R) Experience

(a) The applicant for a RPL(R) shall have completed not less than 16 hours of RPAS flight time, as a remote pilot of RPA(R), of which 5 hours may have been completed in an FSTD.

(b) The applicant shall have completed in RPA(R) not less than:

(1) 5 hours as RPIC;

(2) 5 hours of cross-country flight time as RPIC;

(3) 20 take-offs and landings;

(4) For IFR operations, at least 10 hours of IFR flight time of which 5 hours may have been completed in an FSTD.

(c) The applicant for a RPL(R) shall receive and log not less than 10 hours of dual RPAS instruction in a RPA(R) from a RPAS instructor. These 10 hours may include 5 hours completed in an FSTD.

(d) Crediting. Applicant holding a RPL for another category of RPA, shall be credited with 10% of their total flight time as RPIC on such RPA up to a maximum of 4 hours.

LIC.1430.R RPL(R) RPAS instruction

The RPAS instructor shall ensure that the applicant has operational experience in at least the following areas to the level of performance required for the remote pilot:

(a) Recognise and manage threats and errors;

(b) Pre-flight operations, including RPA(R) and RPAS inspection and servicing, communication checks and control function verification, setup of RPS, loading and validation of flight planning information, and obtaining ATC clearances where appropriate;

(c) Aerodrome and traffic pattern operations where applicable, ground and airborne collision avoidance precautions and procedures including use of RPA observers and communication services if required;

(d) Control of the RPA(R) by external visual reference unless the RPAS does not provide for manoeuvers by visual reference;

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

(f) Ground manoeuvring and run-ups; hovering; take-offs and landings – normal, out of wind and sloping ground; steep approaches;

(g) Recovery from unusual attitudes using flight instrumentation or by use of payload;

(h) Hovering out of ground effect; operations with external load, if applicable; flight at high altitude;

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

(j) Navigation procedures using all available means including change of destination or in flight lost link procedures and flight plan programming;

(k) Hazardous weather identification and avoidance procedures;

(l) Abnormal and emergency procedures and manoeuvres including simulated aircraft power plant and electrical system failures, software failures, loss of control link, failures and malfunctions limited to the RPS, communication failure;

(m) Communication procedures and phraseology;

(n) Operations to, from and transiting controlled aerodromes, compliance with air traffic services procedures; and

(o) IFR procedures appropriate to RPAS operations.

SECTION 4

Specific provisions for the RPA category Airship - RPL(As)

LIC.1425.As RPL(As) Experience

(a) The applicant for a RPL(As) shall have completed not less than 35 hours of RPAS flight time, as a remote pilot of RPA(As), of which 5 hours shall have been completed in an FSTD.

(b) The applicant shall have completed in RPA(As) not less than:

(1) 5 hours as RPIC;

(2) 5 hours of cross-country flight time as RPIC;

(3) 8 take-offs and landings;

(c) The applicant for a RPL(As) shall receive and log not less than 25 hours of dual RPAS instruction in a RPA(As) from a RPAS instructor

(d) Crediting. Applicant holding a RPL for another category of RPA, shall be credited with 10% of their total flight time as RPIC on such RPA up to a maximum of 4 hours.

LIC.1430.As RPL(As) RPAS instruction

The RPAS instructor shall ensure that the applicant has operational experience in at least the following areas to the level of performance required for the remote pilot:

(a) Recognise and manage threats and errors;

(b) Pre-flight operations, including RPA(As) and RPAS inspection and servicing, communication checks and control function verification, setup of RPS, loading and validation of flight planning information, and obtaining ATC clearances where appropriate;

(c) Aerodrome and traffic pattern operations where applicable, ground and airborne collision avoidance precautions and procedures including use of RPA observers and communication services if required;

(d) Control of the RPA(As) by external visual reference unless the RPAS does not provide for manoeuvres by visual reference;

(e) Ground manoeuvring and run-ups; hovering; take-offs and landings – normal, out of wind and sloping ground; steep approaches;

(f) Navigation procedures using all available means including change of destination or in flight lost link procedures and flight plan programming;

(g) Hazardous weather identification and avoidance procedures;

(h) Abnormal and emergency procedures and manoeuvres including simulated aircraft power plant and electrical system failures, software failures, loss of control link, failures and malfunctions limited to the RPS, communication failure;

(i) Operations to, from and transiting controlled aerodromes, compliance with air traffic services procedures; and

(j) Communication procedures and phraseology.

SECTION 5

Specific provisions for the RPA category Balloon - RPL(B)

LIC.1425.B RPL(B) Experience

(a) The applicant for a RPL(B) shall have completed not less than 16 hours of RPAS flight time, as a remote pilot of RPA(B), of which 2 hours shall have been completed in an FSTD.

(b) The applicant shall have completed in RPA(B)not less than:

(1) 5 hours as RPIC;

(2) 5 hours of cross-country flight time as RPIC;

(3) 20 take-offs and landings;

(c) The applicant for a RPL(B) shall receive and log not less than 12 hours of dual RPAS instruction in a RPA(B) from an authorised RPAS instructor.

(d) Crediting. Applicant holding a RPL for another category of RPA, shall be credited with 10% of their total flight time as RPIC on such RPA up to a maximum of 2 hours.

LIC.1430.B RPL(B) RPAS instruction

The RPAS instructor shall ensure that the applicant has operational experience in at least the following areas to the level of performance required for the remote pilot:

(a) Recognise and manage threats and errors;

(b) Pre-flight operations, including RPA(B) and RPAS inspection and servicing, communication checks and control function verification, setup of RPS, loading and validation of flight planning information, and obtaining ATC clearances where appropriate;

(c) Aerodrome and traffic pattern operations where applicable, ground and airborne collision avoidance precautions and procedures including use of RPA observers and communication services if required;

(d) Control of the RPA(B) by external visual reference unless the RPAS does not provide for manoeuvres by visual reference;

(e) Ground manoeuvring and run-ups; hovering; take-offs and landings – normal, out of wind and sloping ground; steep approaches;

(f) Navigation procedures using all available means including change of destination or in flight lost link procedures and flight plan programming;

(g) Hazardous weather identification and avoidance procedures;

(h) Abnormal and emergency procedures and manoeuvres including simulated aircraft power plant and electrical system failures, software failures, loss of control link, failures and malfunctions limited to the RPS, communication failure;

(i) Operations to, from and transiting controlled aerodromes, compliance with air traffic services procedures; and

(j) Communication procedures and phraseology.

APPENDIX 1

CREDITING OF THEORETICAL KNOWLEDGE

A. CREDITING OF THEORETICAL KNOWLEDGE FOR THE ISSUE OF A PILOT LICENCE IN ANOTHER CATEGORY OF AIRCRAFT — BRIDGE INSTRUCTION AND EXAMINATION REQUIREMENTS

1. **PPL, BPL and SPL**

1.1. [For the issue of a PPL, BPL or SPL, the holder of a licence in another category of aircraft shall receive theoretical knowledge instruction and pass theoretical knowledge examinations to the appropriate level in the following subjects:]

— Principles of Flight,

— Operational Procedures,

— Flight Performance and Planning,

— Aircraft General Knowledge, Navigation.

1.2. [For the issue of a PPL, BPL or SPL, the holder of a LAPL issued prior to 01 January 2021 in the same category of aircraft shall be credited in full towards the theoretical knowledge instruction and examination requirements.]

2. **CPL**

2.1. An applicant for a CPL holding a CPL in another category of aircraft shall have received theoretical knowledge bridge instruction on an approved course according to the differences identified between the CPL syllabi for different aircraft categories.

2.2. The applicant shall pass theoretical knowledge examinations as defined in these regulations for the following subjects in the appropriate aircraft category:

021 — Aircraft General Knowledge: Airframe and Systems, Electrics, Powerplant, Emergency Equipment,

022 — Aircraft General Knowledge: Instrumentation,

032/034 — Performance Aeroplanes or Helicopters, as applicable,

070 — Operational Procedures, and

080 — Principles of Flight.

2.3. An applicant for a CPL having passed the relevant theoretical examinations for an IR in the same category of aircraft is credited towards the theoretical knowledge requirements in the following subjects:

— Human Performance,
— Meteorology.

3. **ATPL**

3.1. An applicant for an ATPL holding an ATPL in another category of aircraft shall have received theoretical knowledge bridge instruction at an ATO according to the differences identified between the ATPL syllabi for different aircraft categories.

3.2. The applicant shall pass theoretical knowledge examinations as defined in these regulations for the following subjects in the appropriate aircraft category:

021 — Aircraft General Knowledge: Airframe and Systems, Electrics, Powerplant, Emergency Equipment,

022 — Aircraft General Knowledge: Instrumentation,

032 — Performance,

070 — Operational Procedures, and

080 — Principles of Flight.

3.3. An applicant for an ATPL(A) having passed the relevant theoretical examination for a CPL(A) is credited towards the theoretical knowledge requirements in subject VFR Communications.

3.4. An applicant for an ATPL(H), having passed the relevant theoretical examinations for a CPL(H) is credited towards the theoretical knowledge requirements in the following subjects:

— Air Law,

— Principles of Flight (Helicopter),

— VFR Communications.

3.5. An applicant for an ATPL(A) having passed the relevant theoretical examination for an IR(A) is credited towards the theoretical knowledge requirements in subject IFR Communications.

3.6. An applicant for an ATPL(H) with an IR(H), having passed the relevant theoretical examinations for a CPL(H) is credited towards the theoretical knowledge requirements in the following subjects:

— Principles of Flight (Helicopter),

— VFR Communications.

4. **IR**

4.1. An applicant for an IR having passed the relevant theoretical examinations for a CPL in the same aircraft category is credited towards the theoretical knowledge requirements in the following subjects:

— Human Performance,

— Meteorology.

4.2. An applicant for an IR(H) having passed the relevant theoretical examinations for an ATPL(H) VFR is required to pass the following examination subjects:

— Air Law,

— Flight Planning and Flight Monitoring,

— Radio Navigation,

— IFR Communications.

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APPENDIX 2

LANGUAGE PROFICIENCY RATING SCALE — EXPERT, EXTENDED AND OPERATIONAL LEVEL

Level	Pronunciation	Structure	Vocabulary	Fluency	Comprehension	Interactions
Expert (Level 6)	Pronunciation, stress, rhythm, and intonation, though possibly influenced by the first language or regional variation, almost never interfere with ease of understanding.	Both basic and complex grammatical structures and sentence patterns are consistently well controlled.	Vocabulary range and accuracy are sufficient to communicate effectively on a wide variety of familiar and unfamiliar topics. Vocabulary is idiomatic, nuanced and sensitive to register.	Able to speak at length with a natural, effortless flow. Varies speech flow for stylistic effect, e.g. to emphasise a point. Uses appropriate discourse markers and connectors spontaneously.	Comprehension is consistently accurate in nearly all contexts and includes comprehension of linguistic and cultural subtleties.	Interacts with ease in nearly all situations. Is sensitive to verbal and non-verbal cues, and responds to them appropriately.
Extended (Level 5)	Pronunciation, stress, rhythm, and intonation, though influenced by the first language or regional variation, rarely interfere with ease of understanding.	Basic grammatical structures and sentence patterns are consistently well controlled. Complex structures are attempted but with errors which sometimes interfere with meaning.	Vocabulary range and accuracy are sufficient to communicate effectively on common, concrete, and work-related topics. Paraphrases consistently and successfully. Vocabulary is sometimes idiomatic.	Able to speak at length with relative ease on familiar topics, but may not vary speech flow as a stylistic device. Can make use of appropriate discourse markers or connectors.	Comprehension is accurate on common, concrete, and work-related topics and mostly accurate when the speaker is confronted with a linguistic or situational complication or an unexpected turn of events. Is able to comprehend a range of speech varieties (dialect and/or accent) or registers.	Responses are immediate, appropriate, and informative. Manages the speaker/listener relationship effectively.
Operational (Level 4)	Pronunciation, stress, rhythm, and intonation are influenced by the first language or regional variation but only sometimes interfere with ease of understanding.	Basic grammatical structures and sentence patterns are used creatively and are usually well controlled. Errors may occur, particularly in unusual or unexpected circumstances, but rarely interfere with meaning.	Vocabulary range and accuracy are usually sufficient to communicate effectively on common, concrete, and work-related topics. Can often paraphrase successfully when lacking vocabulary particularly in unusual or unexpected circumstances.	Produces stretches of language at an appropriate tempo. There may be occasional loss of fluency on transition from rehearsed or formulaic speech to spontaneous interaction, but this does not prevent effective communication. Can make limited use of discourse markers and connectors. Fillers are not distracting.	Comprehension is mostly accurate on common, concrete, and work-related topics when the accent or variety used is sufficiently intelligible for an international community of users. When the speaker is confronted with a linguistic or situational complication or an unexpected turn of events, comprehension may be slower or require clarification strategies.	Responses are usually immediate, appropriate, and informative. Initiates and maintains exchanges even when dealing with an unexpected turn of events. Deals adequately with apparent misunderstandings by checking, confirming, or clarifying.

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APPENDIX 3

TRAINING COURSES FOR THE ISSUE OF A CPL AND AN ATPL

1. This Appendix describes the requirements for the different types of training courses for the issue of a CPL and an ATPL, with and without an IR.

2. An applicant wishing to transfer to another ATO during a training course shall apply to the Authority for a formal assessment of the further hours of training required.

A. ATP integrated course — Aeroplanes

GENERAL

1. The aim of the ATP(A) integrated course is to train pilots to the level of proficiency necessary to enable them to operate as co-pilot on multi-pilot multi-engine aeroplanes in commercial air transport and to obtain the CPL(A)/IR.

2. An applicant wishing to undertake an ATP(A) integrated course shall complete all the instructional stages in one continuous course of training as arranged by an ATO.

3. An applicant may be admitted to training either as an ab-initio entrant, or as a holder of a PPL(A) or PPL(H) issued in accordance with Annex 1 to the Chicago Convention. In the case of a PPL(A) or PPL(H) entrant, 50 % of the hours flown prior to the course shall be credited, up to a maximum of 40 hours flying experience, or 45 hours if an aeroplane night rating has been obtained, of which up to 20 hours may count towards the requirement for dual instruction flight time.

4. The course shall comprise:

   (a) theoretical knowledge instruction to the ATPL(A) knowledge level;

   (b) visual and instrument flying training; and

   (c) training in MCC for the operation of multi-pilot aeroplanes.

5. An applicant failing or unable to complete the entire ATP(A) course may apply to the Authority for the theoretical knowledge examination and skill test for a licence with lower privileges and an IR if the applicable requirements are met.

THEORETICAL KNOWLEDGE

6. An ATP(A) theoretical knowledge course shall comprise at least 750 hours of instruction.

7. The MCC course shall comprise at least 25 hours of theoretical knowledge instruction and exercises.

THEORETICAL KNOWLEDGE EXAMINATION

8. An applicant shall demonstrate the level of knowledge appropriate to the privileges granted to the holder of an ATPL(A).

FLYING TRAINING

9. The flying training, not including type rating training, shall comprise a total of at least 195 hours, to include all progress tests, of which up to 55 hours for the entire course may be instrument ground time. Within the total of 195 hours, applicants shall complete at least:

(a) 95 hours of dual instruction, of which up to 55 hours may be instrument ground time;

(b) 70 hours as PIC, including VFR flight and instrument flight time as student pilot-in-command (SPIC). The instrument flight time as SPIC shall only be counted as PIC flight time up to a maximum of 20 hours;

(c) 50 hours of cross-country flight as PIC, including a VFR cross-country flight of at least 540 km (300 NM), in the course of which full stop landings at two aerodromes different from the aerodrome of departure shall be made;

(d) 5 hours flight time shall be completed at night, comprising 3 hours of dual instruction, which will include at least 1 hour of cross-country navigation and 5 solo take-offs and 5 solo full stop landings; and

(e) 115 hours of instrument time comprising, at least:

(i) 20 hours as SPIC;

(ii) 15 hours MCC, for which an FFS or FNPT II may be used; (3) 50 hours of instrument flight instruction, of which up to:

(1) 25 hours may be instrument ground time in a FNPT I; or

(2) 40 hours may be instrument ground time in a FNPT II, FTD 2 or FFS, of which up to 10 hours may be conducted in an FNPT I.

An applicant holding a course completion certificate for the Basic Instrument Flight Module shall be credited with up to 10 hours towards the required instrument instruction time. Hours done in a BITD shall not be credited;

(f) 5 hours to be carried out in an aeroplane certificated for the carriage of at least 4 persons that has a variable pitch propeller and retractable landing gear.

Note: As part of the training the applicant should have received, in actual flight, upset prevention and recovery training approved by the Authority.

SKILL TEST

10. Upon completion of the related flying training, the applicant shall take the CPL(A) skill test on either a single-engine or a multi-engine aeroplane and the IR skill test on a multi-engine aeroplane.

B. ATP modular course — Aeroplanes

1. Applicants for an ATPL(A) who complete their theoretical knowledge instruction at a modular course shall:

(a) hold at least a PPL(A) issued in accordance with Annex 1 to the Chicago Convention; and complete at least the following hours of theoretical knowledge instruction:

(i) for applicants holding a PPL(A): 650 hours;

(ii) for applicants holding a CPL(A): 400 hours;

(iii) for applicants holding an IR(A): 500 hours;

(iv) for applicants holding a CPL(A) and an IR(A): 250 hours.

The theoretical knowledge instruction shall be completed before the skill test for the ATPL(A) is taken.

C. CPL/IR integrated course — Aeroplanes

GENERAL

1. The aim of the CPL(A) and IR(A) integrated course is to train pilots to the level of proficiency necessary to operate single-pilot single-engine or multi-engine aeroplanes in commercial air transport and to obtain the CPL(A)/IR.

2. An applicant wishing to undertake a CPL(A)/IR integrated course shall complete all the instructional stages in one continuous course of training as arranged by an ATO.

3. An applicant may be admitted to training either as an ab-initio entrant, or as a holder of a PPL(A) or PPL(H) issued in accordance with Annex 1 to the Chicago Convention. In the case of a PPL(A) or PPL(H) entrant, 50 % of the hours flown prior to the course shall be credited, up to a maximum of 40 hours flying experience, or 45 hours if an aeroplane night rating has been obtained, of which up to 20 hours may count towards the requirement for dual instruction flight time.

4. The course shall comprise:

(a) theoretical knowledge instruction to CPL(A) and IR knowledge level; and

(b) visual and instrument flying training.

5. An applicant failing or unable to complete the entire CPL/IR(A) course may apply to the Authority for the theoretical knowledge examination and skill test for a licence with lower privileges and an IR if the applicable requirements are met.

THEORETICAL KNOWLEDGE

6. A CPL(A)/IR theoretical knowledge course shall comprise at least 500 hours of instruction.

THEORETICAL KNOWLEDGE EXAMINATION

7. An applicant shall demonstrate a level of knowledge appropriate to the privileges granted to the holder of a CPL(A) and an IR.

FLYING TRAINING

8. The flying training, not including type rating training, shall comprise a total of at least 180 hours,

to include all progress tests, of which up to 40 hours for the entire course may be instrument ground time. Within the total of 180 hours, applicants shall complete at least:

(a) 80 hours of dual instruction, of which up to 40 hours may be instrument ground time;

(b) 70 hours as PIC, including VFR flight and instrument flight time which may be flown as SPIC. The instrument flight time as SPIC shall only be counted as PIC flight time up to a maximum of 20 hours;

(c) 50 hours of cross-country flight as PIC, including a VFR cross-country flight of at least 540 km (300 NM), in the course of which full stop landings at two aerodromes different from the aerodrome of departure shall be made;

(d) 5 hours flight time shall be completed at night, comprising 3 hours of dual instruction, which shall include at least 1 hour of cross-country navigation and 5 solo take-offs and 5 solo full stop landings; and

(e) 100 hours of instrument time comprising, at least:

(i) 20 hours as SPIC; and

(ii) 50 hours of instrument flight instruction, of which up to:

(1) 25 hours may be instrument ground time in an FNPT I; or

(2) 40 hours may be instrument ground time in an FNPT II, FTD 2 or FFS, of which up to 10 hours may be conducted in an FNPT I.

An applicant holding a course completion certificate for the Basic Instrument Flight Module shall be credited with up to 10 hours towards the required instrument instruction time. Hours done in a BITD shall not be credited;

(f) 5 hours to be carried out in an aeroplane certificated for the carriage of at least 4 persons that has a variable pitch propeller and retractable landing gear.

SKILL TESTS

9. Upon completion of the related flying training the applicant shall take the CPL(A) skill test and the IR skill test on either a multi-engine aeroplane or a single-engine aeroplane.

D. CPL integrated course — Aeroplanes

GENERAL

1. The aim of the CPL(A) integrated course is to train pilots to the level of proficiency necessary for the issue of a CPL(A).

2. An applicant wishing to undertake a CPL(A) integrated course shall complete all the instructional stages in one continuous course of training as arranged by an ATO.

3. An applicant may be admitted to training either as an ab-initio entrant, or as a holder of a PPL(A) or PPL(H) issued in accordance with Annex 1 to the Chicago Convention. In the case of a PPL(A) or PPL(H) entrant, 50 % of the hours flown prior to the course shall be credited, up to a maximum

of 40 hours flying experience, or 45 hours if an aeroplane night rating has been obtained, of which up to 20 hours may count towards the requirement for dual instruction flight time.

4. The course shall comprise:

(a) theoretical knowledge instruction to CPL(A) knowledge level; and

(b) visual and instrument flying training.

5. An applicant failing or unable to complete the entire CPL(A) course may apply to the Authority for the theoretical knowledge examination and skill test for a licence with lower privileges, if the applicable requirements are met.

THEORETICAL KNOWLEDGE

6. A CPL(A) theoretical knowledge course shall comprise at least 350 hours of instruction.

THEORETICAL KNOWLEDGE EXAMINATION

7. An applicant shall demonstrate a level of knowledge appropriate to the privileges granted to the holder of a CPL(A).

FLYING TRAINING

8. The flying training, not including type rating training, shall comprise a total of at least 150 hours, to include all progress tests, of which up to 5 hours for the entire course may be instrument ground time. Within the total of 150 hours, applicants shall complete at least:

(a) 80 hours of dual instruction, of which up to 5 hours may be instrument ground time;

(b) 70 hours as PIC;

(c) 20 hours of cross-country flight as PIC, including a VFR cross-country flight of at least 540 km (300 NM), in the course of which full stop landings at two aerodromes different from the aerodrome of departure shall be made;

(d) 5 hours flight time shall be completed at night, comprising 3 hours of dual instruction, which shall include at least 1 hour of cross-country navigation and 5 solo take-offs and 5 solo full stop landings;

(e) 10 hours of instrument flight instruction, of which up to 5 hours may be instrument ground time in an FNPT I, FTD 2, FNPT II or FFS. An applicant holding a course completion certificate for the Basic Instrument Flight Module shall be credited with up to 10 hours towards the required instrument instruction time. Hours done in a BITD shall not be credited;

(f) 5 hours to be carried out in an aeroplane certificated for the carriage of at least four persons that has a variable pitch propeller and retractable landing gear.

SKILL TEST

9. Upon completion of the flying training the applicant shall take the CPL(A) skill test on a single-engine or a multi- engine aeroplane.

E. CPL modular course — Aeroplanes

GENERAL

1. The aim of the CPL(A) modular course is to train PPL(A) holders to the level of proficiency necessary for the issue of a CPL(A).

2. Before commencing a CPL(A) modular course an applicant shall be the holder of a PPL(A) issued in accordance with Annex 1 to the Chicago Convention.

3. Before commencing the flight training the applicant shall:

   (a) have completed 150 hours flight time;

   (b) have complied with the pre-requisites for the issue of a class or type rating for multi-engine aeroplanes in accordance with Subpart H, if a multi-engine aeroplane is to be used on the skill test.

4. An applicant wishing to undertake a modular CPL(A) course shall complete all the flight instructional stages in one continuous course of training as arranged by an ATO. The theoretical knowledge instruction may be given at an ATO conducting theoretical knowledge instruction only.

5. The course shall comprise:

   (a) theoretical knowledge instruction to CPL(A) knowledge level; and

   (b) visual and instrument flying training.

THEORETICAL KNOWLEDGE

6. An approved CPL(A) theoretical knowledge course shall comprise at least 250 hours of instruction.

THEORETICAL KNOWLEDGE EXAMINATION

7. An applicant shall demonstrate a level of knowledge appropriate to the privileges granted to the holder of a CPL(A).

FLYING TRAINING

8. Applicants without an IR shall be given at least 25 hours dual flight instruction, including 10 hours of instrument instruction of which up to 5 hours may be instrument ground time in a BITD, an FNPT I or II, an FTD 2 or an FFS.

9. Applicants holding a valid IR(A) shall be fully credited towards the dual instrument instruction time. Applicants holding a valid IR(H) shall be credited up to 5 hours of the dual instrument instruction time, in which case at least 5 hours dual instrument instruction time shall be given in an aeroplane. An applicant holding a Course Completion Certificate for the Basic Instrument Flight Module shall be credited with up to 10 hours towards the required instrument instruction time.

10. (a) Applicants with a valid IR shall be given at least 15 hours dual visual flight instruction.

(b) Applicants without a night rating aeroplane shall be given additionally at least 5 hours night flight instruction, comprising 3 hours of dual instruction, which shall include at least 1 hour of cross-country navigation and 5 solo take-offs and 5 solo full stop landings.

11. At least 5 hours of the flight instruction shall be carried out in an aeroplane certificated for the carriage of at least 4 persons and have a variable pitch propeller and retractable landing gear.

EXPERIENCE

12. The applicant for a CPL(A) shall have completed at least 200 hours flight time, including at least:

(a) 100 hours as PIC, of which 20 hours of cross-country flight as PIC, which shall include a VFR cross-country flight of at least 540 km (300 NM), in the course of which full stop landings at two aerodromes different from the aerodrome of departure shall be made;

(b) 5 hours of flight time shall be completed at night, comprising 3 hours of dual instruction, which shall include at least 1 hour of cross-country navigation and 5 solo take-offs and 5 solo full stop landings; and

(c) 10 hours of instrument flight instruction, of which up to 5 hours may be instrument ground time in an FNPT I, or FNPT II or FFS. An applicant holding a course completion certificate for the Basic Instrument Flight Module shall be credited with up to 10 hours towards the required instrument instruction time. Hours done in a BITD shall not be credited;

(d) 6 hours of flight time shall be completed in a multi-engine aeroplane.

(e) Hours as PIC of other categories of aircraft may count towards the 200 hours flight time, in the following cases:

(i) 30 hours in helicopter, if the applicant holds a PPL(H); or

(ii) 100 hours in helicopters, if the applicant holds a CPL(H); or

(iii) 30 hours in TMGs or sailplanes; or

(iv) 30 hours in airships, if the applicant holds a PPL(As); or

(v) 60 hours in airships, if the applicant holds a CPL(As).

SKILL TEST

13. Upon completion of the flying training and relevant experience requirements the applicant shall take the CPL(A) skill test on either a single-engine or a multi-engine aeroplane.

F. ATP/IR integrated course — Helicopters

GENERAL

1. The aim of the ATP(H)/IR integrated course is to train pilots to the level of proficiency necessary to enable them to operate as co-pilot on multi-pilot multi-engine helicopters in commercial air transport and to obtain the CPL(H)/IR.

2. An applicant wishing to undertake an ATP(H)/IR integrated course shall complete all the instructional stages in one continuous course of training as arranged by an ATO.

3. An applicant may be admitted to training either as an ab-initio entrant, or as a holder of a PPL(H) issued in accordance with Annex 1 to the Chicago Convention. In the case of a PPL(H) entrant, 50 % of the relevant experience shall be credited, up to a maximum of:

(a) 40 hours, of which up to 20 hours may be dual instruction; or

(b) 50 hours, of which up to 25 hours may be dual instruction, if a helicopter night rating has been obtained.

4. The course shall comprise:

(a) theoretical knowledge instruction to the ATPL(H) and IR knowledge level;

(b) visual and instrument flying training; and

(c) training in MCC for the operation of multi-pilot helicopters.

5. An applicant failing or unable to complete the entire ATP(H)/IR course may apply to the Authority for the theoretical knowledge examination and skill test for a licence with lower privileges and an IR, if the applicable requirements are met.

THEORETICAL KNOWLEDGE

6. An ATP(H)/IR theoretical knowledge course shall comprise at least 750 hours of instruction.

7. The MCC course shall comprise at least 25 hours of theoretical knowledge instruction exercises.

THEORETICAL KNOWLEDGE EXAMINATION

8. An applicant shall demonstrate the level of knowledge appropriate to the privileges granted to the holder of an ATPL(H) and an IR.

FLYING TRAINING

9. The flying training shall comprise a total of at least 195 hours, to include all progress tests. Within the total of 195 hours, applicants shall complete at least:

(a) 140 hours of dual instruction, of which:

(i) 75 hours visual instruction may include:

(1) 30 hours in a helicopter FFS, level C/D; or

(2) 25 hours in a FTD 2, 3; or

(3) 20 hours in a helicopter FNPT II/III; or

(4) 20 hours in an aeroplane or TMG;

(ii) 50 hours instrument instruction may include:

(1) up to 20 hours in a helicopter FFS or FTD 2,3 or FNPT II/III; or

(2) 10 hours in at least a helicopter FNPT 1 or an aeroplane;

(iii) 15 hours MCC, for which a helicopter FFS or helicopter FTD 2, 3(MCC) or FNPT II/III(MCC) may be used.

If the helicopter used for the flying training is of a different type from the helicopter FFS used for the visual training, the maximum credit shall be limited to that allocated for the helicopter FNPT II/III;

(b) 55 hours as PIC, of which 40 hours may be as SPIC. At least 14 hours solo day and 1 hour solo night shall be made;

(c) 50 hours of cross-country flight, including at least 10 hours of cross-country flight as SPIC including a VFR cross-country flight of at least 185 km (100 NM) in the course of which landings at two different aerodromes from the aerodrome of departure shall be made;

(d) 5 hours flight time in helicopters shall be completed at night comprising 3 hours of dual instruction including at least 1 hour of cross-country navigation and 5 solo night circuits. Each circuit shall include a take-off and a landing;

(e) 50 hours of dual instrument time comprising:

(i) 10 hours basic instrument instruction time; and

(ii) 40 hours IR Training, which shall include at least 10 hours in a multi-engine IFR-certificated helicopter.

SKILL TESTS

10. Upon completion of the related flying training, the applicant shall take the CPL(H) skill test on a multi-engine helicopter and the IR skill test on an IFR certificated multi-engine helicopter and shall comply with the requirements for MCC training.

G. ATP integrated course — Helicopters

GENERAL

1. The aim of the ATP(H) integrated course is to train pilots to the level of proficiency necessary to enable them to operate as co-pilot on multi-pilot multi-engine helicopters limited to VFR privileges in commercial air transport and to obtain the CPL(H).

2. An applicant wishing to undertake an ATP(H) integrated course shall complete all the instructional stages in one continuous course of training as arranged by an ATO.

3. An applicant may be admitted to training either as an ab-initio entrant, or as a holder of a PPL(H) issued in accordance with Annex 1 to the Chicago Convention. In the case of a PPL(H) entrant, 50 % of the relevant experience shall be credited, up to a maximum of:

(a) 40 hours, of which up to 20 hours may be dual instruction; or

(b) 50 hours, of which up to 25 hours may be dual instruction, if a helicopter night rating has been obtained.

4. The course shall comprise:

(a) theoretical knowledge instruction to the ATPL(H) knowledge level;

(b) visual and basic instrument flying training; and

(c) training in MCC for the operation of multi-pilot helicopters.

5. An applicant failing or unable to complete the entire ATP(H) course may apply to the Authority for the theoretical knowledge examination and skill test for a licence with lower privileges, if the applicable requirements are met.

THEORETICAL KNOWLEDGE

6. An ATP(H) theoretical knowledge course shall comprise at least 650 hours of instruction.

7. The MCC course shall comprise at least 20 hours of theoretical knowledge instruction exercises.

THEORETICAL KNOWLEDGE EXAMINATION

8. An applicant shall demonstrate the level of knowledge appropriate to the privileges granted to the holder of an ATPL (H).

FLYING TRAINING

9. The flying training shall comprise a total of at least 150 hours, to include all progress tests. Within the total of 150 hours, applicants shall complete at least:

(a) 95 hours of dual instruction, of which:

(i) 75 hours visual instruction may include:

(1) 30 hours in a helicopter FFS level C/D; or

(2) 25 hours in a helicopter FTD 2,3; or

(3) 20 hours in a helicopter FNPT II/III; or

(4) 20 hours in an aeroplane or TMG;

(ii) 10 hours basic instrument instruction may include 5 hours in at least a helicopter FNPT I or an aeroplane;

(iii) 10 hours MCC, for which a helicopter: helicopter FFS or FTD 2,3(MCC) or FNPT II/III(MCC) may be used.

If the helicopter used for the flying training is of a different type from the helicopter FFS used for the visual training, the maximum credit shall be limited to that allocated for the helicopter FNPT II/III;

(b) 55 hours as PIC, of which 40 hours may be as SPIC. At least 14 hours solo day and 1 hour solo night shall be made;

(c) 50 hours of cross-country flight, including at least 10 hours of cross-country flight as SPIC, including a VFR cross-country flight of at least 185 km (100 NM) in the course of which landings at two different aerodromes from the aerodrome of departure shall be made;

(d) 5 hours flight time in helicopters shall be completed at night comprising 3 hours of dual instruction including at least 1 hour of cross-country navigation and 5 solo night circuits. Each circuit shall include a take-off and a landing.

SKILL TESTS

10. Upon completion of the related flying training the applicant shall take the CPL(H) skill test on a multi-engine helicopter and comply with MCC requirements.

H. ATP modular course — Helicopters

1. Applicants for an ATPL(H) who complete their theoretical knowledge instruction at a modular course shall hold at least a PPL(H) and complete at least the following hours of instruction within a period of 18 months:

   (a) for applicants holding a PPL(H) issued in accordance with Annex 1 to the Chicago Convention: 550 hours;

   (b) for applicants holding a CPL(H): 300 hours.

2. Applicants for an ATPL(H)/IR who complete their theoretical knowledge instruction at a modular course shall hold at least a PPL(H) and complete at least the following hours of instruction:

   (a) for applicants holding a PPL(H): 650 hours;

   (b) for applicants holding a CPL(H): 400 hours;

   (c) for applicants holding an IR(H): 500 hours;

   (d) for applicants holding a CPL(H) and an IR(H): 250 hours.

I CPL/IR integrated course — Helicopters

GENERAL

1. The aim of the CPL(H)/IR integrated course is to train pilots to the level of proficiency necessary to operate single- pilot multi-engine helicopters and to obtain the CPL(H)/IR multi-engine helicopter.

2. An applicant wishing to undertake a CPL(H)/IR integrated course shall complete all the instructional stages in one continuous course of training as arranged by an ATO.

3. An applicant may be admitted to training either as an ab-initio entrant, or as a holder of a PPL(H) issued in accordance with Annex 1 to the Chicago Convention. In the case of an entrant holding a PPL(H), 50 % of the relevant experience shall be credited, up to a maximum of:

(a) 40 hours, of which up to 20 hours may be dual instruction; or

(b) 50 hours, of which up to 25 hours may be dual instruction, if a helicopter night rating has been obtained.

4. The course shall comprise:

(a) theoretical knowledge instruction to CPL(H) and IR knowledge level, and the initial multi-engine helicopter type rating; and

(b) visual and instrument flying training.

5. An applicant failing or unable to complete the entire CPL(H)/IR course may apply to the Authority for the theoretical knowledge examination and skill test for a licence with lower privileges and an IR, if the applicable requirements are met.

THEORETICAL KNOWLEDGE

6. A CPL(H)/IR theoretical knowledge course shall comprise at least 500 hours of instruction.

THEORETICAL KNOWLEDGE EXAMINATION

7. An applicant shall demonstrate a level of knowledge appropriate to the privileges granted to the holder of a CPL(H) and an IR.

FLYING TRAINING

8. The flying training shall comprise a total of at least 180 hours including all progress tests. Within the 180 hours, applicants shall complete at least:

(a) 125 hours of dual instruction, of which:

(i) 75 hours visual instruction, which may include:

(1) 30 hours in a helicopter FFS level C/D; or

(2) 25 hours in a helicopter FTD 2, 3; or

(3) 20 hours in a helicopter FNPT II/III; or

(4) 20 hours in an aeroplane or TMG;

(ii) 50 hours instrument instruction which may include:

(1) up to 20 hours in a helicopter FFS or FTD 2, 3, or FNPT II, III; or

(2) 10 hours in at least a helicopter FNPT I or an aeroplane.

If the helicopter used for the flying training is of a different type from the FFS used for the visual training, the maximum credit shall be limited to that allocated for the FNPT II/III;

(b) 55 hours as PIC, of which 40 hours may be as SPIC. At least 14 hours solo day and 1 hour solo night shall be made;

(c) 10 hours dual cross-country flying;

(d) 10 hours of cross-country flight as PIC, including a VFR cross-country flight of at least 185 km (100 NM) in the course of which full stop landings at two different aerodromes from the aerodrome of departure shall be made;

(e) 5 hours of flight time in helicopters shall be completed at night comprising 3 hours of dual instruction including at least 1 hour of cross-country navigation and 5 solo night circuits. Each circuit shall include a take-off and a landing;

(f) 50 hours of dual instrument time comprising:

(i) 10 hours basic instrument instruction time; and

(ii) 40 hours IR Training, which shall include at least 10 hours in a multi-engine IFR-certificated helicopter.

SKILL TEST

9. Upon completion of the related flying training, the applicant shall take the CPL(H) skill test on either a multi-engine or a single-engine helicopter and the IR skill test on an IFR-certificated multi-engine helicopter.

J. CPL integrated course — Helicopters

GENERAL

1. The aim of the CPL(H) integrated course is to train pilots to the level of proficiency necessary for the issue of a CPL(H).

2. An applicant wishing to undertake a CPL(H) integrated course shall complete all the instructional stages in one continuous course of training as arranged by an ATO.

3. An applicant may be admitted to training either as an ab-initio entrant, or as a holder of a PPL(H) issued in accordance with Annex 1 to the Chicago Convention. In the case of an entrant holding a PPL(H), 50 % of the relevant experience shall be credited, up to a maximum of:

(a) 40 hours, of which up to 20 hours may be dual instruction; or

(b) 50 hours, of which up to 25 hours may be dual instruction if a helicopter night rating has been obtained.

4. The course shall comprise:

(a) theoretical knowledge instruction to CPL(H) knowledge level; and

(b) visual and instrument flying training.

5. An applicant failing or unable to complete the entire CPL(H) course may apply to the Authority for the theoretical knowledge examination and skill test for a licence with lower privileges, if the applicable requirements are met.

THEORETICAL KNOWLEDGE

6. An approved CPL(H) theoretical knowledge course shall comprise at least 350 hours of instruction or 200 hours if the applicant is the holder of a PPL.

THEORETICAL KNOWLEDGE EXAMINATION

7. An applicant shall demonstrate a level of knowledge appropriate to the privileges granted to the holder of a CPL(H).

FLYING TRAINING

8. The flying training shall comprise a total of at least 135 hours, to include all progress tests, of which up to 5 hours may be instrument ground time. Within the 135 hours total, applicants shall complete at least:

(a) 85 hours of dual instruction, of which:

(i) up to 75 hours may be visual instruction, and may include:

(1) 30 hours in a helicopter FFS level C/D; or

(2) 25 hours in a helicopter FTD 2, 3; or

(3) 20 hours in a helicopter FNPT II/III; or

(4) 20 hours in an aeroplane or TMG;

(ii) up to 10 hours may be instrument instruction, and may include 5 hours in at least a helicopter FNPT I or an aeroplane.

If the helicopter used for the flying training is of a different type from the FFS used for the visual training, the maximum credit shall be limited to that allocated for the FNPT II/III;

(b) 50 hours as PIC, of which 35 hours may be as SPIC. At least 14 hours solo day and 1 hour solo night shall be made;

(c) 10 hours dual cross-country flying;

(d) 10 hours of cross-country flight as PIC, including a VFR cross-country flight of at least 185 km (100 NM) in the course of which full stop landings at two different aerodromes from the aerodrome of departure shall be made;

(e) 5 hours flight time in helicopters shall be completed at night comprising 3 hours of dual instruction including at least 1 hour of cross-country navigation and 5 solo night circuits. Each circuit shall include a take-off and a landing;

(f) 10 hours of instrument dual instruction time, including at least 5 hours in a helicopter.

SKILL TEST

9. Upon completion of the related flying training, the applicant shall take the CPL(H) skill test.

K. CPL modular course — Helicopters

GENERAL

1. The aim of the CPL(H) modular course is to train PPL(H) holders to the level of proficiency necessary for the issue of a CPL(H).

2. Before commencing a CPL(H) modular course an applicant shall be the holder of a PPL(H) issued in accordance with Annex 1 to the Chicago Convention.

3. Before commencing the flight training the applicant shall:

   (a) have completed 155 hours flight time as a pilot in helicopters, including 50 hours as PIC of which 10 hours shall be cross-country;

   (b) have complied with LIC.725 and LIC.720.H if a multi-engine helicopter is to be used on the skill test.

4. An applicant wishing to undertake a modular CPL(H) course shall complete all the flight instructional stages in one continuous course of training as arranged by an ATO. The theoretical knowledge instruction may be given at an ATO that conducts theoretical knowledge instruction only.

5. The course shall comprise:

   (a) theoretical knowledge instruction to CPL(H) knowledge level; and

   (b) visual and instrument flying training.

THEORETICAL KNOWLEDGE

6. An approved CPL(H) theoretical knowledge course shall comprise at least 250 hours of instruction.

THEORETICAL KNOWLEDGE EXAMINATION

7. An applicant shall demonstrate a level of knowledge appropriate to the privileges granted to the holder of a CPL(H).

FLYING TRAINING

8. Applicants without an IR shall be given at least 30 hours dual flight instruction, of which:

   (a) 20 hours visual instruction, which may include 5 hours in a helicopter FFS or FTD 2,3 or FNPT II, III; and

   (b) 10 hours instrument instruction, which may include 5 hours in at least a helicopter FTD 1 or FNPT I or aeroplane.

9. Applicants holding a valid IR(H) shall be fully credited towards the dual instrument instruction time. Applicants holding a valid IR(A) shall complete at least 5 hours of the dual instrument instruction time in a helicopter.

10. Applicants without a night rating helicopter shall be given additionally at least 5 hours night flight instruction comprising 3 hours of dual instruction including at least 1 hour of cross-country navigation and 5 solo night circuits. Each circuit shall include a take-off and a landing.

EXPERIENCE

11. The applicant for a CPL(H) shall have completed at least 185 hours flight time, including 50 hours as PIC, of which 10 hours of cross-country flight as PIC, including a VFR cross-country flight of at least 185 km (100 NM), in the course of which full stop landings at two aerodromes different from the aerodrome of departure shall be made.

    Hours as pilot-in-command of other categories of aircraft may count towards the 185 hours flight time, in the following cases:

    (a) 20 hours in aeroplanes, if the applicant holds a PPL(A); or

    (b) 50 hours in aeroplanes, if the applicant holds a CPL(A); or

    (c) 10 hours in TMGs or sailplanes; or

    (d) 20 hours in airships, if the applicant holds a PPL(As); or

    (e) 50 hours in airships, if the applicant holds a CPL(As). SKILL TEST

12. Upon completion of the related flying training and relevant experience, the applicant shall take the CPL(H) skill test.

L. CPL/IR integrated course — Airships

GENERAL

1. The aim of the CPL(As)/IR integrated course is to train pilots to the level of proficiency necessary to operate airships and to obtain the CPL(As)/IR.

2. An applicant wishing to undertake a CPL(As)/IR integrated course shall complete all the instructional stages in one continuous course of training as arranged by an ATO.

3. An applicant may be admitted to training either as an ab-initio entrant, or as a holder of a PPL(As), PPL(A) or PPL(H) issued in accordance with Annex 1 to the Chicago Convention. In the case of an entrant holding a PPL(As), PPL(A) or PPL(H) shall be credited up to a maximum of:

    (a) 10 hours, of which up to 5 hours may be dual instruction; or

    (b) 15 hours, of which up to 7 hours may be dual instruction, if an airship night rating has been obtained.

4. The course shall comprise:

    (a) theoretical knowledge instruction to CPL(As) and IR knowledge level, and the initial airship type rating; and

    (b) visual and instrument flying training.

5. An applicant failing or unable to complete the entire CPL/IR(As) course may apply to the Authority for the theoretical knowledge examination and skill test for a licence with lower privileges and an IR, if the applicable requirements are met.

THEORETICAL KNOWLEDGE

6. A CPL(As)/IR theoretical knowledge course shall comprise at least 500 hours of instruction.

THEORETICAL KNOWLEDGE EXAMINATION

7. An applicant shall demonstrate a level of knowledge appropriate to the privileges granted to the holder of a CPL(As) and an IR.

FLYING TRAINING

8. The flying training shall comprise a total of at least 80 hours including all progress tests. Within the 80 hours, applicants shall complete at least:

(a) 60 hours of dual instruction, of which:

(i) 30 hours visual instruction, which may include:

(1) 12 hours in an airship FFS; or

(2) 10 hours in an airship FTD; or

(3) 8 hours in an airship FNPT II/III; or

(4) 8 hours in an aeroplane, helicopter or TMG;

(ii) 30 hours instrument instruction which may include:

(1) up to 12 hours in an airship FFS or FTD or FNPT II, III; or

(2) 6 hours in at least a airship FTD 1 or FNPT I or aeroplane.

If the airship used for the flying training is of a different type from the FFS used for the visual training, the maximum credit shall be limited to 8 hours;

(b) 20 hours as PIC, of which 5 hours may be as SPIC. At least 14 hours solo day and 1 hour solo night shall be made;

(c) 5 hours of cross-country flight as PIC, including a VFR cross-country flight of at least 90 km (50 NM) in the course of which two full stop landings at the destination aerodrome shall be made;

(d) 5 hours flight time in airships shall be completed at night comprising 3 hours of dual instruction including at least 1 hour of cross-country navigation and 5 solo night circuits. Each circuit shall include take-off and landing;

(e) 30 hours of dual instrument time comprising:

(i) 10 hours basic instrument instruction time; and

(ii) 20 hours IR Training, which shall include at least 10 hours in a multi-engine IFR-certificated airship.

SKILL TEST

9. Upon completion of the related flying training, the applicant shall take the CPL(As) skill test on either a multi-engine or a single-engine airship and the IR skill test on an IFR-certificated multi-engine airship.

M. CPL integrated course — Airships

GENERAL

1. The aim of the CPL(As) integrated course is to train pilots to the level of proficiency necessary for the issue of a CPL(AS).

2. An applicant wishing to undertake a CPL(As) integrated course shall complete all the instructional stages in one continuous course of training as arranged by an ATO.

3. An applicant may be admitted to training either as an ab-initio entrant, or as a holder of a PPL(As), PPL(A) or PPL(H) issued in accordance with Annex 1 to the Chicago Convention. In the case of an entrant holding a PPL(As), PPL(A) or PPL(H) shall be credited up to a maximum of:

   (a) 10 hours, of which up to 5 hours may be dual instruction; or

   (b) 15 hours, of which up to 7 hours may be dual instruction if a airship night rating has been obtained.

4. The course shall comprise:

   (a) theoretical knowledge instruction to CPL(As) knowledge level; and

   (b) visual and instrument flying training.

5. An applicant failing or unable to complete the entire CPL(As) course may apply to the Authority for the theoretical knowledge examination and skill test for a licence with lower privileges, if the applicable requirements are met.

THEORETICAL KNOWLEDGE

6. An approved CPL(As) theoretical knowledge course shall comprise at least 350 hours of instruction or 200 hours if the applicant is a PPL holder.

THEORETICAL KNOWLEDGE EXAMINATION

7. An applicant shall demonstrate a level of knowledge appropriate to the privileges granted to the holder of a CPL(As).

FLYING TRAINING

8. The flying training shall comprise a total of at least 50 hours, to include all progress tests, of which up to 5 hours may be instrument ground time. Within the 50 hours total, applicants shall complete at least:

(a) 30 hours of dual instruction, of which up to 5 hours may be instrument ground time;

(b) 20 hours as PIC;

(c) 5 hours dual cross-country flying;

(d) 5 hours of cross-country flight as PIC, including a VFR cross-country flight of at least 90 km (50 NM) in the course of which two full stop landings at the destination aerodrome shall be made;

(e) 5 hours flight time in airships shall be completed at night comprising 3 hours of dual instruction including at least 1 hour of cross-country navigation and 5 solo night circuits. Each circuit shall include take-off and landing;

(f) 10 hours of instrument dual instruction time, including at least 5 hours in an airship.

SKILL TEST

9. Upon completion of the related flying training, the applicant shall take the CPL(As) skill test.

N. CPL modular course — Airships

GENERAL

1. The aim of the CPL(As) modular course is to train PPL(As) holders to the level of proficiency necessary for the issue of a CPL(As).

2. Before commencing a CPL(As) modular course an applicant shall:

(a) hold a PPL(As) issued in accordance with Annex 1 to the Chicago Convention;

(b) have completed 200 hours flight time as a pilot on airships, including 100 hours as PIC, of which 50 hours shall be cross-country.

3. An applicant wishing to undertake a modular CPL(As) course shall complete all the flight instructional stages in one continuous course of training as arranged by an ATO. The theoretical knowledge instruction may be given at an ATO that conducts theoretical knowledge instruction only.

4. The course shall comprise:

(a) theoretical knowledge instruction to CPL(As) knowledge level; and

(b) visual and instrument flying training.

THEORETICAL KNOWLEDGE

5. An approved CPL(As) theoretical knowledge course shall comprise at least 250 hours of instruction.

THEORETICAL KNOWLEDGE EXAMINATION

6. An applicant shall demonstrate a level of knowledge appropriate to the privileges granted to the holder of a CPL(As).

FLYING TRAINING

7. Applicants without an IR shall be given at least 20 hours dual flight instruction, of which:

   (a) 10 hours visual instruction, which may include 5 hours in an airship FFS or FTD 2,3 or FNPT II, III; and

   (b) 10 hours instrument instruction, which may include 5 hours in at least an airship FTD 1 or FNPT I or aeroplane.

8. Applicants holding a valid IR(As) shall be fully credited towards the dual instrument instruction time. Applicants holding a valid IR in another category of aircraft shall complete at least 5 hours of the dual instrument instruction time in an airship.

9. Applicants without a night rating airship shall be given additionally at least 5 hours night flight instruction comprising 3 hours of dual instruction including at least 1 hour of cross-country navigation and 5 solo night circuits. Each circuit shall include a take-off and a landing.

EXPERIENCE

10. The applicant for a CPL(As) shall have completed at least 250 hours flight time in airships, including 125 hours as PIC, of which 50 hours of cross-country flight as PIC, including a VFR cross-country flight of at least 90 km (50 NM), in the course of which a full stop landing at destination aerodrome. Hours as PIC of other categories of aircraft may count towards the 185 hours flight time, in the following cases:

    (a) 30 hours in aeroplanes or helicopters, if the applicant holds a PPL(A) or PPL(H) respectively; or

    (b) 60 hours in aeroplanes or helicopters, if the applicant holds a CPL(A) or CPL(H) respectively; or

    (c) 10 hours in TMGs or sailplanes; or

    (d) 10 hours in balloons.

SKILL TEST

11. Upon completion of the related flying training and relevant experience, the applicant shall take the CPL(As) skill test.

APPENDIX 4

SKILL TEST FOR THE ISSUE OF A CPL

A. General

1. An applicant for a skill test for the CPL shall have received instruction on the same class or type of aircraft to be used in the test.

2. An applicant shall pass all the relevant sections of the skill test. If any item in a section is failed, that section is failed. Failure in more than one section will require the applicant to take the entire test again. An applicant failing only in one section shall only repeat the failed section. Failure in any section of the retest, including those sections that have been passed on a previous attempt, will require the applicant to take the entire test again. All relevant sections of the skill test shall be completed within 6 months. Failure to achieve a pass in all relevant sections of the test in two attempts will require further training.

3. Further training may be required following any failed skill test. There is no limit to the number of skill tests that may be attempted.

CONDUCT OF THE TEST

4. Should the applicant choose to terminate a skill test for reasons considered inadequate by the Flight Examiner (FE), the applicant shall retake the entire skill test. If the test is terminated for reasons considered adequate by the FE, only those sections not completed shall be tested in a further flight.

5. At the discretion of the FE, any manoeuvre or procedure of the test may be repeated once by the applicant. The FE may stop the test at any stage if it is considered that the applicant’s demonstration of flying skills requires a complete re-test.

6. An applicant shall be required to fly the aircraft from a position where the PIC functions can be performed and to carry out the test as if no other crew member is present. Responsibility for the flight shall be allocated in accordance with national regulations.

7. An applicant shall indicate to the FE the checks and duties carried out, including the identification of radio facilities. Checks shall be completed in accordance with the checklist for the aircraft on which the test is being taken. During pre-flight preparation for the test, the applicant is required to determine power settings and speeds. Performance data for take-off, approach and landing shall be calculated by the applicant in compliance with the operations manual or flight manual for the aircraft used.

8. The FE shall take no part in the operation of the aircraft except where intervention is necessary in the interests of safety or to avoid unacceptable delay to other traffic.

B. Content of the skill test for the issue of a CPL — Aeroplanes

1. The aeroplane used for the skill test shall meet the requirements for training aeroplanes, and shall be certificated for the carriage of at least four persons, have a variable pitch propeller and retractable landing gear.

2. The route to be flown shall be chosen by the FE and the destination shall be a controlled aerodrome. The applicant shall be responsible for the flight planning and shall ensure that all

equipment and documentation for the execution of the flight are on board. The duration of the flight shall be at least 90 minutes.

3. The applicant shall demonstrate the ability to:

(a) operate the aeroplane within its limitations;

(b) complete all manoeuvres with smoothness and accuracy;

(c) exercise good judgement and airmanship;

(d) apply aeronautical knowledge; and

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

FLIGHT TEST TOLERANCES

4. The following limits shall apply, corrected to make allowance for turbulent conditions and the handling qualities and performance of the aeroplane used.

Height

normal flight	± 100 feet
with simulated engine failure	± 150 feet

Tracking on radio aids ± 5°

Heading

normal flight	± 10°
with simulated engine failure	± 15°

Speed

take-off and approach	± 5 knots
all other flight regimes	± 10 knots

CONTENT OF THE TEST

5. Items in section 2(c) and (e)(iv), and the whole of sections 5 and 6 may be performed in an FNPT II or an FFS.

Use of the aeroplane checklists, airmanship, control of the aeroplane by external visual reference, anti-icing/de-icing procedures and principles of threat and error management apply in all sections.

SECTION 1 — PRE-FLIGHT OPERATIONS AND DEPARTURE	
a	Pre-flight, including: Flight planning, Documentation, Mass and balance determination, Weather brief, NOTAMS
b	Aeroplane inspection and servicing
c	Taxiing and take-off

d	Performance considerations and trim
e	Aerodrome and traffic pattern operations
f	Departure procedure, altimeter setting, collision avoidance (lookout)
g	ATC liaison — compliance, R/T procedures
SECTION 2 — GENERAL AIRWORK	
a	Control of the aeroplane by external visual reference, including straight and level, climb, descent, lookout
b	Flight at critically low airspeeds including recognition of and recovery from incipient and full stalls
c	Turns, including turns in landing configuration. Steep turns 45°
d	Flight at critically high airspeeds, including recognition of and recovery from spiral dives
e	Flight by reference solely to instruments, including: (i) level flight, cruise configuration, control of heading, altitude and airspeed (ii) climbing and descending turns with 10°-30° bank (iii) recoveries from unusual attitudes (iv) limited panel instruments
f	ATC liaison — compliance, R/T procedures
SECTION 3 — EN-ROUTE PROCEDURES	
a	Control of aeroplane by external visual reference, including cruise configuration Range/Endurance considerations
b	Orientation, map reading
c	Altitude, speed, heading control, lookout
d	Altimeter setting. ATC liaison — compliance, R/T procedures
e	Monitoring of flight progress, flight log, fuel usage, assessment of track error and re-establishment of correct tracking
f	Observation of weather conditions, assessment of trends, diversion planning
g	Tracking, positioning (NDB or VOR), identification of facilities (instrument flight). Implementation of diversion plan to alternate aerodrome (visual flight)
SECTION 4 — APPROACH AND LANDING PROCEDURES	
a	Arrival procedures, altimeter setting, checks, lookout
b	ATC liaison — compliance, R/T procedures
c	Go-around action from low height
d	Normal landing, crosswind landing (if suitable conditions)
e	Short field landing
f	Approach and landing with idle power (single-engine only)
g	Landing without use of flaps

h	Post-flight actions
SECTION 5 — ABNORMAL AND EMERGENCY PROCEDURES	

This section may be combined with sections 1 through 4

a	Simulated engine failure after take-off (at a safe altitude), fire drill
b	Equipment malfunctions including alternative landing gear extension, electrical and brake failure
c	Forced landing (simulated)
d	ATC liaison — compliance, R/T procedures
e	Oral questions
SECTION 6 — SIMULATED ASYMMETRIC FLIGHT AND RELEVANT CLASS OR TYPE ITEMS	

This section may be combined with sections 1 through 5

a	Simulated engine failure during take-off (at a safe altitude unless carried out in an FFS)
b	Asymmetric approach and go-around
c	Asymmetric approach and full stop landing
d	Engine shutdown and restart
e	ATC liaison — compliance, R/T procedures, Airmanship
f	As determined by the FE — any relevant items of the class or type rating skill test to include, if applicable: (i) aeroplane systems including handling of autopilot (ii) operation of pressurisation system (iii) use of de-icing and anti-icing system
g	Oral questions

C. Content of the skill test for the issue of the CPL — Helicopters

1. The helicopter used for the skill test shall meet the requirements for training helicopters.

2. The area and route to be flown shall be chosen by the FE and all low level and hover work shall be at an approved aerodrome/site. Routes used for section 3 may end at the aerodrome of departure or at another aerodrome and one destination shall be a controlled aerodrome. The skill test may be conducted in 2 flights. The total duration of the flight(s) shall be at least 90 minutes.

3. The applicant shall demonstrate the ability to:

   (a) operate the helicopter within its limitations;

   (b) complete all manoeuvres with smoothness and accuracy;

   (c) exercise good judgement and airmanship;

   (d) apply aeronautical knowledge; and

(e) maintain control of the helicopter at all times in such a manner that the successful outcome of a procedure or manoeuvre is never seriously in doubt.

FLIGHT TEST TOLERANCES

4. The following limits shall apply, corrected to make allowance for turbulent conditions and the handling qualities and performance of the helicopter used.

Height

normal flight	± 100 feet
simulated major emergency	± 150 feet

Tracking on radio aids ± 10°

Heading

normal flight	± 10°
simulated major emergency	± 15°

Speed

take-off and approach multi-engine	± 5 knots
all other flight regimes	± 10 knots

Ground drift

T.O. hover I.G.E.	± 3 feet
landing no sideways or backwards movement	

CONTENT OF THE TEST

5. Items in section 4 may be performed in a helicopter FNPT or a helicopter FFS. Use of helicopter checklists, airmanship, control of helicopter by external visual reference, anti-icing procedures, and principles of threat and error management apply in all sections.

SECTION 1 — PRE-FLIGHT/POST-FLIGHT CHECKS AND PROCEDURES	
a	Helicopter knowledge (e.g. technical log, fuel, mass and balance, performance), flight planning, documentation, NOTAMS, weather
b	Pre-flight inspection/action, location of parts and purpose
c	Cockpit inspection, starting procedure
d	Communication and navigation equipment checks, selecting and setting frequencies
e	Pre-take-off procedure, R/T procedure, ATC liaison-compliance
f	Parking, shutdown and post-flight procedure
SECTION 2 — HOVER MANOEUVRES, ADVANCED HANDLING AND CONFINED AREAS	
a	Take-off and landing (lift-off and touchdown)
b	Taxi, hover taxi
c	Stationary hover with head/cross/tail wind

d	Stationary hover turns, 360° left and right (spot turns)
e	Forward, sideways and backwards hover manoeuvring
f	Simulated engine failure from the hover
g	Quick stops into and downwind
h	Sloping ground/unprepared sites landings and take-offs
i	Take-offs (various profiles)
j	Crosswind, downwind take-off (if practicable)
k	Take-off at maximum take-off mass (actual or simulated)
l	Approaches (various profiles)
m	Limited power take-off and landing
n	Autorotations (FE to select two items from — Basic, range, low speed, and 360° turns)
o	Autorotative landing
p	Practice forced landing with power recovery
q	Power checks, reconnaissance technique, approach and departure technique
SECTION 3 — NAVIGATION — EN-ROUTE PROCEDURES	
a	Navigation and orientation at various altitudes/heights, map reading
b	Altitude/height, speed, heading control, observation of airspace, altimeter setting
c	Monitoring of flight progress, flight log, fuel usage, endurance, ETA, assessment of track error and re-establishment of correct track, instrument monitoring
d	Observation of weather conditions, diversion planning
e	Tracking, positioning (NDB and/or VOR), identification of facilities
f	ATC liaison and observance of regulations, etc.
SECTION 4 — FLIGHT PROCEDURES AND MANOEUVRES BY SOLE REFERENCE TO INSTRUMENTS	
a	Level flight, control of heading, altitude/height and speed
b	Rate 1 level turns onto specified headings, 180° to 360° left and right
c	Climbing and descending, including turns at rate 1 onto specified headings
d	Recovery from unusual attitudes
e	Turns with 30° bank, turning up to 90° left and right
SECTION 5 — ABNORMAL AND EMERGENCY PROCEDURES (SIMULATED WHERE APPROPRIATE)	

Note 1: Where the test is conducted on a multi-engine helicopter a simulated engine failure drill, including a single- engine approach and landing, shall be included in the test.

Note 2: The FE shall select four items from the following:

a	Engine malfunctions, including governor failure, carburettor/engine icing, oil system, as appropriate

b	Fuel system malfunction
c	Electrical system malfunction
d	Hydraulic system malfunction, including approach and landing without hydraulics, as applicable
e	Main rotor and/or anti-torque system malfunction (FFS or discussion only)
f	Fire drills, including smoke control and removal, as applicable
g	Other abnormal and emergency procedures as outlined in appropriate flight manual, including for multi-engine helicopters: Simulated engine failure at take-off: rejected take-off at or before TDP or safe forced landing at or before DPATO, shortly after TDP or DPATO. Landing with simulated engine failure: landing or go-around following engine failure before LDP or DPBL, following engine failure after LDP or safe forced landing after DPBL.

D. Content of the skill test for the issue of a CPL — Airships

1. The airship used for the skill test shall meet the requirements for training airships.

2. The area and route to be flown shall be chosen by the FE. Routes used for section 3 may end at the aerodrome of departure or at another aerodrome and one destination shall be a controlled aerodrome. The skill test may be conducted in 2 flights. The total duration of the flight(s) shall be at least 60 minutes.

3. The applicant shall demonstrate the ability to:

   (a) operate the airship within its limitations;

   (b) complete all manoeuvres with smoothness and accuracy;

   (c) exercise good judgement and airmanship;

   (d) apply aeronautical knowledge; and

(e) maintain control of the airship at all times in such a manner that the successful outcome of a procedure or manoeuvre is never seriously in doubt.

FLIGHT TEST TOLERANCES

4. The following limits shall apply, corrected to make allowance for turbulent conditions and the handling qualities and performance of the airship used.

   Height

normal flight	± 100 feet
simulated major emergency	± 150 feet

   Tracking on radio aids ± 10°

Heading

normal flight ± 10°
simulated major emergency ± 15°

CONTENT OF THE TEST

5. Items in sections 5 and 6 may be performed in an Airship FNPT or an airship FFS. Use of airship checklists, airmanship, control of airship by external visual reference, anti-icing procedures, and principles of threat and error management apply in all sections.

SECTION 1 — PRE-FLIGHT OPERATIONS AND DEPARTURE	
a	Pre-flight, including: Flight planning, Documentation, Mass and Balance determination, Weather brief, NOTAMS
b	Airship inspection and servicing
c	Off-mast procedure, ground manoeuvring and take-off
d	Performance considerations and trim
e	Aerodrome and traffic pattern operations
f	Departure procedure, altimeter setting, collision avoidance (lookout)
g	ATC liaison — compliance, R/T procedures
SECTION 2 — GENERAL AIRWORK	
a	Control of the airship by external visual reference, including straight and level, climb, descent, lookout
b	Flight at pressure height
c	Turns
d	Steep descents and climbs
e	Flight by reference solely to instruments, including: (i) level flight, control of heading, altitude and airspeed (ii) climbing and descending turns (iii) recoveries from unusual attitudes (iv) limited panel instruments
f	ATC liaison — compliance, R/T procedures
SECTION 3 — EN-ROUTE PROCEDURES	
a	Control of airship by external visual reference, Range/Endurance considerations
b	Orientation, map reading
c	Altitude, speed, heading control, lookout
d	Altimeter setting, ATC liaison — compliance, R/T procedures
e	Monitoring of flight progress, flight log, fuel usage, assessment of track error and re-establishment of correct tracking
f	Observation of weather conditions, assessment of trends, diversion planning
g	Tracking, positioning (NDB or VOR), identification of facilities (instrument flight). Implementation of diversion plan to alternate aerodrome (visual flight)
SECTION 4 — APPROACH AND LANDING PROCEDURES	

a	Arrival procedures, altimeter setting, checks, lookout
b	ATC liaison — compliance, R/T procedures
c	Go-around action from low height
d	Normal landing
e	Short field landing
f	Approach and landing with idle power (single-engine only)
g	Landing without use of flaps
h	Post-flight actions
SECTION 5 — ABNORMAL AND EMERGENCY PROCEDURES	

This section may be combined with sections 1 through 4

a	Simulated engine failure after take-off (at a safe altitude), fire drill
b	Equipment malfunctions
c	Forced landing (simulated)
d	ATC liaison — compliance, R/T procedures
e	Oral questions
SECTION 6 — RELEVANT CLASS OR TYPE ITEMS	

This section may be combined with sections 1 through 5

a	Simulated engine failure during take-off (at a safe altitude unless carried out in an FFS)
b	Approach and go-around with failed engine(s)
c	Approach and full stop landing with failed engine(s)
d	Malfunctions in the envelope pressure system
e	ATC liaison — compliance, R/T procedures, Airmanship
f	As determined by the FE — any relevant items of the class or type rating skill test to include, if applicable: (i) airship systems (ii) operation of envelope pressure system
g	Oral questions

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APPENDIX 5

INTEGRATED MPL TRAINING COURSE

GENERAL

1. The aim of the MPL integrated course is to train pilots to the level of proficiency necessary to enable them to operate as co-pilot of a multi-engine multi-pilot turbine-powered air transport aeroplane under VFR and IFR and to obtain an MPL.

2. Approval for an MPL training course shall only be given to an ATO that is part of a commercial air transport operator and the applicable air operations requirements or having a specific arrangement with such an operator. The licence shall be restricted to that specific operator until completion of the airline operator’s conversion course.

3. An applicant wishing to undertake an MPL integrated course shall complete all the instructional stages in one continuous course of training at an ATO. The training shall be competency based and conducted in a multi-crew operational environment. [Training in the underpinning knowledge requirements shall be fully integrated with the training of the underpinning skill requirements.

4. Only ab-initio applicants shall be admitted to the course.

5. The course shall comprise:

   (a) theoretical knowledge instruction to the ATPL(A) knowledge level appropriate to the aeroplane category as well as the additional requirements underpinning the approved adapted competency model;

   (b) visual, instrument and night flying training;

   (c) training in MCC for the operation of multi-pilot turbine powered aeroplanes; and]

   (d) type rating training.

6. An applicant failing or unable to complete the entire MPL course may apply to the Authority for the theoretical knowledge examination and skill test for a licence with lower privileges and an IR, if the applicable requirements are met.

THEORETICAL KNOWLEDGE

7. An approved MPL theoretical knowledge course shall comprise at least 750 hours of instruction for the ATPL(A) knowledge level, as well as the hours required for theoretical knowledge instruction for the relevant type rating, in accordance with Subpart H.

FLYING TRAINING

8. The flying training shall comprise a total of at least 240 hours, composed of hours as PF and PNF, in actual and simulated flight, and covering the following 4 phases of training:

   (a) Phase 1 — Core flying skills

   Specific basic single-pilot training in an aeroplane.

(b) Phase 2 — Basic

Introduction of multi-crew operations and instrument flight.

(c) Phase 3 — Intermediate

Application of multi-crew operations to a multi-engine turbine aeroplane certified as a high performance aeroplane in accordance with CAR 21.

(d) Phase 4 — Advanced

Type rating training within an airline oriented environment.

[Flight experience in actual flight shall include all the experience requirements of Subpart H, upset prevention and recovery training, night flying, flight solely by reference to instruments and the experience required to achieve the relevant airmanship and the final competency standard of the approved adapted competency model.]

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MCC requirements shall be incorporated into the relevant phases above. Training in asymmetric flight shall be given either in an aeroplane or an FFS.

9. [Each phase of training in the flight instruction syllabus shall be composed of both instruction in the underpinning knowledge and in practical training segments in order to achieve the final competency standard in all the competencies of the approved adapted competency model.]

10. The training course shall include a continuous evaluation process of the training syllabus and a continuous assessment of the students following the syllabus. Evaluation shall ensure that:

(a) the competencies and related assessment are relevant to the task of a co-pilot of a multi-pilot aeroplane; and

(b) the students acquire the necessary competencies in a progressive and satisfactory manner.

11. The training course shall include at least 12 take-offs and landings to ensure competency. These take-offs and landings shall be performed under the supervision of an instructor in an aeroplane for which the type rating shall be issued.

ASSESSMENT LEVEL

12. [The applicant for the MPL shall have achieved the final competency standard of the approved adapted competency model.

Note: The competency standards to be achieved and the associated performance criteria for the multi-crew pilot licence applicant should be publicly available.]

SIMULATED FLIGHT

13. Minimum requirements for FSTDs:

(a) Phase 1 — Core flying skills

E-training and part tasking devices approved by the Authority that have the following characteristics:

— involve accessories beyond those normally associated with desktop computers, such as functional replicas of a throttle quadrant, a side-stick controller, or an FMS keypad, and

— involve psychomotor activity with appropriate application of force and timing of responses.

(b) Phase 2 — Basic

An FNPT II MCC that represents a generic multi-engine turbine-powered aeroplane.

(c) Phase 3 — Intermediate

An FSTD that represents a multi-engine turbine-powered aeroplane required to be operated with a co-pilot and qualified to an equivalent standard to level B, additionally including:

— a daylight/twilight/night visual system continuous cross-cockpit minimum collimated visual field of view providing each pilot with 180° horizontal and 40° vertical field of view, and

— ATC environment simulation.

(d) Phase 4 — Advanced

An FFS which is fully equivalent to level D or level C with an enhanced daylight visual system, including ATC environment simulation.

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APPENDIX 6

MODULAR TRAINING COURSES FOR THE IR

A. IR(A) — Modular flying training course

GENERAL

1. The aim of the IR(A) modular flying training course is to train pilots to the level of proficiency necessary to operate aeroplanes under IFR and in IMC. The course consists of two modules, which may be taken separately or combined:

   (a) Basic Instrument Flight Module

   This comprises 10 hours of instrument time under instruction, of which up to 5 hours can be instrument ground time in a BITD, FNPT I or II, or an FFS. Upon completion of the Basic Instrument Flight Module, the candidate shall be issued a Course Completion Certificate.

   (b) Procedural Instrument Flight Module

   This comprises the remainder of the training syllabus for the IR(A), 40 hours single-engine or 45 hours multi- engine instrument time under instruction, and the theoretical knowledge course for the IR(A).

2. An applicant for a modular IR(A) course shall be the holder of a PPL(A) or a CPL(A), including the privileges to fly at night. An applicant for the Procedural Instrument Flight Module, who does not hold a CPL(A), shall be holder of a Course Completion Certificate for the Basic Instrument Flight Module.

   The ATO shall ensure that the applicant for a multi-engine IR(A) course who has not held a multi-engine aeroplane class or type rating has received the multi-engine training specified in Subpart H prior to commencing the flight training for the IR(A) course.

3. An applicant wishing to undertake the Procedural Instrument Flight Module of a modular IR(A) course shall be required to complete all the instructional stages in one continuous approved course of training. Prior to commencing the Procedural Instrument Flight Module, the ATO shall ensure the competence of the applicant in basic instrument flying skills. Refresher training shall be given as required.

4. The course of theoretical instruction shall be completed within 18 months. The Procedural Instrument Flight Module and the skill test shall be completed within the period of validity of the pass in theoretical examinations.

5. The course shall comprise:

   (a) theoretical knowledge instruction to the IR knowledge level;

   (b) instrument flight instruction.

THEORETICAL KNOWLEDGE

6. An approved modular IR(A) course shall comprise at least 150 hours of theoretical knowledge instruction.

FLYING TRAINING

7. A single-engine IR(A) course shall comprise at least 50 hours instrument time under instruction of which up to 20 hours may be instrument ground time in an FNPT I, or up to 35 hours in an FFS or FNPT II. A maximum of 10 hours of FNPT II or an FFS instrument ground time may be conducted in an FNPT I.

8. A multi-engine IR(A) course shall comprise at least 55 hours instrument time under instruction, of which up to 25 hours may be instrument ground time in an FNPT I, or up to 40 hours in an FFS or FNPT II. A maximum of 10 hours of FNPT II or an FFS instrument ground time may be conducted in an FNPT I. The remaining instrument flight instruction shall include at least 15 hours in multi-engine aeroplanes.

9. The holder of a single-engine IR(A) who also holds a multi-engine class or type rating wishing to obtain a multi- engine IR(A) for the first time shall complete a course at an ATO comprising at least 5 hours instruction in instrument flying in multi-engine aeroplanes, of which 3 hours may be in an FFS or FNPT II.

10.1. The holder of a CPL(A) or of a Course Completion Certificate for the Basic Instrument Flight Module may have the total amount of training required in paragraphs 7 or 8 above reduced by 10 hours.

10.2. The holder of an IR(H) may have the total amount of training required in paragraphs 7 or 8 above reduced by 10 hours.

10.3. The total instrument flight instruction in aeroplane shall comply with paragraph 7 or 8, as appropriate.

11. The flying exercises up to the IR(A) skill test shall comprise:

(a) Basic Instrument Flight Module: Procedure and manoeuvre for basic instrument flight covering at least:

basic instrument flight without external visual cues:

— horizontal flight,

— climbing,

— descent,

— turns in level flight, climbing, descent;

instrument pattern;

steep turn;

radio-navigation;

recovery from unusual attitudes;

limited panel;

recognition and recovery from incipient and full stalls;

(b) Procedural Instrument Flight Module:

(i) pre-flight procedures for IFR flights, including the use of the flight manual and appropriate air traffic services documents in the preparation of an IFR flight plan;

(ii) procedure and manoeuvres for IFR operation under normal, abnormal and emergency conditions covering at least:

— transition from visual to instrument flight on take-off,

— standard instrument departures and arrivals,

— en-route IFR procedures,

— holding procedures,

— instrument approaches to specified minima,

— missed approach procedures,

— landings from instrument approaches, including circling;

(iii) in-flight manoeuvres and particular flight characteristics;

(iv) if required, operation of a multi-engine aeroplane in the above exercises, including operation of the aeroplane solely by reference to instruments with one engine simulated inoperative and engine shutdown and restart (the latter exercise to be carried out at a safe altitude unless carried out in an FFS or FNPT II).

B. IR(H) — Modular flying training course

1. The aim of the IR(H) modular flying training course is to train pilots to the level of proficiency necessary to operate helicopters under IFR and in IMC.

2. An applicant for a modular IR(H) course shall be the holder of a PPL(H) with night rating, or a CPL(H) or an ATPL(H). Prior to commencing the aircraft instruction phase of the IR(H) course, the applicant shall be the holder of the helicopter type rating used for the IR(H) skill test, or have completed approved type rating training on that type. The applicant shall hold a certificate of satisfactory completion of MCC if the skill test is to be conducted in Multi- Pilot conditions.

3. An applicant wishing to undertake a modular IR(H) course shall be required to complete all the instructional stages in one continuous approved course of training.

4. The course of theoretical instruction shall be completed within 18 months. The flight instruction and the skill test shall be completed within the period of validity of the pass in the theoretical examinations.

5. The course shall comprise:

(a) theoretical knowledge instruction to the IR knowledge level;

(b) instrument flight instruction.

THEORETICAL KNOWLEDGE

6. An approved modular IR(H) course shall comprise at least 150 hours of instruction.

FLYING TRAINING

7. A single-engine IR(H) course shall comprise at least 50 hours instrument time under instruction, of which:

(a) up to 20 hours may be instrument ground time in an FNPT I(H) or (A). These 20 hours instruction time in FNPT I (H) or (A) may be substituted by 20 hours instruction time for IR(H) in an aeroplane, approved for this course; or

(b) up to 35 hours may be instrument ground time in a helicopter FTD 2/3, FNPT II/III or FFS. The instrument flight instruction shall include at least 10 hours in an IFR-certificated helicopter.

8. A multi-engine IR(H) course shall comprise at least 55 hours instrument time under instruction of which;

(a) up to 20 hours may be instrument ground time in an FNPT I (H) or (A). These 20 hours instruction time in FNPT I (H) or (A) may be substituted by 20 hours instruction time for IR(H) in an aeroplane, approved for this course; or

(b) up to 40 hours may be instrument ground time in a helicopter FTD 2/3, FNPT II/III or FFS.

The instrument flight instruction shall include at least 10 hours in an IFR-certificated multi-engine helicopter.

9.1. Holders of an ATPL(H) shall have the theoretical knowledge instruction hours reduced by 50 hours.

9.2. The holder of an IR(A) may have the amount of training required reduced by 10 hours.

10. The flying exercises up to the IR(H) skill test shall comprise:

(a) pre-flight procedures for IFR flights, including the use of the flight manual and appropriate air traffic services documents in the preparation of an IFR flight plan;

(b) procedure and manoeuvres for IFR operation under normal, abnormal and emergency conditions covering at least:

transition from visual to instrument flight on take-off,

standard instrument departures and arrivals,

en-route IFR procedures,

holding procedures,

instrument approaches to specified minima,

missed approach procedures,

landings from instrument approaches, including circling;

(c) in-flight manoeuvres and particular flight characteristics;

(d) if required, operation of a multi-engine helicopter in the above exercises, including operation of the helicopter solely by reference to instruments with one engine simulated inoperative and engine shutdown and restart (the latter exercise to be carried out in an FFS or FNPT II or FTD 2/3).

C. IR(As) — Modular flying training course

GENERAL

1. The aim of the IR(As) modular flying training course is to train pilots to the level of proficiency necessary to operate airships under IFR and in IMC. The course consists of two modules, which may be taken separately or combined:

   (a) Basic Instrument Flight Module

   This comprises 10 hours of instrument time under instruction, of which up to 5 hours can be instrument ground time in a BITD, FNPT I or II, or an FFS. Upon completion of the Basic Instrument Flight Module, the candidate shall be issued a Course Completion Certificate.

   (b) Procedural Instrument Flight Module

   This comprises the remainder of the training syllabus for the IR(As), 25 hours instrument time under instruction, and the theoretical knowledge course for the IR(As).

2. An applicant for a modular IR(As) course shall be the holder of a PPL(As) including the privileges to fly at night or a CPL(As). An applicant for the Procedural Instrument Flight Module, who does not hold a CPL(As), shall be holder of a Course Completion Certificate for the Basic Instrument Flight Module.

3. An applicant wishing to undertake the Procedural Instrument Flight Module of a modular IR(As) course shall be required to complete all the instructional stages in one continuous approved course of training. Prior to commencing the Procedural Instrument Flight Module, the ATO shall ensure the competence of the applicant in basic instrument flying skills. Refresher training shall be given as required.

4. The course of theoretical instruction shall be completed within 18 months. The Procedural Instrument Flight Module and the skill test shall be completed within the period of validity of the pass in theoretical examinations.

5. The course shall comprise:

   (a) theoretical knowledge instruction to the IR knowledge level;

   (b) instrument flight instruction.

THEORETICAL KNOWLEDGE

6. An approved modular IR(As) course shall comprise at least 150 hours of theoretical knowledge instruction.

FLYING TRAINING

7. An IR(As) course shall comprise at least 35 hours instrument time under instruction of which up to 15 hours may be instrument ground time in an FNPT I, or up to 20 hours in an FFS or FNPT II. A maximum of 5 hours of FNPT II or FFS instrument ground time may be conducted in an FNPT I.

8. The holder of a CPL(As) or of a Course Completion Certificate for the Basic Instrument Flight Module may have the total amount of training required in paragraph 7 reduced by 10 hours. The total instrument flight instruction in airship shall comply with paragraph 7.

9. If the applicant is the holder of an IR in another category of aircraft the total amount of flight instruction required may be reduced to 10 hours on airships.

10. The flying exercises up to the IR(As) skill test shall comprise:

(a) Basic Instrument Flight Module:

Procedure and manoeuvre for basic instrument flight covering at least:

basic instrument flight without external visual cues:

— horizontal flight,

— climbing,

— descent,

— turns in level flight, climbing, descent;

instrument pattern;

radio navigation;

recovery from unusual attitudes;

limited panel;

(b) Procedural Instrument Flight Module:

(i) pre-flight procedures for IFR flights, including the use of the flight manual and appropriate air traffic services documents in the preparation of an IFR flight plan;

(ii) procedure and manoeuvres for IFR operation under normal, abnormal and emergency conditions covering at least:

— transition from visual to instrument flight on take-off,

— standard instrument departures and arrivals,

— en-route IFR procedures,

— holding procedures,

— instrument approaches to specified minima,

— missed approach procedures,

— landings from instrument approaches, including circling;

(iii) inflight manoeuvres and particular flight characteristics;

(iv) operation of airship in the above exercises, including operation of the airship solely by reference to instruments with one engine simulated inoperative and engine shut-down and restart (the latter exercise to be carried out at a safe altitude unless carried out in an FFS or FNPT II).

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APPENDIX 7

IR SKILL TEST

1. An applicant for an IR shall have received instruction on the same class or type of aircraft to be used in the test.

2. An applicant shall pass all the relevant sections of the skill test. If any item in a section is failed, that section is failed. Failure in more than one section will require the applicant to take the entire test again. An applicant failing only one section shall only repeat the failed section. Failure in any section of the retest, including those sections that have been passed on a previous attempt, will require the applicant to take the entire test again. All relevant sections of the skill test shall be completed within 6 months. Failure to achieve a pass in all relevant sections of the test in two attempts will require further training.

3. Further training may be required following a failed skill test. There is no limit to the number of skill tests that may be attempted.

CONDUCT OF THE TEST

4. The test is intended to simulate a practical flight. The route to be flown shall be chosen by the examiner. An essential element is the ability of the applicant to plan and conduct the flight from routine briefing material. The applicant shall undertake the flight planning and shall ensure that all equipment and documentation for the execution of the flight are on board. The duration of the flight shall be at least 1 hour.

5. Should the applicant choose to terminate a skill test for reasons considered inadequate by the examiner, the applicant shall retake the entire skill test. If the test is terminated for reasons considered adequate by the examiner, only those sections not completed shall be tested in a further flight.

6. At the discretion of the examiner, any manoeuvre or procedure of the test may be repeated once by the applicant. The examiner may stop the test at any stage if it is considered that the applicant's demonstration of flying skill requires a complete retest.

7. An applicant shall fly the aircraft from a position where the PIC functions can be performed and to carry out the test as if there is no other crew member. The examiner shall take no part in the operation of the aircraft, except when intervention is necessary in the interests of safety or to avoid unacceptable delay to other traffic. Responsibility for the flight shall be allocated in accordance with national regulations.

8. Decision heights/altitude, minimum descent heights/altitudes and missed approach point shall be determined by the applicant and agreed by the examiner.

9. An applicant for an IR shall indicate to the examiner the checks and duties carried out, including the identification of radio facilities. Checks shall be completed in accordance with the authorised checklist for the aircraft on which the test is being taken. During pre-flight preparation for the test the applicant is required to determine power settings and speeds. Performance data for take-off, approach and landing shall be calculated by the applicant in compliance with the operations manual or flight manual for the aircraft used.

FLIGHT TEST TOLERANCES

10. The applicant shall demonstrate the ability to:

operate the aircraft within its limitations;

complete all manoeuvres with smoothness and accuracy;

exercise good judgment and airmanship;

apply aeronautical knowledge; and

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

11. The following limits shall apply, corrected to make allowance for turbulent conditions and the handling qualities and performance of the aircraft used.

Height

Generally	± 100 feet
Starting a go-around at decision height/altitude	+ 50 feet/– 0 feet
Minimum descent height/MAP/altitude	+ 50 feet/– 0 feet

Tracking

On radio aids	± 5°
Precision approach	half scale deflection, azimuth and glide path

Heading

all engines operating	± 5°
with simulated engine failure	± 10°

Speed

all engines operating	± 5 knots
with simulated engine failure	+ 10 knots/– 5 knots

CONTENT OF THE TEST

A. Aeroplanes

SECTION 1 — PRE-FLIGHT OPERATIONS AND DEPARTURE Use of checklist, airmanship, anti-icing/de-icing procedures, etc., apply in all sections	
a	Use of flight manual (or equivalent) especially a/c performance calculation, mass and balance
b	Use of Air Traffic Services document, weather document
c	Preparation of ATC flight plan, IFR flight plan/log
d	Pre-flight inspection
e	Weather Minima

f	Taxiing
g	Pre-take-off briefing, Take-off
h (o)	Transition to instrument flight
i (o)	Instrument departure procedures, altimeter setting
j (o)	ATC liaison — compliance, R/T procedures
SECTION 2 — GENERAL HANDLING (o)	
a	Control of the aeroplane by reference solely to instruments, including: level flight at various speeds, trim
b	Climbing and descending turns with sustained Rate 1 turn
c	Recoveries from unusual attitudes, including sustained 45° bank turns and steep descending turns
d (*)	Recovery from approach to stall in level flight, climbing/descending turns and in landing configuration — only applicable to aeroplanes
e	Limited panel: stabilised climb or descent, level turns at Rate 1 onto given headings, recovery from unusual attitudes — only applicable to aeroplanes
SECTION 3 — EN-ROUTE IFR PROCEDURES (o)	
a	Tracking, including interception, e.g. NDB, VOR, RNAV
b	Use of radio aids
c	Level flight, control of heading, altitude and airspeed, power setting, trim technique
d	Altimeter settings
e	Timing and revision of ETAs (en-route hold, if required)
f	Monitoring of flight progress, flight log, fuel usage, systems' management
g	Ice protection procedures, simulated if necessary
h	ATC liaison — compliance, R/T procedures
SECTION 4 — PRECISION APPROACH PROCEDURES (o)	
a	Setting and checking of navigational aids, identification of facilities
b	Arrival procedures, altimeter checks
c	Approach and landing briefing, including descent/approach/landing checks
d (+)	Holding procedure
e	Compliance with published approach procedure
f	Approach timing
g	Altitude, speed heading control (stabilised approach)
h (+)	Go-around action
i (+)	Missed approach procedure/landing

j	ATC liaison — compliance, R/T procedures
SECTION 5 — NON-PRECISION APPROACH PROCEDURES (o)	
a	Setting and checking of navigational aids, identification of facilities
b	Arrival procedures, altimeter settings
c	Approach and landing briefing, including descent/approach/landing checks
d (+)	Holding procedure
e	Compliance with published approach procedure
f	Approach timing
g	Altitude, speed, heading control (stabilised approach)
h (+)	Go-around action
i (+)	Missed approach procedure/landing
j	ATC liaison — compliance, R/T procedures
SECTION 6 — FLIGHT WITH ONE ENGINE INOPERATIVE (multi-engine aeroplanes only) (o)	
a	Simulated engine failure after take-off or on go-around
b	Approach, go-around and procedural missed approach with one engine inoperative
c	Approach and landing with one engine inoperative
d	ATC liaison — compliance, R/T procedures

(*) May be performed in an FFS, FTD 2/3 or FNPT II.

(+) May be performed in either section 4 or section 5.

(o) Must be performed by sole reference to instruments.

B. Helicopters

SECTION 1 — DEPARTURE Use of checklist, airmanship, anti-icing/de-icing procedures, etc., apply in all sections	
a	Use of flight manual (or equivalent) especially aircraft performance calculation; mass and balance
b	Use of Air Traffic Services document, weather document
c	Preparation of ATC flight plan, IFR flight plan/log
d	Pre-flight inspection
e	Weather minima
f	Taxiing/Air taxy in compliance with ATC or instructions of instructor
g	Pre-take-off briefing, procedures and checks
h	Transition to instrument flight

i	Instrument departure procedures
SECTION 2 — GENERAL HANDLING	
a	Control of the helicopter by reference solely to instruments, including:
b	Climbing and descending turns with sustained Rate 1 turn
c	Recoveries from unusual attitudes, including sustained 30° bank turns and steep descending turns
SECTION 3 — EN-ROUTE IFR PROCEDURES	
a	Tracking, including interception, e.g. NDB, VOR, RNAV
b	Use of radio aids
c	Level flight, control of heading, altitude and airspeed, power setting
d	Altimeter settings
e	Timing and revision of ETAs
f	Monitoring of flight progress, flight log, fuel usage, systems management
g	Ice protection procedures, simulated if necessary and if applicable
h	ATC liaison — compliance, R/T procedures
SECTION 4 — PRECISION APPROACH	
a	Setting and checking of navigational aids, identification of facilities
b	Arrival procedures, altimeter checks
c	Approach and landing briefing, including descent/approach/landing checks
d (*)	Holding procedure
e	Compliance with published approach procedure
f	Approach timing
g	Altitude, speed, heading control (stabilised approach)
h (*)	Go-around action
i (*)	Missed approach procedure/landing
j	ATC liaison — compliance, R/T procedures
SECTION 5 — NON-PRECISION APPROACH	
a	Setting and checking of navigational aids, identification of facilities
b	Arrival procedures, altimeter checks
c	Approach and landing briefing, including descent/approach/landing checks
d (*)	Holding procedure
e	Compliance with published approach procedure
f	Approach timing
g	Altitude, speed, heading control (stabilised approach)

h (*)	Go-around action
i (*)	Missed approach procedure (*)/landing
j	ATC liaison — compliance, R/T procedures
SECTION 6 — ABNORMAL AND EMERGENCY PROCEDURES This section may be combined with sections 1 through 5. The test shall have regard to control of the helicopter, identification of the failed engine, immediate actions (touch drills), follow-up actions and checks and flying accuracy, in the following situations:	
a	Simulated engine failure after take-off and on/during approach (**) (at a safe altitude unless carried out in an FFS or FNPT II/III, FTD 2,3)
b	Failure of stability augmentation devices/hydraulic system (if applicable)
c	Limited panel
d	Autorotation and recovery to a pre-set altitude
e	Precision approach manually without flight director (***) Precision approach manually with flight director (***)

(*) To be performed in section 4 or section 5.

(**) Multi-engine helicopter only.

(***) Only one item to be tested.

C. Airships

SECTION 1 — PRE-FLIGHT OPERATIONS AND DEPARTURE Use of checklist, airmanship, ATC liaison compliance, R/T procedures, apply in all sections	
a	Use of flight manual (or equivalent) especially a/c performance calculation, mass and balance
b	Use of Air Traffic Services document, weather document
c	Preparation of ATC flight plan, IFR flight plan/log
d	Pre-flight inspection
e	Weather minima
f	Pre-take-off briefing, off mast procedure, manoeuvring on ground
g	Take-off
h	Transition to instrument flight
i	Instrument departure procedures, altimeter setting
j	ATC liaison — compliance, R/T procedures
SECTION 2 — GENERAL HANDLING	
a	Control of the airship by reference solely to instruments
b	Climbing and descending turns with sustained rate of turn
c	Recoveries from unusual attitudes
d	Limited panel

SECTION 3 — EN-ROUTE IFR PROCEDURES	
a	Tracking, including interception, e.g. NDB, VOR, RNAV
b	Use of radio aids
c	Level flight, control of heading, altitude and airspeed, power setting, trim technique
d	Altimeter settings
e	Timing and revision of ETAs
f	Monitoring of flight progress, flight log, fuel usage, systems' management
g	ATC liaison — compliance, R/T procedures
SECTION 4 — PRECISION APPROACH PROCEDURES	
a	Setting and checking of navigational aids, identification of facilities
b	Arrival procedures, altimeter checks
c	Approach and landing briefing, including descent/approach/landing checks
d (+)	Holding procedure
e	Compliance with published approach procedure
f	Approach timing
g	Stabilised approach (altitude, speed and heading control)
h (+)	Go-around action
i (+)	Missed approach procedure/landing
j	ATC liaison — compliance, R/T procedures
SECTION 5 — NON-PRECISION APPROACH PROCEDURES	
a	Setting and checking of navigational aids, identification of facilities
b	Arrival procedures, altimeter settings
c	Approach and landing briefing, including descent/approach/landing checks
d (+)	Holding procedure
e	Compliance with published approach procedure
f	Approach timing
g	Stabilised approach (altitude, speed and heading control)
h (+)	Go-around action
i (+)	Missed approach procedure/landing
j	ATC liaison — compliance, R/T procedures
SECTION 6 — FLIGHT WITH ONE ENGINE INOPERATIVE This section may be combined with sections 1 through 5. The test shall have regard to control of the airship, identification of the failed engine, immediate actions, follow-up actions, checks and flying accuracy in the following situations:	
a	Simulated engine failure after take-off or on go-around
b	Approach and procedural go-around with one engine inoperative
c	Approach and landing, missed approach procedure, with one engine inoperative

d	ATC liaison — compliance, R/T procedures

(+) May be performed in either section 4 or section 5.

APPENDIX 8

CROSS-CREDITING OF THE IR PART OF A CLASS OR TYPE RATING PROFICIENCY CHECK

A. Aeroplanes

Credits shall be granted only when the holder is revalidating IR privileges for single-engine and single-pilot multi-engine aeroplanes, as appropriate.

When a proficiency check including IR is performed, and the holder has a valid:	Credit is valid towards the IR part in a proficiency check for:
MP type rating; High performance complex aeroplane type rating	SE class (*) and SE type rating (*), and SP ME class, and SP ME non-high performance complex aeroplane type rating, only credits for section 3B of the skill test for single pilot non-high performance complex aeroplane of Appendix 9 (*)
SP ME non-high performance complex aeroplane type rating, operated as single-pilot	SP ME class (*), and SP ME non-high performance complex aeroplane type rating, and SE class and type rating (*)
SP ME non-high performance complex aeroplane type rating, restricted to MP operation	a. SP ME class (*), and b. SP ME non-high performance complex aeroplane type rating (*), and c. SE class and type rating (*)
SP ME class rating, operated as single-pilot	SE class and type rating, and SP ME class, and SP ME non-high performance complex aeroplane type rating
SP ME class rating, restricted to MP operation	SE class and type rating (*), and SP ME class (*), and SP ME non-high performance complex aeroplane type rating (*)
SP SE class rating	SE class and type rating
SP SE type rating	SE class and type rating

(*) Provided that within the preceding 12 months the applicant has flown at least three IFR departures and approaches on an SP class or type of aeroplane in single pilot operations, or, for multi-engine non-high performance non-complex aeroplanes, the applicant has passed section 6 of the skill test for single-pilot non-high performance non-complex aeroplanes flown solely by reference to instruments in single-pilot operation.

B. Helicopters

Credits shall be granted only when the holder is revalidating IR privileges for single-engine and single-pilot multi-engine helicopters as appropriate.

When a proficiency check, including IR, is performed and the holder has a valid:	Credit is valid towards the IR part in a proficiency check for:
MPH type rating	SE type rating (*), and SP ME type rating (*).
SP ME type rating, operated as single-pilot	SE type rating, SP ME type rating.

SP ME type rating, restricted to multi-pilot operation	SE type rating, (*) SP ME type rating (*).

(*) Provided that within the preceding 12 months at least 3 IFR departures and approaches have been performed on an SP type of helicopter in an SP operation.

APPENDIX 9

TRAINING, SKILL TEST AND PROFICIENCY CHECK FOR MPL, ATPL, TYPE AND CLASS RATINGS, AND PROFICIENCY CHECK FOR IRS

A. General

1. An applicant for a skill test shall have received instruction on the same class or type of aircraft to be used in the test.

2. Failure to achieve a pass in all sections of the test in two attempts will require further training.

3. There is no limit to the number of skill tests that may be attempted.

CONTENT OF THE TRAINING, SKILL TEST/PROFICIENCY CHECK

4. Unless otherwise determined in the operational suitability data established in accordance with CAR 21, the syllabus of flight instruction shall comply with this Appendix. The syllabus may be reduced to give credit for previous experience on similar aircraft types, as determined in the operational suitability data established in accordance with CAR 21.

5. Except in the case of skill tests for the issue of an ATPL, when so defined in the operational suitability data established in accordance with CAR 21 for the specific type, credit may be given for skill test items common to other types or variants where the pilot is qualified.

CONDUCT OF THE TEST/CHECK

6. The examiner may choose between different skill test or proficiency check scenarios containing simulated relevant operations developed and approved by the Authority. Full flight simulators and other training devices, when available, shall be used, as established in these regulations.

7. During the proficiency check, the examiner shall verify that the holder of the class or type rating maintains an adequate level of theoretical knowledge.

8. Should the applicant choose to terminate a skill test for reasons considered inadequate by the examiner, the applicant shall retake the entire skill test. If the test is terminated for reasons considered adequate by the examiner, only those sections not completed shall be tested in a further flight.

9. At the discretion of the examiner, any manoeuvre or procedure of the test may be repeated once by the applicant. The examiner may stop the test at any stage if it is considered that the applicant's demonstration of flying skill requires a complete re-test.

10. An applicant shall be required to fly the aircraft from a position where the PIC or co-pilot functions, as relevant, can be performed and to carry out the test as if there is no other crew member if taking the test/check under single-pilot conditions. Responsibility for the flight shall be allocated in accordance with national regulations.

11. During pre-flight preparation for the test the applicant is required to determine power settings and speeds. The applicant shall indicate to the examiner the checks and duties carried out, including the identification of radio facilities. Checks shall be completed in accordance with the check-list for the aircraft on which the test is being taken and, if applicable, with the MCC concept.

Performance data for take-off, approach and landing shall be calculated by the applicant in compliance with the operations manual or flight manual for the aircraft used. Decision heights/altitude, minimum descent heights/altitudes and missed approach point shall be agreed upon with the examiner.

12. The examiner shall take no part in the operation of the aircraft except where intervention is necessary in the interests of safety or to avoid unacceptable delay to other traffic.

SPECIFIC REQUIREMENTS FOR THE SKILL TEST/PROFICIENCY CHECK FOR MULTI-PILOT AIRCRAFT TYPE RATINGS, FOR SINGLE-PILOT AEROPLANE TYPE RATINGS, WHEN OPERATED IN MULTI-PILOT OPERATIONS, FOR MPL AND ATPL

13. The skill test for a multi-pilot aircraft or a single-pilot aeroplane when operated in multi-pilot operations shall be performed in a multi-crew environment. Another applicant or another type rated qualified pilot may function as second pilot. If an aircraft is used, the second pilot shall be the examiner or an instructor.

14. The applicant shall operate as PF during all sections of the skill test, except for abnormal and emergency procedures, which may be conducted as PF or PNF in accordance with MCC. The applicant for the initial issue of a multi-pilot aircraft type rating or ATPL shall also demonstrate the ability to act as PNF. The applicant may choose either the left hand or the right hand seat for the skill test if all items can be executed from the selected seat.

15. The following matters shall be specifically checked by the examiner for applicants for the ATPL or a type rating for multi-pilot aircraft or for multi-pilot operations in a single-pilot aeroplane extending to the duties of a PIC, irrespective of whether the applicant acts as PF or PNF:

    (a) management of crew cooperation;

    (b) maintaining a general survey of the aircraft operation by appropriate supervision; and

    (c) setting priorities and making decisions in accordance with safety aspects and relevant rules and regulations appropriate to the operational situation, including emergencies.

16. The test/check should be accomplished under IFR, if the IR rating is included, and as far as possible be accomplished in a simulated commercial air transport environment. An essential element to be checked is the ability to plan and conduct the flight from routine briefing material.

17. When the type rating course has included less than 2 hours flight training on the aircraft, the skill test may be conducted in an FFS and may be completed before the flight training on the aircraft. In that case, a certificate of completion of the type rating course including the flight training on the aircraft shall be forwarded to the Authority before the new type rating is entered in the applicant's licence.

B. Specific requirements for the aeroplane category

PASS MARKS

1. In the case of single-pilot aeroplanes, with the exception of for single-pilot high performance complex aeroplanes, the applicant shall pass all sections of the skill test or proficiency check. If any item in a section is failed, that section is failed. Failure in more than one section will require the applicant to take the entire test or check again. Any applicant failing only one section shall take the failed section again.

Failure in any section of the re-test or re-check including those sections that have been passed at a previous attempt will require the applicant to take the entire test or check again. For single-pilot multi-engine aeroplanes, section 6 of the relevant test or check, addressing asymmetric flight, shall be passed.

2. In the case of multi-pilot and single-pilot high performance complex aeroplanes, the applicant shall pass all sections of the skill test or proficiency check. Failure of more than five items will require the applicant to take the entire test or check again. Any applicant failing five or less items shall take the failed test again. Failure in any item on the re-test or re-check including those items that have been passed at a previous attempt will require the applicant to take the entire check or test again. Section 6 is not part of the ATPL or MPL skill test. If the applicant only fails or does not take section 6, the type rating will be issued without CAT II or CAT III privileges. To extend the type rating privileges to CAT II or CAT III, the applicant shall pass the section 6 on the appropriate type of aircraft.

FLIGHT TEST TOLERANCE

3. The applicant shall demonstrate the ability to:

(a) operate the aeroplane within its limitations;

(b) complete all manoeuvres with smoothness and accuracy;

(c) exercise good judgement and airmanship;

(d) apply aeronautical knowledge;

(e) maintain control of the aeroplane at all times in such a manner that the successful outcome of a procedure or manoeuvre is always assured;

(f) understand and apply crew coordination and incapacitation procedures, if applicable; and

(g) communicate effectively with the other crew members, if applicable.

4. The following limits shall apply, corrected to make allowance for turbulent conditions and the handling qualities and performance of the aeroplane used:

Height

Generally	± 100 feet
Starting a go-around at decision height	+ 50 feet/– 0 feet
Minimum descent height/altitude	+ 50 feet/– 0 feet

Tracking

on radio aids	± 5°
Precision approach	half scale deflection, azimuth and glide path

Heading

all engines operating	± 5°
with simulated engine failure	± 10°

Speed

all engines operating	± 5 knots
with simulated engine failure	+ 10 knots/– 5 knots

CONTENT OF THE TRAINING/SKILL TEST/PROFICIENCY CHECK

5. Single-pilot aeroplanes, except for high performance complex aeroplanes:

(a) The following symbols mean:

P = Trained as PIC or Co-pilot and as Pilot Flying (PF) and Pilot Not Flying (PNF)

X = Flight simulators shall be used for this exercise, if available, otherwise an aeroplane shall be used if appropriate for the manoeuvre or procedure

P# = The training shall be complemented by supervised aeroplane inspection

(b) The practical training shall be conducted at least at the training equipment level shown as (P), or may be conducted on any higher level of equipment shown by the arrow (——>)

The following abbreviations are used to indicate the training equipment used:

A= Aeroplane

FFS = Full Flight Simulator

FTD = Flight Training Device (including FNPT II for ME class rating)

(c) The starred (*) items of section 3B and, for multi-engine, section 6, shall be flown solely by reference to instruments if revalidation/renewal of an IR is included in the skill test or proficiency check. If the starred (*) items are not flown solely by reference to instruments during the skill test or proficiency check, and when there is no crediting of IR privileges, the class or type rating will be restricted to VFR only.

(d) Section 3A shall be completed to revalidate a type or multi-engine class rating, VFR only, where the required experience of 10 route sectors within the previous 12 months has not been completed. Section 3A is not required if section 3B is completed.

(e) Where the letter ‘M’ appears in the skill test or proficiency check column this will indicate the mandatory exercise or a choice where more than one exercise appears.

(f) An FFS or an FNPT II shall be used for practical training for type or multi-engine class ratings if they form part of an approved class or type rating course. The following considerations will apply to the approval of the course:

(i) the qualification of the FFS or FNPT II;

(ii) the qualifications of the instructors;

(iii) the amount of FFS or FNPT II training provided on the course; and

(iv) the qualifications and previous experience on similar types of the pilot under training.

(g) When a skill test or proficiency check is performed in multi-pilot operations, the type rating shall be restricted to multi-pilot operations.

SINGLE-PILOT AEROPLANES, EXCEPT FOR HIGH PERFORMANCE COMPLEX AEROPLANES	PRACTICAL TRAINING				CLASS OR TYPE RATING SKILL TEST/PROF. CHECK	
Manoeuvres/Procedures	FTD	FFS	A	Instructor initials when training completed	Chkd in FFS A	Examiner initials when test completed
SECTION 1						
1 Departure 1.1 Pre-flight including: Documentation Mass and Balance Weather briefing NOTAM						
1.2 Pre-start checks						
1.2.1 External	P#		P			
1.2.2 Internal			P		M	
1.3 Engine starting: Normal Malfunctions	P——>	——>	——>		M	
1.4 Taxiing		P——>	——>		M	
1.5 Pre-departure checks: Engine run-up (if applicable)	P——>	——>	——>		M	
1.6 Take-off procedure: Normal with Flight Manual flap settings Crosswind (if conditions available)		P——>	——>			
1.7 Climbing: Vx/Vy Turns onto headings Level off		P——>	——>		M	

SINGLE-PILOT AEROPLANES, EXCEPT FOR HIGH PERFORMANCE COMPLEX AEROPLANES	PRACTICAL TRAINING				CLASS OR TYPE RATING SKILL TEST/PROF. CHECK	
Manoeuvres/Procedures	FTD	FFS	A	Instructor initials when training completed	Chkd in FFS A	Examiner initials when test completed
1.8 ATC liaison — Compliance, R/T procedure						
SECTION 2						
2 Airwork (VMC) 2.1 Straight and level flight at various airspeeds including flight at critically low airspeed with and without flaps (including approach to VMCA when applicable)		P——>	——>			
2.2 Steep turns (360° left and right at 45° bank)		P——>	——>		M	
2.3 Stalls and recovery: (i) Clean stall (ii) Approach to stall in descending turn with bank with approach configuration and power (iii) Approach to stall in landing configuration and power (iv) Approach to stall, climbing turn with take-off flap and climb power (single engine aeroplane only)		P——>	——>		M	
2.4 Handling using autopilot and flight director (may be conducted in section 3) if applicable		P——>	——>		M	
2.5 ATC liaison — Compliance, R/T procedure						
SECTION 3A						
3A En-route procedures VFR (see B.5(c) and (d)) 3A.1 Flight plan, dead reckoning and map reading						

SINGLE-PILOT AEROPLANES, EXCEPT FOR HIGH PERFORMANCE COMPLEX AEROPLANES	PRACTICAL TRAINING				CLASS OR TYPE RATING SKILL TEST/PROF. CHECK	
Manoeuvres/Procedures	FTD	FFS	A	Instructor initials when training completed	Chkd in FFS A	Examiner initials when test completed
3A.2 Maintenance of altitude, heading and speed						
3A.3 Orientation, timing and revision of ETAs						
3A.4 Use of radio navigation aids (if applicable)						
3A.5 Flight management (flight log, routine checks including fuel, systems and icing)						
3A.6 ATC liaison — Compliance, R/T procedure						
SECTION 3B						
3B Instrument flight 3B.1* Departure IFR		P——>	——>		M	
3B.2* En-route IFR		P——>	——>		M	
3B.3* Holding procedures		P——>	——>		M	
3B.4* ILS to DH/A of 200' (60 m) or to procedure minima (autopilot may be used to glideslope intercept)		P——>	——>		M	
3B.5* Non-precision approach to MDH/A and MAP		P——>	——>		M	
3B.6* Flight exercises including simulated failure of the compass and attitude indicator: rate 1 turns, recoveries from unusual attitudes	P——>	——>	——>		M	
3B.7* Failure of localiser or glideslope	P——>	——>	——>			
3B.8* ATC liaison — Compliance, R/T procedure						

SINGLE-PILOT AEROPLANES, EXCEPT FOR HIGH PERFORMANCE COMPLEX AEROPLANES	PRACTICAL TRAINING				CLASS OR TYPE RATING SKILL TEST/PROF. CHECK	
Manoeuvres/Procedures	FTD	FFS	A	Instructor initials when training completed	Chkd in FFS A	Examiner initials when test completed
Intentionally left blank						
SECTION 4						
4 Arrival and landings 4.1 Aerodrome arrival procedure		P——>	——>		M	
4.2 Normal landing		P——>	——>		M	
4.3 Flapless landing		P——>	——>		M	
4.4 Crosswind landing (if suitable conditions)		P——>	——>			
4.5 Approach and landing with idle power from up to 2 000' above the runway (single-engine aeroplane only)		P——>	——>			
4.6 Go-around from minimum height		P——>	——>		M	
4.7 Night go-around and landing (if applicable)	P——>	——>	——>			
4.8 ATC liaison — Compliance, R/T procedure						
SECTION 5						
5 Abnormal and emergency procedures (This section may be combined with sections 1 through 4)						
5.1 Rejected take-off at a reasonable speed		P——>	——>		M	
5.2 Simulated engine failure after take- off (single-engine aeroplanes only)			P		M	

SINGLE-PILOT AEROPLANES, EXCEPT FOR HIGH PERFORMANCE COMPLEX AEROPLANES	PRACTICAL TRAINING				CLASS OR TYPE RATING SKILL TEST/PROF. CHECK	
Manoeuvres/Procedures	FTD	FFS	A	Instructor initials when training completed	Chkd in FFS A	Examiner initials when test completed
5.3 Simulated forced landing without power (single-engine aeroplanes only)			P		M	
5.4 Simulated emergencies: (i) fire or smoke in flight; (ii) systems' malfunctions as appropriate	P——>	——>	——>			
5.5 Engine shutdown and restart (ME skill test only) (at a safe altitude if performed in the aircraft)	P——>	——>	——>			
5.6 ATC liaison — Compliance, R/T procedure						
SECTION 6						
6 Simulated asymmetric flight 6.1* (This section may be combined with sections 1 through 5) Simulated engine failure during take-off (at a safe altitude unless carried out in FFS or FNPT II)	P——>	——>	—>X		M	
6.2* Asymmetric approach and go- around	P——>	——>	——>		M	
6.3* Asymmetric approach and full stop landing	P——>	——>	——>		M	
6.4 ATC liaison — Compliance, R/T procedure						

6. Multi-pilot aeroplanes and single-pilot high performance complex aeroplanes:

(a) The following symbols mean:

P = Trained as PIC or Co-pilot and as PF and PNF for the issue of a type rating as applicable.

X = Simulators shall be used for this exercise, if available; otherwise an aircraft shall be used if appropriate for the manoeuvre or procedure.

P# = The training shall be complemented by supervised aeroplane inspection.

(b) The practical training shall be conducted at least at the training equipment level shown as (P), or may be conducted up to any higher equipment level shown by the arrow (———>).

The following abbreviations are used to indicate the training equipment used:

A= Aeroplane

FFS = Full Flight Simulator

FTD = Flight Training Device

OTD = Other Training Devices

(c) The starred items (*) shall be flown solely by reference to instruments. If this condition is not met during the skill test or proficiency check, the type rating will be restricted to VFR only.

(d) Where the letter 'M' appears in the skill test or proficiency check column this will indicate the mandatory exercise.

(e) An FFS shall be used for practical training and testing if the FFS forms part of an approved type rating course. The following considerations will apply to the approval of the course:

(i) the qualification of the FFS or FNPT II;

(ii) the qualifications of the instructors;

(iii) the amount of FFS or FNPT II training provided on the course; and

(iv) the qualifications and previous experience on similar types of the pilot under training.

(f) Manoeuvres and procedures shall include MCC for multi-pilot aeroplane and for single-pilot high performance complex aeroplanes in multi-pilot operations.

(g) Manoeuvres and procedures shall be conducted in single-pilot role for single-pilot high performance complex aeroplanes in single-pilot operations.

(h) In the case of single-pilot high performance complex aeroplanes, when a skill test or proficiency check is performed in multi-pilot operations, the type rating shall be restricted to multi-pilot operations. If privileges of single-pilot are sought, the manoeuvres/procedures in 2.5, 3.9.3.4, 4.3, 5.5 and at least one manoeuvre/procedure from section 3.4 have to be completed in addition as single-pilot.

(i) In case of a restricted type rating issued in accordance with LIC.720.A(e), the applicants shall fulfil the same requirements as other applicants for the type rating except for the practical exercises relating to the take-off and landing phases.

MULTI-PILOT AEROPLANES AND SINGLE-PILOT HIGH-PERFORMANCE COMPLEX AEROPLANES	PRACTICAL TRAINING					ATPL/MPL/TYPE RATING SKILL TEST OR PROF. CHECK	
Manoeuvres/Procedures	OTD	FTD	FFS	A	Instructor initials when training completed	Chkd in FFS A	Examiner initials when test completed
SECTION 1							
1. Flight preparation 1.1 Performance calculation	P						
1.2 Aeroplane external visual inspection; location of each item and purpose of inspection	P#			P			
1.3 Cockpit inspection		P———>	———>	———>			
1.4 Use of checklist prior to starting engines, starting procedures, radio and navigation equipment check, selection and setting of navigation and communication frequencies	P———>	———>	———>	———>		M	
1.5 Taxiing in compliance with air traffic control or instructions of instructor			P———>	———>			
1.6 Before take-off checks		P———>	———>	———>		M	
SECTION 2							
2. Take-offs 2.1 Normal take-offs with different flap settings, including expedited take-off			P———>	———>			
2.2* Instrument take- off; transition to instrument flight is required during rotation or immediately after becoming airborne			P———>	———>			

MULTI-PILOT AEROPLANES AND SINGLE-PILOT HIGH-PERFORMANCE COMPLEX AEROPLANES	PRACTICAL TRAINING					ATPL/MPL/TYPE RATING SKILL TEST OR PROF. CHECK	
Manoeuvres/Procedures	OTD	FTD	FFS	A	Instructor initials when training completed	Chkd in FFS A	Examiner initials when test completed
2.3 Crosswind take-off			P———>	———>			
2.4 Take-off at maximum take-off mass (actual or simulated maximum take-off mass)			P———>	———>			
2.5 Take-offs with simulated engine failure: 2.5.1* shortly after reaching V2 (In aeroplanes which are not certificated as transport category or commuter category aeroplanes, the engine failure shall not be simulated until reaching a minimum height of 500 ft above runway end. In aeroplanes having the same performance as a transport category aeroplane regarding take-off mass and density altitude, the instructor may simulate the engine failure shortly after reaching V2)			P———>	———>			
2.5.2* between V1 and V2			P	X		M FFS Only	
2.6 Rejected take-off at a reasonable speed before reaching V1			P———>	——>X		M	

MULTI-PILOT AEROPLANES AND SINGLE-PILOT HIGH-PERFORMANCE COMPLEX AEROPLANES	PRACTICAL TRAINING					ATPL/MPL/TYPE RATING SKILL TEST OR PROF. CHECK	
Manoeuvres/Procedures	OTD	FTD	FFS	A	Instructor initials when training completed	Chkd in FFS A	Examiner initials when test completed
SECTION 3							
3. Flight Manoeuvres and Procedures 3.1 Turns with and without spoilers			P———>	——>			
3.2 Tuck under and Mach buffets after reaching the critical Mach number, and other specific flight characteristics of the aeroplane (e.g. Dutch Roll)			P———>	——>X An aircraft may not be used for this exercise			
3.3 Normal operation of systems and controls engineer's panel	P———>	———>	———>	———>			
Normal and abnormal operations of following systems:						M	A mandatory minimum of 3 abnormal shall be selected from 3.4.0 to 3.4.14 inclusive
3.4.0 Engine (if necessary propeller)	P———>	———>	———>	———>			
3.4.1 Pressurisation and air-conditioning	P———>	———>	———>	———>			
3.4.2 Pitot/static system	P———>	———>	———>	———>			
3.4.3 Fuel system	P———>	———>	———>	———>			
3.4.4 Electrical system	P———>	———>	———>	———>			

MULTI-PILOT AEROPLANES AND SINGLE-PILOT HIGH-PERFORMANCE COMPLEX AEROPLANES	PRACTICAL TRAINING					ATPL/MPL/TYPE RATING SKILL TEST OR PROF. CHECK	
Manoeuvres/Procedures	OTD	FTD	FFS	A	Instructor initials when training completed	Chkd in FFS A	Examiner initials when test completed
3.4.5 Hydraulic system	P———>	———>	———>	———>			
3.4.6 Flight control and Trim-system	P———>	———>	———>	———>			
3.4.7 Anti-icing/de-icing system, Glare shield heating	P———>	———>	———>	———>			
3.4.8 Autopilot/Flight director	P———>	———>	———>	———>		M (single pilot Only)	
3.4.9 Stall warning devices or stall avoidance devices, and stability augmentation devices	P———>	———>	———>	———>			
3.4.10 Ground proximity warning system, weather radar, radio altimeter, transponder		P———>	———>	———>			
3.4.11 Radios, navigation equipment, instruments, flight management system	P———>	———>	———>	———>			
3.4.12 Landing gear and brake	P———>	———>	———>	———>			
3.4.13 Slat and flap system	P———>	———>	———>	———>			
3.4.14 Auxiliary power unit	P———>	———>	———>	———>			
Intentionally left blank							
3.6 Abnormal and emergency procedures:						M	A mandatory minimum of three items shall be selected from 3.6.1 to 3.6.9 inclusive

MULTI-PILOT AEROPLANES AND SINGLE-PILOT HIGH-PERFORMANCE COMPLEX AEROPLANES	PRACTICAL TRAINING					ATPL/MPL/TYPE RATING SKILL TEST OR PROF. CHECK	
Manoeuvres/Procedures	OTD	FTD	FFS	A	Instructor initials when training completed	Chkd in FFS A	Examiner initials when test completed
3.6.1 Fire drills, e.g. engine, APU, cabin, cargo compartment, flight deck, wing and electrical fires including evacuation		P———>	———>	———>			
3.6.2 Smoke control and removal		P———>	———>	———>			
3.6.3 Engine failures, shutdown and restart at a safe height		P———>	———>	———>			
3.6.4 Fuel dumping (simulated)		P———>	———>	———>			
3.6.5 Wind shear at take-off/landing			P	X		FFS Only	
3.6.6 Simulated cabin pressure failure/emergency descent			P———>	———>			
3.6.7 Incapacitation of flight crew member		P———>	———>	———>			
3.6.8 Other emergency procedures as outlined in the appropriate Aeroplane Flight Manual		P———>	———>	———>			
3.6.9 ACAS event	P———>	———>	———>	An aircraft may not be used		FFS Only	
3.7 Steep turns with 45° bank, 180° to 360° left and right		P———>	———>	———>			

MULTI-PILOT AEROPLANES AND SINGLE-PILOT HIGH-PERFORMANCE COMPLEX AEROPLANES	PRACTICAL TRAINING					ATPL/MPL/TYPE RATING SKILL TEST OR PROF. CHECK	
Manoeuvres/Procedures	OTD	FTD	FFS	A	Instructor initials when training completed	Chkd in FFS A	Examiner initials when test completed
3.8 Early recognition and counter measures on approaching stall (up to activation of stall warning device) in take-off configuration (flaps in take-off position), in cruising flight configuration and in landing configuration (flaps in landing position, gear extended) 3.8.1 Recovery from full stall or after activation of stall warning device in climb, cruise and approach configuration			P———> P	———> X			
3.9 Instrument flight procedures							
3.9.1* Adherence to departure and arrival routes and ATC instructions		P———>	———>	———>		M	
3.9.2* Holding procedures		P———>	———>	———>			
3.9.3* Precision approaches down to a decision height (DH) not less than 60 m (200 ft)							
3.9.3.1* manually, without flight director			P———>	———>		M (skill test only)	
3.9.3.2* manually, with flight director			P———>	———>			
3.9.3.3* with autopilot			P———>	———>			

MULTI-PILOT AEROPLANES AND SINGLE-PILOT HIGH-PERFORMANCE COMPLEX AEROPLANES	PRACTICAL TRAINING					ATPL/MPL/TYPE RATING SKILL TEST OR PROF. CHECK	
Manoeuvres/Procedures	OTD	FTD	FFS	A	Instructor initials when training completed	Chkd in FFS A	Examiner initials when test completed
3.9.3.4* manually, with one engine simulated inoperative; engine failure has to be simulated during final approach before passing the outer marker (OM) until touchdown or through the complete missed approach procedure In aeroplanes which are not certificated as transport category aeroplanes (JAR/FAR 25) or as commuter category aeroplanes (SFAR 23), the approach with simulated engine failure and the ensuing go- around shall be initiated in conjunction with the non-precision approach as described in 3.9.4. The go-around shall be initiated when reaching the published obstacle clearance height (OCH/A), however not later than reaching a minimum descent height/altitude (MDH/A) of 500 ft above runway threshold elevation. In aeroplanes having the same performance as a transport category aeroplane regarding take-off mass and density altitude, the instructor may simulate the engine failure in accordance with3.9.3.4.			P———>	———>		M	
3.9.4* Non-precision approach down to the MDH/A			P*—>	———>		M	

MULTI-PILOT AEROPLANES AND SINGLE-PILOT HIGH-PERFORMANCE COMPLEX AEROPLANES	PRACTICAL TRAINING					ATPL/MPL/TYPE RATING SKILL TEST OR PROF. CHECK	
Manoeuvres/Procedures	OTD	FTD	FFS	A	Instructor initials when training completed	Chkd in FFS A	Examiner initials when test completed
3.9.5 Circling approach under following conditions: (a)* approach to the authorised minimum circling approach altitude at the aerodrome in question in accordance with the local instrument approach facilities in simulated instrument flight conditions; followed by: (b) circling approach to another runway at least 90° off centreline from final approach used in item (a), at the authorised minimum circling approach altitude. Remark: if (a) and (b) are not possible due to ATC reasons, a simulated low visibility pattern may be performed.			P*—>	———>			
SECTION 4							
4. Missed Approach Procedures							
4.1 Go-around with all engines operating* after an ILS approach on reaching decision height			P*—>	———>			

MULTI-PILOT AEROPLANES AND SINGLE-PILOT HIGH-PERFORMANCE COMPLEX AEROPLANES	PRACTICAL TRAINING					ATPL/MPL/TYPE RATING SKILL TEST OR PROF. CHECK	
Manoeuvres/Procedures	OTD	FTD	FFS	A	Instructor initials when training completed	Chkd in FFS A	Examiner initials when test completed
4.2 Other missed approach procedures			P*—>	———>			
4.3* Manual go-around with the critical engine simulated inoperative after an instrument approach on reaching DH, MDH or MAPt			P*——>	———>		M	
4.4 Rejected landing at 15 m (50 ft) above runway threshold and go-around			P———>	———>			
SECTION 5							
5. Landings 5.1 Normal landings* also after an ILS approach with transition to visual flight on reaching DH			P				
5.2 Landing with simulated jammed horizontal stabiliser in any out-of-trim position			P———>	An aircraft may not be used for this exercise			
5.3 Crosswind landings (a/c, if practicable)			P———>	———>			
5.4 Traffic pattern and landing without extended or with partly extended flaps and slats			P———>	———>			
5.5 Landing with critical engine simulated inoperative			P———>	———>		M	

MULTI-PILOT AEROPLANES AND SINGLE-PILOT HIGH-PERFORMANCE COMPLEX AEROPLANES	PRACTICAL TRAINING					ATPL/MPL/TYPE RATING SKILL TEST OR PROF. CHECK	
Manoeuvres/Procedures	OTD	FTD	FFS	A	Instructor initials when training completed	Chkd in FFS A	Examiner initials when test completed
5.6 Landing with two engines inoperative: — aeroplanes with 3 engines: the centre engine and 1 outboard engine as far as practicable according to data of the AFM, — aeroplanes with 4 engines: 2 engines at one side			P	X		M FFS only (skill test only)	

General remarks:

Special requirements for extension of a type rating for instrument approaches down to a decision height of less than 200 feet (60 m), i.e. Cat II/III operations.

SECTION 6							
Additional authorisation on a type rating for instrument approaches down to a decision height of less than 60 m (200 ft) (CAT II/III). The following manoeuvres and procedures are the minimum training requirements to permit instrument approaches down to a DH of less than 60 m (200 ft). During the following instrument approaches and missed approach procedures all aeroplane equipment required for type certification of instrument approaches down to a DH of less than 60 m (200 ft) shall be used.							
6.1* Rejected take-off at minimum authorised RVR			P*———>	——>X An aircraft may not be used for this exercise		M*	

MULTI-PILOT AEROPLANES AND SINGLE-PILOT HIGH-PERFORMANCE COMPLEX AEROPLANES	PRACTICAL TRAINING					ATPL/MPL/TYPE RATING SKILL TEST OR PROF. CHECK	
Manoeuvres/Procedures	OTD	FTD	FFS	A	Instructor initials when training completed	Chkd in FFS A	Examiner initials when test completed
6.2* ILS approaches: in simulated instrument flight conditions down to the applicable DH, using flight guidance system. Standard procedures of crew coordination (task sharing, call out procedures, mutual surveillance, information exchange and support) shall be observed			P———>	———>		M	
6.3* Go-around: after approaches as indicated in 6.2 on reaching DH. The training shall also include a go-around due to (simulated) insufficient RVR, wind shear, aeroplane deviation in excess of approach limits for a successful approach, and ground/airborne equipment failure prior to reaching DH and, go-around with simulated airborne equipment failure.			P———>	———>		M*	
6.4* Landing(s): with visual reference established at DH following an instrument approach. Depending on the specific flight guidance system, an automatic landing shall be performed			P———>	———>		M	

Note: CAT II/III operations shall be accomplished in accordance with the applicable air operations requirements.

7. Class ratings — sea.

Section 6 shall be completed to revalidate a multi-engine class rating sea, VFR only, where the required experience of10 route sectors within the previous 12 months has not been completed.

CLASS RATING SEA	PRACTICAL TRAINING	
Manoeuvres/Procedures	Instructor's initials when training completed	Examiner's initials when test completed
SECTION 1		
1. **Departure** 1.1 Pre-flight including: Documentation Mass and Balance Weather briefing NOTAM		
1.2 Pre-start checks External/internal		
1.3 Engine start-up and shutdown Normal malfunctions		
1.4 Taxiing		
1.5 Step taxiing		
1.6 Mooring: Beach Jetty pier Buoy		
1.7 Engine-off sailing		
1.8 Pre-departure checks: Engine run-up (if applicable)		
1.9 Take-off procedure: Normal with Flight Manual flap settings Crosswind (if conditions available)		
1.10 Climbing Turns onto headings Level off		
1.11 ATC liaison — Compliance, R/T procedure		
SECTION 2		
2. **Airwork (VFR)** 2.1 Straight and level flight at various airspeeds including flight at critically low airspeed with and without flaps (including approach to VMCA when applicable)		

CLASS RATING SEA	PRACTICAL TRAINING	
Manoeuvres/Procedures	Instructor's initials when training completed	Examiner's initials when test completed
2.2 Steep turns (360° left and right at 45° bank)		
2.3 Stalls and recovery: (i) clean stall; (ii) approach to stall in descending turn with bank with approach configuration and power; (iii) approach to stall in landing configuration and power; (iv) approach to stall, climbing turn with take-off flap and climb power (single-engine aeroplane only)		
2.4 ATC liaison — Compliance, R/T procedure		
SECTION 3		
3. **En-route procedures VFR** 3.1 Flight plan, dead reckoning and map reading		
3.2 Maintenance of altitude, heading and speed		
3.3 Orientation, timing and revision of ETAs		
3.4 Use of radio navigation aids (if applicable)		
3.5 Flight management (flight log, routine checks including fuel, systems and icing)		
3.6 ATC liaison — Compliance, R/T procedure		
SECTION 4		
4. **Arrivals and landings** 4.1 Aerodrome arrival procedure (amphibians only)		
4.2 Normal landing		
4.3 Flapless landing		
4.4 Crosswind landing (if suitable conditions)		
4.5 Approach and landing with idle power from up to 2 000' above the water (single-engine aeroplane only)		

CLASS RATING SEA	PRACTICAL TRAINING	
Manoeuvres/Procedures	Instructor's initials when training completed	Examiner's initials when test completed
4.6 Go-around from minimum height		
4.7 Glassy water landing Rough water landing		
4.8 ATC liaison — Compliance, R/T procedure		
SECTION 5		
5. **Abnormal and emergency procedures** (This section may be combined with sections 1 through 4)		
5.1 Rejected take-off at a reasonable speed		
5.2 Simulated engine failure after take-off (single-engine aeroplane only)		
5.3 Simulated forced landing without power (single-engine aeroplane only)		
5.4 Simulated emergencies: (i) fire or smoke in flight; (ii) systems' malfunctions as appropriate		
5.5 ATC liaison — Compliance, R/T procedure		
SECTION 6		
6. **Simulated asymmetric flight** (This section may be combined with sections 1 through 5)		
6.1 Simulated engine failure during take- off (at a safe altitude unless carried out in FFS and FNPT II)		
6.2 Engine shutdown and restart (ME skill test only)		
6.3 Asymmetric approach and go-around		
6.4 Asymmetric approach and full stop landing		
6.5 ATC liaison — Compliance, R/T procedure		

C. Specific requirements for the helicopter category

1. In case of skill test or proficiency check for type ratings and the ATPL the applicant shall pass sections 1 to 4 and 6 (as applicable) of the skill test or proficiency check. Failure in more than five items will require the applicant to take the entire test or check again. An applicant failing not more than five items shall take the failed items again. Failure in any item of the re-test or re-check or failure in any other items already passed will require the applicant to take the entire test or check again. All sections of the skill test or proficiency check shall be completed within 6 months.

2. In case of proficiency check for an IR the applicant shall pass section 5 of the proficiency check. Failure in more than three items will require the applicant to take the entire section 5 again. An applicant failing not more than three items shall take the failed items again. Failure in any item of the re-check or failure in any other items of section 5 already passed will require the applicant to take the entire check again.

FLIGHT TEST TOLERANCE

3. The applicant shall demonstrate the ability to:

   (a) operate the helicopter within its limitations;

   (b) complete all manoeuvres with smoothness and accuracy;

   (c) exercise good judgement and airmanship;

   (d) apply aeronautical knowledge;

   (e) maintain control of the helicopter at all times in such a manner that the successful outcome of a procedure or manoeuvre is never in doubt;

   (f) understand and apply crew coordination and incapacitation procedures, if applicable; and

   (g) communicate effectively with the other crew members, if applicable.

4. The following limits shall apply, corrected to make allowance for turbulent conditions and the handling qualities and performance of the aeroplane used.

   (a) IFR flight limits

   Height:

Generally	± 100 feet
Starting a go-around at decision height/altitude	+ 50 feet/– 0 feet
Minimum descent height/altitude	+ 50 feet/– 0 feet

   Tracking:

On radio aids	± 5°
Precision approach	half scale deflection, azimuth and glide path

   Heading:

Normal operations	± 5°

Abnormal operations/emergencies	± 10°

Speed:

Generally	± 10 knots
With simulated engine failure	+ 10 knots/– 5 knots

(b) VFR flight limits

Height:

Generally	± 100 feet

Heading:

Normal operations	± 5°
Abnormal operations/emergencies	± 10°

Speed:

Generally	± 10 knots
With simulated engine failure	+ 10 knots/– 5 knots

Ground drift:

T.O. hover I.G.E.	± 3 feet
Landing	± 2 feet (with 0 feet rearward or lateral flight)

CONTENT OF THE TRAINING/SKILL TEST/PROFICIENCY CHECK GENERAL

5. The following symbols mean:

   P = Trained as PIC for the issue of a type rating for SPH or trained as PIC or Co-pilot and as PF and PNF for the issue of a type rating for MPH.

6. The practical training shall be conducted at least at the training equipment level shown as (P), or may be conducted up to any higher equipment level shown by the arrow (——>).

   The following abbreviations are used to indicate the training equipment used: FFS = Full Flight Simulator

   FTD = Flight Training Device

   H= Helicopter

7. The starred items (*) shall be flown in actual or simulated IMC, only by applicants wishing to renew or revalidate an IR(H), or extend the privileges of that rating to another type.

8. Instrument flight procedures (section 5) shall be performed only by applicants wishing to renew or revalidate an IR(H) or extend the privileges of that rating to another type. An FFS or FTD 2/3 may be used for this purpose.

9. Where the letter 'M' appears in the skill test or proficiency check column this will indicate the mandatory exercise.

10. An FSTD shall be used for practical training and testing if the FSTD forms part of a type rating course. The following considerations will apply to the course:

    (i) the qualification of the FSTD;

    (ii) the qualifications of the instructor and examiner;

    (iii) the amount of FSTD training provided on the course;

    (iv) the qualifications and previous experience in similar types of the pilot under training; and

    (v) the amount of supervised flying experience provided after the issue of the new type rating.

MULTI-PILOT HELICOPTERS

11. Applicants for the skill test for the issue of the multi-pilot helicopter type rating and ATPL(H) shall take only sections 1 to 4 and, if applicable, section 6.

12. Applicants for the revalidation or renewal of the multi-pilot helicopter type rating proficiency check shall take only sections 1 to 4 and, if applicable, section 6.

SINGLE/MULTI-PILOT HELICOPTERS	PRACTICAL TRAINING				SKILL TEST OR PROFICIENCY CHECK	
Manoeuvres/Procedures	FTD	FFS	H	Instructor initials when training completed	Chkd in FFS H	Examiner initials when test completed
SECTION 1 — Pre-flight preparations and checks						
1.1 Helicopter exterior visual inspection; location of each item and purpose of inspection			P		M (if performed in the helicopter)	
1.2 Cockpit inspection		P	——>		M	
1.3 Starting procedures, radio and navigation equipment check, selection and setting of navi-gation and communication frequencies	P	——>	——>		M	
1.4 Taxiing/air taxiing in compliance with air traffic control instructions or with instructions of an instructor		P	——>		M	
1.5 Pre-take-off procedures and checks	P	——>	——>		M	
SECTION 2 — Flight manoeuvres and procedures						
2.1 Take-offs (various profiles)		P	——>		M	
2.2 Sloping ground or crosswind take-offs & landings		P	——>			
2.3 Take-off at maximum take-off mass (actual or simulated maximum take-off mass)	P	——>	——>			
2.4 Take-off with simulated engine failure shortly before reaching TDP or DPATO		P	——>		M	
2.4.1 Take-off with simulated engine failure shortly after reaching TDP or DPATO		P	——>		M	
2.5 Climbing and descending turns to specified headings	P	——>	——>		M	

SINGLE/MULTI-PILOT HELICOPTERS	PRACTICAL TRAINING				SKILL TEST OR PROFICIENCY CHECK	
Manoeuvres/Procedures	FTD	FFS	H	Instructor initials when training completed	Chkd in FFS H	Examiner initials when test completed
2.5.1 Turns with 30° bank, 180° to 360° left and right, by sole reference to instruments	P	——>	——>		M	
2.6 Autorotative descent	P	——>	——>		M	
2.6.1 Autorotative landing (SEH only) or power recovery		P	——>		M	
2.7 Landings, various profiles		P	——>		M	
2.7.1 Go-around or landing following simulated engine failure before LDP or DPBL		P	——>		M	
2.7.2 Landing following simulated engine failure after LDP or DPBL		P	——>		M	
SECTION 3 — Normal and abnormal operations of the following systems and procedures						
3. Normal and abnormal operations of the following systems and procedures:					M	A mandatory minimum of three items shall be selected from this section
3.1 Engine	P	——>	——>			
3.2 Air conditioning (heating, ventilation)	P	——>	——>			
3.3 Pitot/static system	P	——>	——>			
3.4 Fuel System	P	——>	——>			
3.5 Electrical system	P	——>	——>			
3.6 Hydraulic system	P	——>	——>			
3.7 Flight control and Trim system	P	——>	——>			
3.8 Anti-icing and de-icing system	P	——>	——>			
3.9 Autopilot/Flight director	P	——>	——>			
3.10 Stability augmentation devices	P	——>	——>			

SINGLE/MULTI-PILOT HELICOPTERS	PRACTICAL TRAINING				SKILL TEST OR PROFICIENCY CHECK	
Manoeuvres/Procedures	FTD	FFS	H	Instructor initials when training completed	Chkd in FFS H	Examiner initials when test completed
3.11 Weather radar, radio altimeter, transponder	P	——>	——>			
3.12 Area Navigation System	P	——>	——>			
3.13 Landing gear system	P	——>	——>			
3.14 Auxiliary power unit	P	——>	——>			
3.15 Radio, navigation equipment, instruments flight management system	P	——>	——>			
SECTION 4 — Abnormal and emergency procedures						
4. Abnormal and emergency procedures					M	A mandatory minimum of three items shall be selected from this section
4.1 Fire drills (including evacuation if applicable)	P	——>	——>			
4.2 Smoke control and removal	P	——>	——>			
4.3 Engine failures, shutdown and restart at a safe height	P	——>	——>			
4.4 Fuel dumping (simulated)	P	——>	——>			
4.5 Tail rotor control failure (if applicable)	P	——>	——>			
4.5.1 Tail rotor loss (if applicable)	P	——>	Helicopter may not be used for this exercise			
4.6 Incapacitation of crew member — MPH only	P	——>	——>			
4.7 Transmission malfunctions	P	——>	——>			
4.8 Other emergency procedures as outlined in the appropriate Flight Manual	P	——>	——>			

SINGLE/MULTI-PILOT HELICOPTERS	PRACTICAL TRAINING				SKILL TEST OR PROFICIENCY CHECK	
Manoeuvres/Procedures	FTD	FFS	H	Instructor initials when training completed	Chkd in FFS H	Examiner initials when test completed
SECTION 5 — Instrument flight procedures (to be performed in IMC or simulated IMC)						
5.1 Instrument take-off: transition to instrument flight is required as soon as possible after becoming airborne	P*	——>*	——>*			
5.1.1 Simulated engine failure during departure	P*	——>*	——>*		M*	
5.2 Adherence to departure and arrival routes and ATC instructions	P*	——>*	——>*		M*	
5.3 Holding procedures	P*	——>*	——>*			
5.4 ILS approaches down to CAT I decision height	P*	——>*	——>*			
5.4.1 Manually, without flight director	P*	——>*	——>*		M*	
5.4.2 Precision approach manually, with or without flight director	P*	——>*	——>*		M*	
5.4.3 With coupled autopilot	P*	——>*	——>*			
5.4.4 Manually, with one engine simulated inoperative. (Engine failure has to be simulated during final approach before passing the outer marker (OM) until touchdown or until completion of the missed approach procedure)	P*	——>*	——>*		M*	
5.5 Non-precision approach down to the minimum descent altitude MDA/H	P*	——>*	——>*		M*	
5.6 Go-around with all engines operating on reaching DA/DH or MDA/MDH	P*	——>*	——>*			
5.6.1 Other missed approach procedures	P*	——>*	——>*			
5.6.2 Go-around with one engine simulated inoperative on reaching DA/DH or MDA/MDH	P*				M*	

SINGLE/MULTI-PILOT HELICOPTERS	PRACTICAL TRAINING				SKILL TEST OR PROFICIENCY CHECK	
Manoeuvres/Procedures	FTD	FFS	H	Instructor initials when training completed	Chkd in FFS H	Examiner initials when test completed
5.7 IMC autorotation with power recovery	P*	——>*	——>*		M*	
5.8 Recovery from unusual attitudes	P*	——>*	——>*		M*	
SECTION 6 — Use of optional equipment						
6. Use of optional equipment	P	——>	——>			

D. Specific requirements for the powered-lift aircraft category

1. In the case of skill tests or proficiency checks for powered-lift aircraft type ratings, the applicant shall pass sections 1 to 5 and 6 (as applicable) of the skill test or proficiency check. Failure in more than five items will require the applicant to take the entire test or check again. An applicant failing not more than five items shall take the failed items again. Failure in any item of the re-test or re-check or failure in any other items already passed will require the applicant to take the entire test or check again. All sections of the skill test or proficiency check shall be completed within 6 months.

FLIGHT TEST TOLERANCE

2. The applicant shall demonstrate the ability to:

   (a) operate the powered-lift aircraft within its limitations;

   (b) complete all manoeuvres with smoothness and accuracy;

   (c) exercise good judgement and airmanship;

   (d) apply aeronautical knowledge;

   (e) maintain control of the powered-lift aircraft at all times in such a manner that the successful outcome of a procedure or manoeuvre is never in doubt;

   (f) understand and apply crew coordination and incapacitation procedures; and

   (g) communicate effectively with the other crew members.

3. The following limits shall apply, corrected to make allowance for turbulent conditions and the handling qualities and performance of the powered-lift aircraft used.

(a) IFR flight limits:

Height:

Generally	± 100 feet
Starting a go-around at decision height/altitude	+ 50 feet/– 0 feet
Minimum descent height/altitude	+ 50 feet/– 0 feet

Tracking:

On radio aids	± 5°
Precision approach	half scale deflection, azimuth and glide path

Heading:

Normal operations	± 5°
Abnormal operations/emergencies	± 10°

Speed:

Generally	± 10 knots
With simulated engine failure	+10 knots/– 5 knots

(b) VFR flight limits:

Height:

Generally	± 100 feet

Heading:

Normal operations	± 5°
Abnormal operations/emergencies	± 10°

Speed:

Generally	± 10 knots
With simulated engine failure	+10 knots/– 5 knots

Ground drift:

T.O. hover I.G.E.	± 3 feet
Landing	± 2 feet (with 0 feet rearward or lateral flight)

CONTENT OF THE TRAINING/SKILL TEST/PROFICIENCY CHECK

4. The following symbols mean:

P = Trained as PIC or Co-pilot and as PF and PNF for the issue of a type rating as applicable.

5. The practical training shall be conducted at least at the training equipment level shown as (P), or may be conducted up to any higher equipment level shown by the arrow (——>).

6. The following abbreviations are used to indicate the training equipment used:

   FFS = Full Flight Simulator

   FTD = Flight Training Device

   OTD = Other Training Device

   PL = Powered-lift aircraft

   (a) Applicants for the skill test for the issue of the powered-lift aircraft type rating shall take sections 1 to 5 and, if applicable, section 6.

   (b) Applicants for the revalidation or renewal of the powered-lift aircraft type rating proficiency check shall take sections 1 to 5 and, if applicable section 6 and/or 7.

   (c) The starred items (*) shall be flown solely by reference to instruments. If this condition is not met during the skill test or proficiency check, the type rating will be restricted to VFR only.

7. Where the letter 'M' appears in the skill test or proficiency check column this will indicate the mandatory exercise.

8. Flight Simulation Training Devices shall be used for practical training and testing if they form part of an approved type rating course. The following considerations will apply to the approval of the course:

   (a) the qualification of the flight simulation training devices;

   (b) the qualifications of the instructor.

POWERED-LIFT AIRCRAFT CATEGORY	PRACTICAL TRAINING					SKILL TEST OR PROFICIENCY CHECK	
Manoeuvres/Procedures	OTD	FTD	FFS	PL	Instructor's initials when training completed	Chkd in FFS PL	Examiner's initials when test completed
SECTION 1 — Pre-flight preparations and checks							
1.1 Powered-lift aircraft exterior visual inspection; location of each item and purpose of inspection				P			
1.2 Cockpit inspection	P	——>	——>	——>			
1.3 Starting procedures, radio and navigation equipment check, selection and setting of navigation and communication frequencies	P	——>	——>	——>		M	
1.4 Taxiing in compliance with air traffic control instructions or with instructions of an instructor		P	——>	——>			
1.5 Pre-take-off procedures and checks including Power Check	P	——>	——>	——>		M	
SECTION 2 — Flight manoeuvres and procedures							
2.1 Normal VFR take-off profiles; Runway operations (STOL and VTOL) including crosswind Elevated heliports Ground level heliports		P	——>	——>		M	
2.2 Take-off at maximum take-off mass (actual or simulated maximum take-off mass)		P	——>				

POWERED-LIFT AIRCRAFT CATEGORY	PRACTICAL TRAINING					SKILL TEST OR PROFICIENCY CHECK	
Manoeuvres/Procedures	OTD	FTD	FFS	PL	Instructor's initials when training completed	Chkd in FFS PL	Examiner's initials when test completed
2.3.1 Rejected take-off: during runway operations during elevated heliport operations during ground level operations		P	——>			M	
2.3.2 Take-off with simulated engine failure after passing decision point: during runway operations during elevated heliport operations during ground level operations		P	——>			M	
2.4 Autorotative descent in helicopter mode to ground (an aircraft shall not be used for this exercise)	P	——>	——>			M FFS only	
2.4.1 Windmill descent in aeroplane mode (an aircraft shall not be used for this exercise)		P	——>			M FFS only	
2.5 Normal VFR landing profiles; runway operations (STOL and VTOL) elevated heliports ground level heliports		P	——>	——>		M	
2.5.1 Landing with simulated engine failure after reaching decision point: during runway operations during elevated heliport operations during ground level operations							

POWERED-LIFT AIRCRAFT CATEGORY	PRACTICAL TRAINING					SKILL TEST OR PROFICIENCY CHECK	
Manoeuvres/Procedures	OTD	FTD	FFS	PL	Instructor's initials when training completed	Chkd in FFS PL	Examiner's initials when test completed
2.6 Go-around or landing following simulated engine failure before decision point		P	——>			M	
SECTION 3 — Normal and abnormal operations of the following systems and procedures:							
3. Normal and abnormal operations of the following systems and procedures (may be completed in an FSTD if qualified for the exercise):						M	A mandatory minimum of three items shall be selected from this section
3.1 Engine	P	——>	——>				
3.2 Pressurisation and air conditioning (heating, ventilation)	P	——>	——>				
3.3 Pitot/static system	P	——>	——>				
3.4 Fuel System	P	——>	——>				
3.5 Electrical system	P	——>	——>				
3.6 Hydraulic system	P	——>	——>				
3.7 Flight control and Trim-system	P	——>	——>				
3.8 Anti-icing and de- icing system, glare shield heating (if fitted)	P	——>	——>				
3.9 Autopilot/Flight director	P	—>	—>				

POWERED-LIFT AIRCRAFT CATEGORY	PRACTICAL TRAINING					SKILL TEST OR PROFICIENCY CHECK	
Manoeuvres/Procedures	OTD	FTD	FFS	PL	Instructor's initials when training completed	Chkd in FFS PL	Examiner's initials when test completed
3.10 Stall warning devices or stall avoidance devices and stability augmentation devices	P	——>	——>				
3.11 Weather radar, radio altimeter, transponder, ground proximity warning system (if fitted)	P	——>	——>				
3.12 Landing gear system	P	———>	———>				
3.13 Auxiliary power unit	P	——>	——>				
3.14 Radio, navigation equipment, instruments and flight management system	P	——>	——>				
3.15 Flap system	P	——>	——>				
SECTION 4 — Abnormal and emergency procedures							
4. Abnormal and emergency procedures (may be completed in an FSTD if qualified for the exercise)						M	A mandatory minimum of three items shall be selected from this section
4.1 Fire drills, engine, APU, cargo compartment, flight deck and electrical fires including evacuation if applicable	P	——>	——>				
4.2 Smoke control and removal	P	——>	——>				
4.3 Engine failures, shutdown and restart (an aircraft shall not be used for this exercise) including OEI conversion from helicopter to aeroplane modes and vice versa	P	——>	——>			FFS only	

POWERED-LIFT AIRCRAFT CATEGORY	PRACTICAL TRAINING					SKILL TEST OR PROFICIENCY CHECK	
Manoeuvres/Procedures	OTD	FTD	FFS	PL	Instructor's initials when training completed	Chkd in FFS PL	Examiner's initials when test completed
4.4 Fuel dumping (simulated, if fitted)	P	——>	——>				
4.5 Wind shear at take- off and landing (an aircraft shall not be used for this exercise)			P			FFS only	
4.6 Simulated cabin pressure failure/emergency descent (an aircraft shall not be used for this exercise)	P	——>	——>			FFS only	
4.7 ACAS event (an aircraft shall not be used for this exercise)	P	——>	——>			FFS only	
4.8 Incapacitation of crew member	P	——>	——>				
4.9 Transmission malfunctions	P	——>	——>			FFS only	
4.10 Recovery from a full stall (power on and off) or after activation of stall warning devices in climb, cruise and approach configurations (an aircraft shall not be used for this exercise)	P	——>	——>			FFS only	
4.11 Other emergency procedures as detailed in the appropriate Flight Manual	P	——>	——>				
SECTION 5 — Instrument flight procedures (to be performed in IMC or simulated IMC)							
5.1 Instrument take-off: transition to instrument flight is required as soon as possible after becoming airborne	P*	——>*	——>*				
5.1.1 Simulated engine failure during departure after decision point	P*	——>*	——>*			M*	

POWERED-LIFT AIRCRAFT CATEGORY	PRACTICAL TRAINING					SKILL TEST OR PROFICIENCY CHECK	
Manoeuvres/Procedures	OTD	FTD	FFS	PL	Instructor's initials when training completed	Chkd in FFS PL	Examiner's initials when test completed
5.2 Adherence to departure and arrival routes and ATC instructions	P*	——>*	——>*			M*	
5.3 Holding procedures	P*	——>*	——>*				
5.4 Precision approach down to a decision height not less than 60 m (200 ft)	P*	——>*	——>*				
5.4.1 Manually, without flight director	P*	——>*	——>*			M* (Skill test only)	
5.4.2 Manually, with flight director	P*	——>*	——>*				
5.4.3 With use of autopilot	P*	——>*	——>*				
5.4.4 Manually, with one engine simulated inoperative; engine failure has to be simulated during final approach before passing the outer marker (OM) and continued either to touchdown, or through to the completion of the missed approach procedure)	P*	——>*	——>*			M*	
5.5 Non-precision approach down to the minimum descent altitude MDA/H	P*	——>*	——>*			M*	
5.6 Go-around with all engines operating on reaching DA/DH or MDA/MDH	P*	——>*	——>*				
5.6.1 Other missed approach procedures	P*	——>*	——>*				
5.6.2 Go-around with one engine simulated inoperative on reaching DA/DH or MDA/MDH	P*					M*	

POWERED-LIFT AIRCRAFT CATEGORY	PRACTICAL TRAINING					SKILL TEST OR PROFICIENCY CHECK	
					Instructor's initials when training completed	Chkd in	Examiner's initials when test completed
Manoeuvres/Procedures	OTD	FTD	FFS	PL		FFS PL	
5.7 IMC autorotation with power recovery to land on runway in helicopter mode only (an aircraft shall not be used for this exercise)	P*	——>*	——>*			M* FFS only	
5.8 Recovery from unusual attitudes (this one depends on the quality of the FFS)	P*	——>*	——>*			M*	
SECTION 6 — Additional authorisation on a type rating for instrument approaches down to a decision height of less than 60 m (CAT II/III)							
6. Additional authorisation on a type rating for instrument approaches down to a decision height of less than 60 m (CAT II/III). The following manoeuvres and procedures are the minimum training requirements to permit instrument approaches down to a DH of less than 60 m (200 ft). During the following instrument approaches and missed approach procedures all powered-lift aircraft equipment required for the type certification of instrument approaches down to a DH of less than 60 m (200 ft) shall be used							
6.1 Rejected take-off at minimum authorised RVR		P	——>			M*	
6.2 ILS approaches in simulated instrument flight conditions down to the applicable DH, using flight guidance system. Standard procedures of crew coordination (SOPs) shall be observed		P	——>	——>		M*	

POWERED-LIFT AIRCRAFT CATEGORY	PRACTICAL TRAINING					SKILL TEST OR PROFICIENCY CHECK	
Manoeuvres/Procedures	OTD	FTD	FFS	PL	Instructor's initials when training completed	Chkd in FFS PL	Examiner's initials when test completed
6.3 Go-around after approaches as indicated in 6.2 on reaching DH. The training shall also include a go-around due to (simulated) insufficient RVR, wind shear, aircraft deviation in excess of approach limits for a successful approach, ground/airborne equipment failure prior to reaching DH, and go-around with simulated airborne equipment failure		P	——>	——>		M*	
6.4 Landing(s) with visual reference established at DH following an instrument approach. Depending on the specific flight guidance system, an automatic landing shall be performed		P	——>			M*	
SECTION 7 — Optional equipment							
7. Use of optional equipment		P	——>	——>			

E. Specific requirements for the airship category

1. In the case of skill tests or proficiency checks for airship type ratings the applicant shall pass sections 1 to 5 and 6 (as applicable) of the skill test or proficiency check. Failure in more than five items will require the applicant to take the entire test/check again. An applicant failing not more than five items shall take the failed items again. Failure in any item of the re-test/re-check or failure in any other items already passed will require the applicant to take the entire test/check again. All sections of the skill test or proficiency check shall be completed within 6 months.

FLIGHT TEST TOLERANCE

2. The applicant shall demonstrate the ability to:

   (i) operate the airship within its limitations;

   (ii) complete all manoeuvres with smoothness and accuracy;

   (iii) exercise good judgement and airmanship;

(iv) apply aeronautical knowledge;

(v) maintain control of the airship at all times in such a manner that the successful outcome of a procedure or manoeuvre is never in doubt;

(vi) understand and apply crew coordination and incapacitation procedures; and

(vii) communicate effectively with the other crew members.

3. The following limits shall apply, corrected to make allowance for turbulent conditions and the handling qualities and performance of the airship used.

(a) IFR flight limits:

Height:

Generally	± 100 feet
Starting a go-around at decision height/altitude	+ 50 feet/– 0 feet
Minimum descent height/altitude	+ 50 feet/– 0 feet

Tracking:

On radio aids ± 5°
Precision approach half scale deflection, azimuth and glide path

Heading:

Normal operations	± 5°
Abnormal operations/emergencies	± 10°

(b) VFR flight limits:

Height:

Generally	± 100 feet

Heading:

Normal operations	± 5°
Abnormal operations/emergencies	± 10°

CONTENT OF THE TRAINING/SKILL TEST/PROFICIENCY CHECK

4. The following symbols mean:

P = Trained as PIC or Co-pilot and as PF and PNF for the issue of a type rating as applicable.

5. The practical training shall be conducted at least at the training equipment level shown as (P), or may be conducted up to any higher equipment level shown by the arrow (——>).

6. The following abbreviations are used to indicate the training equipment used:

FFS = Full Flight Simulator

FTD = Flight Training Device

OTD = Other Training Device

As = Airship

(a) Applicants for the skill test for the issue of the airship shall take sections 1 to 5 and, if applicable, section 6.

(b) Applicants for the revalidation or renewal of the airship type rating proficiency check shall take sections 1 to 5 and, if applicable section 6.

(c) The starred items (*) shall be flown solely by reference to instruments. If this condition is not met during the skill test or proficiency check, the type rating will be restricted to VFR only.

7. Where the letter ‘M’ appears in the skill test or proficiency check column this will indicate the mandatory exercise.

8. Flight Simulation Training Devices shall be used for practical training and testing if they form part of a type rating course. The following considerations will apply to the course:

(a) the qualification of the flight simulation training devices;

(b) the qualifications of the instructor.

AIRSHIP CATEGORY	PRACTICAL TRAINING					SKILL TEST OR PROFICIENCY CHECK	
Manoeuvres/Procedures	OTD	FTD	FFS	As	Instructor's initials when training completed	Chkd in FFS As	Examiner's initials when test completed
SECTION 1 — Pre-flight preparations and checks							
1.1 Pre-flight inspection				P			
1.2 Cockpit inspection	P	——>	——>	——>			
1.3 Starting procedures, radio and navigation equipment check, selection and setting of navigation and communication frequencies		P	——>	——>		M	
1.4 Off Mast procedure and Ground Manoeuvring			P	——>		M	

AIRSHIP CATEGORY	PRACTICAL TRAINING					SKILL TEST OR PROFICIENCY CHECK	
Manoeuvres/Procedures	OTD	FTD	FFS	As	Instructor's initials when training completed	Chkd in FFS As	Examiner's initials when test completed
1.5 Pre-take-off procedures and checks	P	——>	——>	——>		M	
SECTION 2 — Flight manoeuvres and procedures							
2.1 Normal VFR take-off profile			P	——>		M	
2.2 Take-off with simulated engine failure			P	——>		M	
2.3 Take-off with heaviness > 0 (Heavy T/O)			P	——>			
2.4 Take-off with heaviness < 0 (Light/TO)			P	——>			
2.5 Normal climb procedure			P	——>			
2.6 Climb to Pressure Height			P	——>			
2.7 Recognising of Pressure Height			P	——>			
2.8 Flight at or close to Pressure Height			P	——>		M	
2.9 Normal descent and approach			P	——>			
2.10 Normal VFR landing profile			P	——>		M	
2.11 Landing with heaviness > 0 (Heavy Ldg.)			P	——>		M	
2.12 Landing with heaviness < 0 (Light Ldg.)			P	——>		M	
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AIRSHIP CATEGORY	PRACTICAL TRAINING					SKILL TEST OR PROFICIENCY CHECK	
Manoeuvres/Procedures	OTD	FTD	FFS	As	Instructor's initials when training completed	Chkd in FFS As	Examiner's initials when test completed
SECTION 3 — Normal and abnormal operations of the following systems and procedures							
3. Normal and abnormal operations of the following systems and procedures (may be completed in an FSTD if qualified for the exercise):						M	A mandatory minimum of three items shall be selected from this section
3.1 Engine	P	——>	——>	——>			
3.2 Envelope Pressurisation	P	——>	——>	——>			
3.3 Pitot/static system	P	——>	——>	——>			
3.4 Fuel system	P	——>	——>	——>			
3.5 Electrical system	P	——>	——>	——>			
3.6 Hydraulic system	P	——>	——>	——>			
3.7 Flight control and Trim-system	P	——>	——>	——>			
3.8 Ballonet system	P	——>	——>	——>			
3.9 Autopilot/Flight director	P	—>	—>	——>			
3.10 Stability augmentation devices	P	——>	——>	——>			
3.11 Weather radar, radio altimeter, transponder, ground proximity warning system (if fitted)	P	——>	——>	——>			
3.12 Landing gear system	P	———>	———>	——>			

AIRSHIP CATEGORY	PRACTICAL TRAINING					SKILL TEST OR PROFICIENCY CHECK	
Manoeuvres/Procedures	OTD	FTD	FFS	As	Instructor's initials when training completed	Chkd in FFS As	Examiner's initials when test completed
3.13 Auxiliary power unit	P	——>	——>	——>			
3.14 Radio, navigation equipment, instruments and flight management system	P	——>	——>	——>			
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SECTION 4 — Abnormal and emergency procedures							
4. Abnormal and emergency procedures (may be completed in an FSTD if qualified for the exercise)						M	A mandatory minimum of three items shall be selected from this section
4.1 Fire drills, engine, APU, cargo compartment, flight deck and electrical fires including evacuation if applicable	P	——>	——>	——>			
4.2 Smoke control and removal	P	——>	——>	——>			
4.3 Engine failures, shutdown and restart In particular phases of flight, inclusive multiple engine failure	P	——>	——>	——>			
4.4 Incapacitation of crew member	P	——>	——>	——>			
4.5 Transmission/Gearbox malfunctions	P	——>	——>	——>		FFS only	
4.6 Other emergency procedures as outlined in the appropriate Flight Manual	P	——>	——>	——>			

AIRSHIP CATEGORY	PRACTICAL TRAINING					SKILL TEST OR PROFICIENCY CHECK	
Manoeuvres/Procedures	OTD	FTD	FFS	As	Instructor's initials when training completed	Chkd in FFS As	Examiner's initials when test completed
SECTION 5 — Instrument flight procedures (to be performed in IMC or simulated IMC)							
5.1 Instrument take-off: transition to instrument flight is required as soon as possible after becoming airborne	P*	——>*	——>*	——>*			
5.1.1 Simulated engine failure during departure	P*	——>*	——>*	——>*		M*	
5.2 Adherence to departure and arrival routes and ATC instructions	P*	——>*	——>*	——>*		M*	
5.3 Holding procedures	P*	——>*	——>*	——>*			
5.4 Precision approach down to a decision height not less than 60 m (200 ft)	P*	——>*	——>*	——>*			
5.4.1 Manually, without flight director	P*	——>*	——>*	——>*		M* (Skill test only)	
5.4.2 Manually, with flight director	P*	——>*	——>*	——>*			
5.4.3 With use of autopilot	P*	——>*	——>*	——>*			
5.4.4 Manually, with one engine simulated inoperative; engine failure has to be simulated during final approach before passing the outer marker (OM) and continued to touchdown, or until completion of the missed approach procedure	P*	——>*	——>*	——>*		M*	
5.5 Non-precision approach down to the minimum descent altitude MDA/H	P*	——>*	——>*	——>*		M*	

AIRSHIP CATEGORY	PRACTICAL TRAINING					SKILL TEST OR PROFICIENCY CHECK	
Manoeuvres/Procedures	OTD	FTD	FFS	As	Instructor's initials when training completed	Chkd in FFS As	Examiner's initials when test completed
5.6 Go-around with all engines operating on reaching DA/DH or MDA/MDH	P*	——>*	——>*	——>*			
5.6.1 Other missed approach procedures	P*	——>*	——>*	——>*			
5.6.2 Go-around with one engine simulated inoperative on reaching DA/DH or MDA/MDH	P*					M*	
5.7 Recovery from unusual attitudes (this one depends on the quality of the FFS)	P*	——>*	——>*	——>*		M*	
SECTION 6 — Additional authorisation on a type rating for instrument approaches down to a decision height of less than 60 m (CAT II/III)							
6. Additional authorisation on a type rating for instrument approaches down to a decision height of less than 60 m (CAT II/III). The following manoeuvres and procedures are the minimum training requirements to permit instrument approaches down to a DH of less than 60 m (200 ft). During the following instrument approaches and missed approach procedures all airship equipment required for the type certification of instrument approaches down to a DH of less than 60 m (200 ft) shall be used.							

AIRSHIP CATEGORY	PRACTICAL TRAINING					SKILL TEST OR PROFICIENCY CHECK	
Manoeuvres/Procedures	OTD	FTD	FFS	As	Instructor's initials when training completed	Chkd in FFS As	Examiner's initials when test completed
6.1 Rejected take-off at minimum authorised RVR		P	——>			M*	
6.2 ILS approaches In simulated instrument flight conditions down to the applicable DH, using flight guidance system. Standard procedures of crew coordination (SOPs) shall be observed		P	——>			M*	
6.3 Go-around After approaches as indicated in 6.2 on reaching DH. The training shall also include a go-around due to (simulated) insufficient RVR, wind shear, aircraft deviation in excess of approach limits for a successful approach, and ground/airborne equipment failure prior to reaching DH and, go-around with simulated airborne equipment failure.		P	——>			M*	
6.4 Landing(s) With visual reference established at DH following an instrument approach. Depending on the specific flight guidance system, an automatic landing shall be performed		P	——>			M*	

AIRSHIP CATEGORY	PRACTICAL TRAINING					SKILL TEST OR PROFICIENCY CHECK	
Manoeuvres/Procedures	OTD	FTD	FFS	As	Instructor's initials when training completed	Chkd in FFS As	Examiner's initials when test completed
SECTION 7 — Optional equipment							
7. Use of optional equipment		P	——>				

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APPENDIX 10

CONVERSION OF FOREIGN LICENCES AND RATINGS

A. AEROPLANES

1. Pilot licences

(a) [A pilot licence (aeroplane) issued by an EASA Member State in accordance with EASA Part FCL, or a pilot licence (aeroplane) issued by the UK CAA after 01 January, 2021, shall be converted into a licence with all included ratings/certificates.]

(b) A pilot licence (aeroplane) previously issued by the Authority or issued by an ICAO Contracting State, or a State not included in (a) above, shall be converted into a licence provided that the applicant complies with the following requirements:

(1) for ATPL(A) and CPL(A), complete as a proficiency check the revalidation requirements for type/class and instrument rating, relevant to the privileges of the licence held;

(2) demonstrate knowledge of the relevant parts of CAR OPS and CAR LIC;

(3) demonstrate, or hold, language proficiency in accordance with LIC.055;

(4) comply with the requirements set out in the table below:

Foreign licence held	Total flying hours experience	Any further requirements	CAR LIC licence and conditions (where applicable)	Removal of conditions
(1)	(2)	(3)	(4)	(5)
ATPL(A)	> 1 500 as PIC on multi-pilot aeroplanes	None	ATPL(A)	Not applicable
ATPL(A)	> 1 500 on multi- pilot aeroplanes	None	ATPL(A), with type rating restricted to co-pilot	Demonstrate ability to act as PIC as required by Appendix 9
ATPL(A)	> 500 on multi- pilot aeroplanes	Demonstrate knowledge of flight planning and performance as required by LIC.515	ATPL(A), with type rating restricted to co-pilot	Demonstrate ability to act as PIC as required by Appendix 9
CPL/IR(A) and passed an ICAO ATPL theory		(i) demonstrate knowledge of flight planning and performance as required by LIC.310 and LIC.615(b) (ii) meet remaining requirements of LIC.720.A(c)	CPL/IR(A) with ATPL theory credit	Not applicable

CPL/IR(A)	> 500 on multi- pilot aeroplanes, or in multi-pilot operations on single-pilot aeroplanes CS-23 commuter category or equivalent in accordance with the requirements of CAR OPS for commercial air transport	(i) pass an examination for ATPL(A) knowledge (*) (ii) meet remaining requirements of LIC.720.A(c)	CPL/IR(A) with ATPL theory credit	Not applicable
CPL/IR(A)	> 500 as PIC on single-pilot aeroplanes	None	CPL/IR(A) with type/class ratings restricted to single- pilot aeroplanes	
CPL/IR(A)	< 500 as PIC on single-pilot aeroplanes	Demonstrate knowledge of flight planning and flight performance for CPL/IR level	CPL/IR(A) with type/class ratings restricted to single- pilot aeroplanes	Obtain multi-pilot type rating in accordance with CAR FCL
CPL(A)	> 500 as PIC on single-pilot aeroplanes	Night rating, if applicable	CPL(A), with type/class ratings restricted to single- pilot aeroplanes	
CPL(A)	< 500 as PIC on single-pilot aeroplanes	(i) Night rating, if applicable; (ii) demonstrate knowledge of flight performance and planning as required by LIC.310	CPL(A), with type/class ratings restricted to single- pilot aeroplanes	
PPL/IR(A)	≥ 75 in accordance with IFR	Night rating if night flying privileges are not included in the instrument rating	PPL/IR(A) (the IR restricted to PPL)	Demonstrate knowledge of flight performance and planning as required by LIC.615(b)
PPL(A)	≥ 70 on aeroplanes	Demonstrate the use of radio navigation aids	PPL(A)	

(*) CPL holders already holding a type rating for a multi-pilot aeroplane are not required to have passed an examination for ATPL(A) theoretical knowledge whilst they continue to operate that same aeroplane type, but will not be given ATPL(A) theory credit for a licence. If they require another type rating for a different multi-pilot aeroplane, they must pass an examination for ATPL(A) knowledge.

2. Instructor certificates

An instructor certificate issued by an ICAO Contracting State in accordance with the national requirements shall be converted into a CAR LIC certificate provided that the applicant complies with the following requirements:

National certificate or privileges held	Experience	Any further requirements	CAR LIC certificate
(1)	(2)	(3)	(4)
FI(A)/IRI(A)/TRI(A)/ CRI(A)	as required under CAR LIC for the relevant certificate	N/A	FI(A)/IRI(A)/TRI(A)/ CRI(A)

3. SFI certificate

An SFI certificate issued by an ICAO Contracting State in accordance with the national requirements shall be converted into a CAR LIC certificate provided that the holder complies with the following requirements:

National certificate held	Experience	Any further requirements	CAR LIC certificate
(1)	(2)	(3)	(4)
SFI(A)	> 1 500 hours as pilot of MPA	(i) hold or have held a CPL, MPL or ATPL for aeroplanes; (ii) have completed the flight simulator content of the applicable type rating course including MCC.	SFI(A)
SFI(A)	3 years' recent experience as an SFI	have completed the flight simulator content of the applicable type rating course including MCC	SFI(A)

The conversion shall be valid for a maximum period of 3 years. Revalidation shall be subject to the completion of the relevant requirements set out in CAR LIC.

4. STI certificate

An STI certificate issued by an ICAO Contracting State in accordance with the national requirements of that State may be converted into a CAR LIC certificate provided that the holder complies with the requirements set out in the table below:

National certificate held	Experience	Any further requirements	CAR LIC certificate
(1)	(2)	(3)	(4)
STI(A)	> 500 hours as pilot on SPA	(i) hold or have held a pilot licence; (ii) have completed a proficiency check in accordance with Appendix 9 in an FSTD appropriate to the instruction intended	STI(A)
STI(A)	3 years' recent experience as an STI	have completed a proficiency check in accordance with Appendix 9 in an FSTD appropriate to the instruction intended	STI(A)

Revalidation of the certificate shall be subject to the completion of the relevant requirements set out in CAR LIC.

B. HELICOPTERS

1. Pilot licences

(a) [A pilot licence (helicopter) issued by an EASA Member State in accordance with EASA Part FCL, or a pilot licence (helicopter) issued by the UK CAA after 01 January, 2021, shall be converted into a licence with all included ratings/certificates.]

(b) A pilot licence (helicopter) previously issued by the Authority or issued by an ICAO Contracting State, or a State not included in (a) above, shall be converted into a licence provided that the applicant complies with the following requirements:

(1) complete as a proficiency check the revalidation requirements for type and instrument rating, relevant to the privileges of the licence held;

(2) demonstrate knowledge of the relevant parts of CAR OPS and CAR LIC;

(3) demonstrate, or hold, language proficiency in accordance with LIC.055;

(4) comply with the requirements set out in the table below:

National licence held	Total flying hours experience	Any further requirements	CAR LIC licence and conditions (where applicable)	Removal of conditions
(1)	(2)	(3)	(4)	(5)
ATPL(H) valid IR(H)	> 1 000 as PIC on multi-pilot helicopters	none	ATPL(H) and IR	Not applicable
ATPL(H) no IR(H) privileges	> 1 000 as PIC on multi-pilot helicopters	none	ATPL(H)	

ATPL(H) valid IR(H)	> 1 000 on multi- pilot helicopters	None	ATPL(H), and IR with type rating restricted to co- pilot	demonstrate ability to act as PIC as required by Appendix 9
ATPL(H) no IR(H) privileges	> 1 000 on multi- pilot helicopters	None	ATPL(H) type rating restricted to co-pilot	demonstrate ability to act as PIC as required by Appendix 9
ATPL(H) valid IR(H)	> 500 on multi- pilot helicopters	demonstrate knowledge of flight planning and flight performance as required by LIC.515 and LIC.615(b)	ATPL(H), and IR with type rating restricted to co- pilot	demonstrate ability to act as PIC as required by Appendix 9
ATPL(H) no IR(H) privileges	> 500 on multi- pilot helicopters	demonstrate knowledge of flight planning and flight performance as required by LIC.515 and LIC.615(b)	ATPL(H) type rating restricted to co- pilot	demonstrate ability to act as PIC as required by Appendix 9
CPL/IR(H) and passed an ICAO ATPL(H) theory test in State of licence issue		(i) demonstrate knowledge of flight planning and flight performance as required by LIC.310 and LIC.615(b); (ii) meet remaining requirements of LIC.720.H(b)	CPL/IR(H) with ATPL(H) theory credit, provided that the ICAO ATPL(H) theory test is assessed as being at CAR LIC ATPL level	Not applicable
CPL/IR(H)	> 500 hrs on multi-pilot helicopters	(i) to pass an examination for CAR LIC ATPL(H) theoretical knowledge (*) (ii) to meet remaining requirements of LIC.720.H(b)	CPL/IR(H) with CAR LIC ATPL(H) theory credit	Not applicable
CPL/IR(H)	> 500 as PIC on single-pilot helicopters	None	CPL/IR(H) with type ratings restricted to single- pilot helicopters	obtain multi-pilot type rating as required by CAR LIC
CPL/IR(H)	< 500 as PIC on single-pilot helicopters	demonstrate knowledge of flight planning and flight performance as required by LIC.310 and LIC.615(b)	CPL/IR(H) with type ratings restricted to single- pilot helicopters	

CPL(H)	> 500 as PIC on single-pilot helicopters	night rating	CPL(H), with type ratings restricted to single-pilot helicopters	
CPL(H)	< 500 as PIC on single-pilot helicopters	night rating demonstrate knowledge of flight performance and planning as required by LIC.310	CPL(H), with type ratings restricted to single-pilot helicopters	
CPL(H) Without night rating	> 500 as PIC on single-pilot helicopters		CPL(H), with type ratings restricted to single-pilot helicopters and restricted to day VFR operations	Obtain multi-pilot type rating as required by CAR LIC and a night rating
CPL(H) Without night rating	< 500 as PIC on single-pilot helicopters	demonstrate knowledge of flight planning and flight performance as required by LIC.310	CPL(H), with type ratings restricted to single-pilot helicopters and restricted to day VFR operations	
PPL/IR(H)	≥ 75 in accordance with IFR	night rating; if night flying privileges are not included in the instrument rating	PPL/IR(H) (the IR restricted to PPL)	demonstrate knowledge of flight performance and planning as required by LIC.615(b)
PPL(H)	≥ 75 on helicopters	demonstrate the use of radio navigation aids	PPL (H)	

(*) CPL holders already holding a type rating for a multi-pilot helicopter are not required to have passed an examination for ATPL(H) theoretical knowledge whilst they continue to operate that same helicopter type, but will not be given ATPL(H) theory credit for a CAR LIC licence. If they require another type rating for a different multi-pilot helicopter, they must pass an examination for CAR LIC ATPL(H) theoretical knowledge.
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2. Instructor certificates

An instructor certificate issued by an ICAO Contracting State in accordance with the national requirements shall be converted into a CAR LIC certificate provided that the applicant complies with the following requirements:

National certificate or privileges held	Experience	Any further requirements	CAR LIC certificate
(1)	(2)	(3)	(4)
FI(H)/IRI(H)/TRI(H)	as required under CAR LIC for the relevant certificate		FI(H)/IRI(H)/TRI(H) (*)

Revalidation of the certificate shall be subject to the completion of the relevant requirements set out in CAR LIC.

3. SFI certificate

An SFI certificate issued by an ICAO Contracting State in accordance with the national requirements shall be converted into a CAR LIC certificate provided that the holder complies with the following requirements:

National certificate held	Experience	Any further requirements	CAR LIC certificate
(1)	(2)	(3)	(4)
SFI(H)	> 1 000 hours as pilot of MPH	(i) hold or have held a CPL, MPL or ATPL; (ii) have completed the flight simulator content of the applicable type rating course including MCC	SFI(H)
SFI(H)	3 years' recent experience as an SFI	have completed the simulator content of the applicable type rating course including MCC	SFI(H)

Revalidation of the certificate shall be subject to the completion of the relevant requirements set out in CAR LIC.

4. STI certificate

An STI certificate issued by an ICAO Contracting State in accordance with the national requirements of that State may be converted into a CAR LIC certificate provided that the holder complies with the requirements set out in the table below:

National certificate held	Experience	Any further requirements	Replacement certificate
(1)	(2)	(3)	(4)
STI(H)	> 500 hours as pilot on SPH	(i) hold or have held a pilot licence; (ii) have completed a proficiency check in accordance with Appendix 9 in an FSTD appropriate to the instruction intended	STI(H)
STI(H)	3 years' recent experience as an STI	have completed a proficiency check in accordance with Appendix 9 in an FSTD appropriate to the instruction intended	STI(H)

Revalidation of the certificate shall be subject to the completion of the relevant requirements set out in CAR LIC.

C. FLIGHT ENGINEER

1. Flight engineer licence

(a) A flight engineer licence issued by an EASA Member State in accordance with EASA Part FCL/JAR FCL 4 shall be converted into a licence with all included ratings.

(b) A flight engineer licence issued by an ICAO Contracting State, or a State not included in (a) above, shall be converted into a licence provided that the applicant complies with the following requirements:

(1) complete a proficiency check in accordance with CAR LIC.1080 on the aircraft type included in the licence held;

(2) demonstrate knowledge of the relevant parts of CAR OPS and CAR LIC;

(3) demonstrate, or hold, language proficiency in accordance with LIC.055;

(4) comply with the requirements set out in the table below:

National licence held	Total flying hours experience	Any further requirements	CAR LIC licence and conditions (where applicable)	Removal of conditions
(1)	(2)	(3)	(4)	(5)
F/E(A)	> 100 hours	None	F/E(A)	Not applicable

D. AIRCRAFT MAINTENANCE ENGINEER

1. AME licence

An aircraft maintenance engineer licence issued by an ICAO Contracting State that is acceptable to the Authority and relevant to the certification activities required by the applicant, shall be converted into a licence provided that the applicant complies with the relevant requirements of Subpart M and demonstrates knowledge of the relevant parts of CAR OPS, CAR GEN, CAR AIR, CAR 21 and CAR 145.

APPENDIX 11

FRAMEWORK FOR A SAFETY MANAGEMENT SYSTEM (SMS)

This Appendix specifies the framework for the implementation and maintenance of an SMS. The framework comprises four components and twelve elements as the minimum requirements for SMS implementation:

1. Safety policy and objectives

1.1 Management commitment

1.1.1 The organisation shall define its safety policy in accordance with international and national requirements. The safety policy shall:

(a) reflect organisational commitment regarding safety, including the promotion of a positive safety culture;

(b) include a clear statement about the provision of the necessary resources for the implementation of the safety policy;

(c) include safety reporting procedures;

(d) clearly indicate which types of behaviours are unacceptable related to the organisation's aviation activities and include the circumstances under which disciplinary action would not apply;

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

(f) be communicated, with visible endorsement, throughout the organisation; and

(g) be periodically reviewed to ensure it remains relevant and appropriate to the organisation.

1.1.2 Taking due account of its safety policy, the organisation shall define safety objectives. The safety objectives shall:

(a) form the basis for safety performance monitoring and measurement;

(b) reflect the organisation's commitment to maintain or continuously improve the overall effectiveness of the SMS;

(c) be communicated throughout the organisation; and

(d) be periodically reviewed to ensure they remain relevant and appropriate to the organisation.

1.2 Safety accountability and responsibilities

The organisation shall:

(a) identify the accountable executive who, irrespective of other functions, is accountable on behalf of the organisation for the implementation and maintenance of an effective SMS;

(b) clearly define lines of safety accountability throughout the organisation, including a direct accountability for safety on the part of senior management;

(c) identify the responsibilities of all members of management, irrespective of other functions, as well as of employees, with respect to the safety performance of the organisation;

(d) document and communicate safety accountability, responsibilities and authorities throughout the organisation; and

(e) define the levels of management with authority to make decisions regarding safety risk tolerability.

1.3 Appointment of key safety personnel

The organisation shall appoint a safety manager who is responsible for the implementation and maintenance of the SMS.

Note: Depending on the size of the organisation and the complexity of its aviation services, the responsibilities for the implementation and maintenance of the SMS may be assigned to one or more persons, fulfilling the role of safety manager, as their sole function or combined with other duties, provided these do not result in any conflicts of interest.

1.4 Coordination of emergency response planning

The organisation required to establish and maintain an emergency response plan for accidents and incidents in aircraft operations and other aviation emergencies shall ensure that the emergency response plan is properly coordinated with the emergency response plans of those organisations it must interface with during the provision of services.

1.5 SMS documentation

1.5.1 The organisation shall develop and maintain an SMS manual that describes its:

(a) safety policy and objectives;

(b) SMS requirements;

(c) SMS processes and procedures; and

(d) accountability, responsibilities and authorities for SMS processes and procedures.

1.5.2 The organisation shall develop and maintain SMS operational records as part of its SMS documentation.

Note Depending on the size of the organisation and the complexity of its aviation services, the SMS manual and SMS operational records may be in the form of stand-alone documents or may be integrated with other organisational documents (or documentation) maintained by the organisation.

2. Safety risk management

2.1 Hazard identification

2.1.1 The organisation shall develop and maintain a process to identify hazards associated with its aviation services.

2.1.2 Hazard identification shall be based on a combination of reactive and proactive methods.

2.2 Safety risk assessment and mitigation

The organisation shall develop and maintain a process that ensures analysis, assessment and control of the safety risks associated with identified hazards.

Note: The process may include predictive methods of safety data analysis.

3. Safety assurance

3.1 Safety performance monitoring and measurement

3.1.1 The organisation shall develop and maintain the means to verify the safety performance of the organisation and to validate the effectiveness of safety risk controls.

Note: An internal audit process is one means to monitor compliance with safety regulations, the foundation upon which SMS is built, and assess the effectiveness of these safety risk controls and the SMS.

3.1.2 The organisation's safety performance shall be verified in reference to the safety performance indicators and safety performance targets of the SMS in support of the organisation's safety objectives.

3.2 The management of change

The organisation shall develop and maintain a process to identify changes which may affect the level of safety risk associated with its aviation services and to identify and manage the safety risks that may arise from those changes.

3.3 Continuous improvement of the SMS

The organisation shall monitor and assess its SMS processes to maintain or continuously improve the overall effectiveness of the SMS.

4. Safety promotion

4.1 Training and education

4.1.1 The organisation shall develop and maintain a safety training programme that ensures that personnel are trained and competent to perform their SMS duties.

4.1.2 The scope of the safety training programme shall be appropriate to each individual's involvement in the SMS.

4.2 Safety communication

The organisation shall develop and maintain a formal means for safety communication that:

(a) ensures personnel are aware of the SMS to a degree commensurate with their positions;

(b) conveys safety-critical information;

(c) explains why particular actions are taken to improve safety; and

(d) explains why safety procedures are introduced or changed.

SUBPART A

GENERAL REQUIREMENTS

GM1 LIC.005 Scope

INTERPRETATIVE MATERIAL

(a) Whenever licences, ratings, approvals or certificates are mentioned in CAR LIC, these are meant to be valid licences, ratings, approvals or certificates issued in accordance with CAR LIC. In all other cases, these documents are specified.

(b) Whenever 'or' is used as an inclusive 'or', it should be understood in the sense of 'and/or'.

GM1 LIC.010 Definitions

ABBREVIATIONS

In addition to the definitions of CAR DEF, the following abbreviations apply to the Acceptable Means of Compliance and Guidance Material to CAR LIC:

A	Aeroplane
AC	Alternating Current
ACAS	Airborne Collision Avoidance System
ADF	Automatic Direction Finding
ADS	Aeronautical Design Standard
AFCS	Automatic Flight Control System
AFM	Aircraft Flight Manual
AGL	Above Ground Level
AIC	Aeronautical Information Circular
AIP	Aeronautical Information Publication
AIRAC	Aeronautical Information regulation and control
AIS	Aeronautical Information Services
AMC	Acceptable Means of Compliance
AeMC	Aero-medical Centre
AME	Aero-medical Examiner
AOM	Aircraft Operating Manual
APU	Auxiliary Power Unit
As	Airship
ATC	Air Traffic Control
ATIS	Automatic Terminal Information Service
ATO	Approved Training Organisation
ATP	Airline Transport Pilot
ATPL	Airline Transport Pilot Licence
ATS	Air Traffic Service
AUM	All Up Mass
B	Balloon
BEM	Basic Empty Mass
BITD	Basic Instrument Training Device

BPL	Balloon Pilot Licence
CAS	Calibrated Air Speed
CAT	Clear Air Turbulence
CBT	Competency-based training
CDI	Course Deviation Indicator
CFI	Chief Flying Instructor
CG	Centre of Gravity
CGI	Chief Ground Instructor
CP	Co-pilot
CPL	Commercial Pilot Licence
CRE	Class Rating Examiner
CRI	Class Rating Instructor
CRM	Crew Resource Management
CS	Certification Specification
CQB	Central Question Bank
DC	Direct Current
DF	Direction Finding
DME	Distance Measuring Equipment
DPATO	Defined Point After Take-off
DPBL	Defined Point Before Landing
DR	Dead Reckoning navigation
EFIS	Electronic Flight Instrument System
EIR	En-route instrument rating
EOL	Engine Off Landings
ERPM	Engine Revolution Per Minute
ETA	Estimated Time of Arrival
ETOPS	Extended-range Twin-engine Operation Performance Standard
FAF	Final Approach Fix
LIC	Licensing
FE	Flight Examiner
F/E	Flight Engineer
FEM	Flight Examiner Manual
FFS	Full Flight Simulator
FI	Flight Instructor
FIE	Flight Instructor Examiner
FIS	Flight Information Service
FMC	Flight Management Computer
FMS	Flight Management System
FNPT	Flight and Navigation Procedures Trainer
FS	Flight Simulator
FSTD	Flight Simulation Training Device
ft	feet
FTD	Flight Training Device
G	Gravity forces
GLONASS	Global Orbiting Navigation Satellite System

GM	Guidance Material
GNSS	Global Navigation Satellite Systems
GPS	Global Positioning System
H	Helicopter
HF	High Frequency
HOFCS	High Order Flight Control System
HPA	High Performance Aeroplane
hrs	Hours
HUMS	Health and Usage Monitoring System
HT	Head of Training
IAS	Indicated Air Speed
ICAO	International Civil Aviation Organisation
IGE	In Ground Effect
IFR	Instrument Flight Rules
ILS	Instrument Landing System
IMC	Instrument Meteorological Conditions
IR	Instrument Rating
IRE	Instrument Rating Examiner
IRI	Instrument Rating Instructor
ISA	International Standard Atmosphere
kg	Kilogram
LAPL	Light Aircraft Pilot Licence
LDP	Landing Decision Point
LMT	Local Mean Time
LO	Learning Objectives
LOFT	Line Orientated Flight Training
m	Metre
MCC	Multi-Crew Cooperation
MCCI	Multi-Crew Cooperation Instructor
ME	Multi-engine
MEL	Minimum Equipment List
MEP	Multi-engine Piston
MET	Multi-engine Turboprop
METAR	Meteorological Aerodrome Report
MI	Mountain Rating Instructor
MP	Multi-pilot
MPA	Multi-pilot Aeroplane
MPL	Multi-crew Pilot Licence
MPH	Multi-pilot Helicopter
MTOM	Maximum Take-off Mass
NDB	Non-directional Beacon
NM	Nautical Miles
NOTAM	Notice To Airmen
NOTAR	No Tail Rotor

OAT	Outside Air Temperature
OBS	Omni Bearing Selector
OEI	One Engine Inoperative
OGE	Out of Ground Effect
OML	Operational Multi-pilot Limitation
OSL	Operational Safety Pilot Limitation
OTD	Other Training Devices
PAPI	Precision Approach Path Indicator
PF	Pilot Flying
PIC	Pilot-In-Command
PICUS	Pilot-In-Command Under Supervision
PL	Powered-lift
PNF	Pilot Not Flying
PPL	Private Pilot Licence
QDM	Magnetic heading
QFE	Atmospheric pressure at aerodrome elevation
QNH	Altimeter sub-scale setting to obtain elevation when on the ground
RNAV	[Area Navigation]
RPA	Remotely Piloted Aircraft
RPAS	Remotely Piloted Aircraft System
RPs	Remotely Piloted Station
RPM	Revolution Per Minute
RRPM	Rotor Revolution Per Minute
R/T	Radiotelephony
S	Sailplane
SATCOM	Satellite communication
SE	Single-engine
SEP	Single-engine Piston
SET	Single-engine Turboprop
SFE	Synthetic Flight Examiner
SFI	Synthetic Flight Instructor
SID	Standard Instrument Departure
SIGMET	Significant Meteorological Weather
SLPC	Single Lever Power Control
SOP	Standard Operating Procedure
SP	Single-pilot
SPA	Single-pilot Aeroplane
SPH	Single-pilot Helicopter
SPIC	Student PIC
SPL	Sailplane Pilot Licence
SSR	Secondary Surveillance Radar
STI	Synthetic Training Instructor
TAF	(Terminal Area Forecasts) Aerodrome Forecast
TAS	True Air Speed
TAWS	Terrain Awareness Warning System

TDP	Take-off Decision Point
TEM	Threat and Error Management
TK	Theoretical knowledge
TMG	Touring Motor Glider
TORA	Take-off Run Available
TODA	Take-off Distance Available
TR	Type Rating
TRE	Type Rating Examiner
TRI	Type Rating Instructor
UTC	Coordinated Universal Time
V	Velocity
VASI	Visual Approach Slope Indicator
VFR	Visual Flight Rules
VHF	Very High Frequency
VMC	Visual Meteorological Conditions
VOR	VHF Omni-directional Radio Range
ZFTT	Zero Flight Time Training
ZFM	Zero Fuel Mass

AMC1 LIC.015 Application and issue of licences, ratings and certificates

APPLICATION AND REPORT FORMS

Common application and report forms can be found:

(a) [For skill tests, proficiency checks for issue, revalidation or renewal of a BPL, SPL, PPL, CPL and IR in AMC1 to Appendix 7.]

(b) For training, skill tests or proficiency checks for ATPL, MPL and class and type ratings, in AMC1 to Appendix 9.

(c) For assessments of competence for instructors, in AMC5 LIC.935.

AMC1 LIC.025 Theoretical knowledge examinations for the issue of licences

TERMINOLOGY

The meaning of the following terms used in LIC.025 should be as follows:

(a) 'Entire set of examinations': an examination in all subjects required by the licence level.

(b) 'Examination': the demonstration of knowledge in one or more examination papers.

(c) 'Examination paper': a set of questions to be answered by a candidate for examination.

(d) 'Attempt': a try to pass a specific paper.

(e) 'Sitting': a period of time established by the Authority within which a candidate can take an examination. This period should not exceed 10 consecutive days. Only one attempt at each examination paper is allowed in one sitting.

AMC1 LIC.035(c) Crediting of foreign military training for remote pilot/engineer licence

The knowledge, experience and skill gained with RPAS in military service should be credited in accordance with the elements of a credit report established by the foreign State. The credit report should:

(a) describe the national provisions on the basis of which the military remote pilot/engineer licence/certificate /permit, and associated ratings were issued;

(b) describe the scope of the privileges that were given to the military remote pilots/engineers;

(c) indicate any limitations that need to be included on the remote pilot/engineer licence and indicate any provisions military remote pilots/engineers have to comply with to remove those limitations;

(d) include copies of all documents necessary to demonstrate the elements above, accompanied by copies of the relevant national provisions and procedures.

Where a credit report has been requested by the applicant, but has not been provided by the authorities of the foreign State, the applicant shall provide sufficient supporting documentation for the Authority to ascertain knowledge, experience and qualifications gained in military service.

AMC1 LIC.050 Recording of flight time

GENERAL

(a) The record of the flights flown should contain at least the following information:

(1) personal details: name(s) and address of the pilot;

(2) for each flight:

(i) name(s) of PIC;

(ii) date of flight;

(iii) place and time of departure and arrival;

(iv) type, including make, model and variant, and registration of the aircraft;

(v) indication if the aircraft is SE or ME, if applicable;

(vi) total time of flight;

(vii) accumulated total time of flight.

(3) for each FSTD session, if applicable:

(i) type and qualification number of the training device;

(ii) FSTD instruction;

(iii) date;

(iv) total time of session;

(v) accumulated total time.

(4) details on pilot function, namely PIC, including solo, SPIC and PICUS time, co-pilot, dual, FI or FE;

(5) Operational conditions, namely if the operation takes place at night, or is conducted under instrument flight rules.

(b) Logging of time:

(1) PIC flight time:

(i) the holder of a licence may log as PIC time all of the flight time during which he or she is the PIC;

(ii) the applicant for or the holder of a pilot licence may log as PIC time all solo flight time, flight time as SPIC and flight time under supervision provided that such SPIC time and flight time under supervision are countersigned by the instructor;

(iii) the holder of an instructor certificate may log as PIC all flight time during which he or she acts as an instructor in an aircraft;

(iv) the holder of an examiner’s certificate may log as PIC all flight time during which he or she occupies a pilot’s seat and acts as an examiner in an aircraft;

(v) a co-pilot acting as PICUS on an aircraft on which more than one pilot is required under the type certification of the aircraft or as required by operational requirements provided that such PICUS time is countersigned by the PIC;

(vi) if the holder of a licence carries out a number of flights upon the same day returning on each occasion to the same place of departure and the interval between successive flights does not exceed 30 minutes, such series of flights may be recorded as a single entry.

(2) co-pilot flight time: the holder of a pilot licence occupying a pilot seat as co-pilot may log all flight time as co-pilot flight time on an aircraft on which more than one pilot is required under the type certification of the aircraft, or the regulations under which the flight is conducted;

(3) cruise relief co-pilot flight time: a cruise relief co-pilot may log all flight time as co-pilot when occupying a pilot's seat;

(4) instruction time: a summary of all time logged by an applicant for a licence or rating as flight instruction, instrument flight instruction, instrument ground time, etc., may be logged if certified by the appropriately rated or authorised instructor from whom it was received;

(5) PICUS flight time: provided that the method of supervision is acceptable to the Authority, a co-pilot may log as PIC flight time flown as PICUS when all the duties and functions of PIC on that flight were carried out in such a way that the intervention of the PIC in the interest of safety was not required.

(c) Format of the record:

(1) details of flights flown under commercial air transport may be recorded in a computerised format maintained by the operator. In this case an operator should make the records of all flights operated by the pilot, including differences and familiarisation training, available upon request to the flight crew member concerned;

(2) for other types of flight, the pilot should record the details of the flights flown in the following logbook format. For sailplanes and balloons, a suitable format should be used that contains the relevant items mentioned in (a) and additional information specific to the type of operation.

PILOT LOGBOOK

Holder's name(s) ______________________________

Holder's licence number ______________________________

HOLDER'S ADDRESS:	
	[space for address change]
[space for address change]	*[space for address change]*
[space for address change]	*[space for address change]*

1	2		3		4		5				6		7	8	
DATE dd/mm/yy)	DEPARTURE		ARRIVAL		AIRCRAFT		SINGLE-PILOT TIME		MULTI-PILOT TIME		TOTAL TIME OF		NAME(S) PIC	LANDINGS	
	PLACE	*TIME*	*PLACE*	*TIME*	*MAKE, MODEL, VARIANT*	*REGISTRATION*	*SE*	*ME*			FLIGHT			*DAY*	*NIGHT*
						TOTAL THIS PAGE									
						TOTAL FROM PREVIOUS PAGES									
						TOTAL TIME									

9				10								11				12
OPERATIONAL CONDITION TIME				PILOT FUNCTION TIME								FSTD SESSION				REMARKS AND ENDORSEMENTS
NIGHT		*IFR*		*PIC*		*CO-PILOT*		*DUAL*		*INSTRUCTOR*		*DATE (dd/mm/yy)*	*TYPE*	*TOTAL TIME OF SESSION*		
																I certify that the entries in this log are true.
																PILOT'S SIGNATURE

INSTRUCTIONS FOR USE

(d) LIC.050 requires holders of a pilot licence to record details of all flights flown. This logbook enables pilot licence holders to record flying experience in a manner which will facilitate this process while providing a permanent record of the licence holders flying. Pilots who fly regularly aeroplanes and helicopters or other aircraft categories are recommended to maintain separate logbooks for each aircraft category.

(e) Flight crew logbook entries should be made as soon as practicable after any flight undertaken. All entries in the logbook should be made in ink or indelible pencil.

(f) The particulars of every flight in the course of which the holder of a flight crew licence acts as a member of the operating crew of an aircraft are to be recorded in the appropriate columns using one line for each flight, provided that if an aircraft carries out a number of flights upon the same day returning on each occasion to the same place of departure and the interval between successive flights does not exceed 30 minutes, such series of flights may be recorded as a single entry.

(g) Flight time is recorded:

(1) for aeroplanes, touring motor gliders and powered-lift aircraft, from the moment an aircraft first moves to taking off until the moment it finally comes to rest at the end of the flight;

(2) for helicopters, from the moment a helicopter's rotor blades start turning until the moment the helicopter finally comes to rest at the end of the flight, and the rotor blades are stopped;

(3) for airships, from the moment an airship is released from the mast to taking off until the moment the airship finally comes to rest at the end of the flight, and is secured on the mast;

Note: Flight time for a RPA is the same for the category above.

(h) When an aircraft carries two or more pilots as members of the operating crew, one of them shall, before the flight commences, be designated by the operator as the aircraft PIC, according to operational requirements, who may delegate the conduct of the flight to another suitably qualified pilot. All flying carried out as PIC is entered in the logbook as 'PIC'. A pilot flying as 'PICUS' or 'SPIC' enters flying time as 'PIC' but all such entries are to be certified by the PIC or FI in the 'Remarks' column of the logbook.

(i) Notes on recording of flight time:

(1) column 1: enter the date (dd/mm/yy) on which the flight commences;

(2) column 2 or 3: enter the place of departure and destination either in full or the internationally recognised three or four letter designator. All times should be in UTC;

(3) column 5: indicate whether the operation was SP or MP, and for SP operation whether SE or ME;

Example:

1	2		3		4		5				6		7	8	
DATE (dd/mm/yy)	DEPARTURE		ARRIVAL		AIRCRAFT		SINGLE PILOT TIME		MULTI-PILOT TIME		TOTAL TIME OF FLIGHT		NAME(S) PIC	LANDINGS	
	PLACE	*TIME*	*PLACE*	*TIME*	*MAKE, MODEL, VARIANT*	*REGISTRATION*	*SE*	*ME*						*DAY*	*NIGHT*
08/04/12	LFAC	1025	EGBJ	1240	PA34-250	G-SENE		✓			2	15	SELF	1	
09/04/12	EGBJ	1810	EGBJ	1930	C152	G-NONE	✓				1	20	SELF		2
11/04/12	LGW	1645	LAX	0225	B747-400	G-ABCD			9	40	9	40	NAME(S) PIC		1

(4) column 6: total time of flight may be entered in hours and minutes or decimal notation as desired;

(5) column 7: enter the name(s) of PIC or SELF as appropriate;

(6) column 8: indicate the number of landings as pilot flying by day or night;

(7) column 9: enter flight time undertaken at night or under instrument flight rules if applicable;

(8) column 10: pilot function time:

(i) enter flight time as PIC, SPIC and PICUS as PIC;

(ii) all time recorded as SPIC or PICUS is countersigned by the aircraft PIC/FI in the 'remarks' (column 12);

(iii) instructor time should be recorded as appropriate and also entered as PIC.

(9) column 11: FSTD:

(i) for any FSTD enter the type of aircraft and qualification number of the device. For other flight training devices enter either FNPT I or FNPT II as appropriate;

(ii) total time of session includes all exercises carried out in the device, including pre- and after-flight checks;

(iii) enter the type of exercise performed in the ‘remarks’ (column 12), for example operator proficiency check, revalidation.

(10) column 12: the ‘remarks’ column may be used to record details of the flight at the holder’s discretion. The following entries, however, should always be made:

(i) instrument flight time undertaken as part of the training for a licence or rating;

(ii) details of all skill tests and proficiency checks;

(iii) signature of PIC if the pilot is recording flight time as SPIC or PICUS;

(iv) signature of instructor if flight is part of an SEP or TMG class rating revalidation.

(j) When each page is completed, accumulated flight time or hours should be entered in the appropriate columns and certified by the pilot in the ‘remarks’ column.

Example:

9				10								11				12
OPERATIONAL CONDITION TIME				PILOT FUNCTION TIME								FSTD SESSION				REMARKS AND ENDORSEMENTS
NIGHT		*IFR*		*PIC*		*CO-PILOT*		*DUAL*		*INSTRUCT OR*		*DATE (dd/mm/yy)*	*TYPE*	*TOTAL TIME OF SESSION*		
		2	15	2	15											
1	20			1	20					1	20					Night rating training
												10/04/12	B747-400 (Q1234)	4	10	Revalidation proficiency check
8	10	9	40	9	40											PIC(US): signature of NAME(S) PIC

AMC1 LIC.055 Language proficiency

GENERAL

(a) The language proficiency assessment should be designed to reflect a range of tasks undertaken by pilots but with specific focus on language rather than operational procedures.

(b) The assessment should determine the applicant’s ability to:

(1) communicate effectively using standard R/T phraseology;

(2) deliver and understand messages in plain language in both usual and unusual situations that necessitate departure from standard R/T phraseology.

Note: refer to the 'Manual on the Implementation of ICAO Language Proficiency Requirements' (ICAO Doc 9835), Appendix A Part III and Appendix B for further guidance.

ASSESSMENT

(c) The assessment may be subdivided into three elements, as follows:

(1) listening: assessment of comprehension;

(2) speaking: assessment of pronunciation, fluency, structure and vocabulary;

(3) interaction.

(d) The three elements mentioned above may be combined and they can be covered by using a wide variety of means or technologies.

(e) Where appropriate, some or all of these elements may be achieved through the use of the R/T testing arrangements.

(f) When the elements of the testing are assessed separately, the final assessment should be consolidated in the language proficiency endorsement issued by the Authority.

(g) The assessment may be conducted during one of the several existing checking or training activities, such as licence issue or rating issue and revalidation, line training, operator line checks or proficiency checks.

(h) The Authority may use its own resources in developing or conducting the language proficiency assessment, or may delegate this task to language assessment bodies.

(i) The Authority should establish an appeal procedure for applicants.

(j) The holder of a licence should receive a statement containing the level and validity of the language endorsements.

(k) Where the assessment method for the English language established by the Authority is equivalent to that established for the assessment of use of the English language in accordance with AMC2 LIC.055, the same assessment may be used for both purposes.

BASIC ASSESSMENT REQUIREMENTS

(l) The aim of the assessment is to determine the ability of an applicant for a pilot licence or a licence holder to speak and understand the language used for R/T communications.

(1) The assessment should determine the ability of the applicant to use both:

(i) standard R/T phraseology;

(ii) plain language, in situations when standardised phraseology cannot serve an intended transmission.

(2) The assessment should include:

(i) voice-only or face-to-face situations;

(ii) common, concrete and work-related topics for pilots.

(3) The applicants should demonstrate their linguistic ability in dealing with an unexpected turn of events, and in solving apparent misunderstandings.

(4) The assessment should determine the applicant's speaking and listening abilities. Indirect assessments, of grammatical knowledge, reading and writing, are not appropriate.

(5) The assessment should determine the language skills of the applicant in the following areas:

(i) pronunciation:

(A) the extent to which the pronunciation, stress, rhythm and intonation are influenced by the applicant's first language or national variations;

(B) how much they interfere with ease of understanding.

(ii) structure:

(A) the ability of the applicant to use both basic and complex grammatical structures;
(B) the extent to which the applicant's errors interfere with the meaning.

(iii) vocabulary:

(A) the range and accuracy of the vocabulary used;

(B) the ability of the applicant to paraphrase successfully when lacking vocabulary.

(iv) fluency:

(A) tempo;

(B) hesitancy;

(C) rehearsed versus spontaneous speech;

(D) use of discourse markers and connectors.

(v) comprehension:

(A) on common, concrete and work-related topics;

(B) when confronted with a linguistic or situational complication or an unexpected turn of events.

Note: the accent or variety of accents used in the test material should be sufficiently intelligible for an international community of users.

(vi) interactions:

(A) quality of response (immediate, appropriate, and informative);

(B) the ability to initiate and maintain exchanges:

(a) on common, concrete and work-related topics;

(b) when dealing with an unexpected turn of events.

(C) the ability to deal with apparent misunderstandings by checking, confirming or clarifying.

Note: the assessment of the language skills in the areas mentioned above is conducted using the rating scale in AMC2 LIC.055.

(6) When the assessment is not conducted in a face-to-face situation, it should use appropriate technologies for the assessment of the applicant's abilities in listening and speaking, and for enabling interactions (for example: simulated pilot or controller communication).

ASSESSORS

(m) It is essential that the persons responsible for language proficiency assessment ('assessors') are suitably trained and qualified. They should be either aviation specialists (for example current or former flight crew members or air traffic controllers), or language specialists with additional aviation-related training. An alternative approach would be to form an assessment team consisting of an operational expert and a language expert.

(1) The assessors should be trained on the specific requirements of the assessment.

(2) The assessors should not test applicants to whom they have given language training.

CRITERIA FOR THE ACCEPTABILITY OF LANGUAGE ASSESSMENT BODIES

(n) To ensure an impartial assessment process, the language assessment should be independent of the language training.

(1) To be accepted, the language assessment bodies should demonstrate:

(i) appropriate management and staffing;

(ii) quality system established and maintained to ensure compliance with, and adequacy of, assessment requirements, standards and procedures.

(2) The quality system established by a language assessment body should address the following:

(i) management;

(ii) policy and strategy;

(iii) processes;

(iv) the relevant provisions of ICAO or CAR LIC, standards and assessment procedures;

(v) organisational structure;

(vi) responsibility for the development, establishment and management of the quality system;

(vii) documentation;

(viii) quality assurance programme;

(ix) human resources and training (initial and recurrent);

(x) assessment requirements;

(xi) customer satisfaction.

(3) The assessment documentation and records should be kept for a period of time determined by the Authority and made available to this Authority, on request.

(4) The assessment documentation should include at least the following:

(i) assessment objectives;

(ii) assessment layout, time scale, technologies used, assessment samples, voice samples;

(iii) assessment criteria and standards (at least for the levels 4, 5 and 6 of the rating scale mentioned in AMC2 LIC.055);

(iv) documentation demonstrating the assessment validity, relevance and reliability;

(v) assessment procedures and responsibilities:

(A) preparation of individual assessment;

(B) administration: location(s), identity check and invigilation, assessment discipline, confidentiality or security;

(C) reporting and documentation provided to the Authority or to the applicant, including sample certificate;

(D) retention of documents and records.

Note: refer to the 'Manual on the Implementation of ICAO Language Proficiency Requirements' (ICAO Doc 9835) for further guidance.

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AMC2 LIC.055 Language proficiency

RATING SCALE

The following table describes the different levels of language proficiency:

LEVEL	*PRONUNCIATION* *Assumes a dialect or accent intelligible to the aeronautical community*	*STRUCTURE* *Relevant grammatical structures and sentence patterns are determined by language functions appropriate to the task*	*VOCABULARY*	*FLUENCY*	*COMPREHENSION*	*INTERACTIONS*
Expert (Level 6)	Pronunciation, stress, rhythm, and intonation, though possibly influenced by the first language or regional variation, almost never interfere with ease of understanding.	Both basic and complex grammatical structures and sentence patterns are consistently well controlled.	Vocabulary range and accuracy are sufficient to communicate effectively on a wide variety of familiar and unfamiliar topics. Vocabulary is idiomatic, nuanced and sensitive to register.	Able to speak at length with a natural, effortless flow. Varies speech flow for stylistic effect, for example to emphasise a point. Uses appropriate discourse markers and connectors spontaneously.	Comprehension is consistently accurate in nearly all contexts and includes comprehension of linguistic and cultural subtleties.	Interacts with ease in nearly all situations. Is sensitive to verbal and non-verbal cues, and responds to them appropriately.
Extended (Level 5)	Pronunciation, stress, rhythm, and intonation, though influenced by the first language or regional variation, rarely interfere with ease of understanding.	Basic grammatical structures and sentence patterns are consistently well controlled.	Vocabulary range and accuracy are sufficient to communicate effectively on common, concrete, and work-related topics.	Able to speak at length with relative ease on familiar topics, but may not vary speech flow as a stylistic device.	Comprehension is accurate on common, concrete, and work-related topics and mostly accurate when the speaker is confronted with a linguistic or	Responses are immediate, appropriate, and informative. Manages the speaker or listener relationship effectively.

		Complex structures are attempted but with errors which sometimes interfere with meaning.	Paraphrases consistently and successfully. Vocabulary is sometimes idiomatic.	Can make use of appropriate discourse markers or connectors.	situational complication or an unexpected turn of events. Is able to comprehend a range of speech varieties (dialect or accent) or registers.	
Operational (Level 4)	Pronunciation, stress, rhythm, and intonation are influenced by the first language or regional variation but only sometimes interfere with ease of understanding.	Basic grammatical structures and sentence patterns are used creatively and are usually well controlled. Errors may occur, particularly in unusual or unexpected circumstances, but rarely interfere with meaning.	Vocabulary range and accuracy are usually sufficient to communicate effectively on common, concrete, and work-related topics. Can often paraphrase successfully when lacking vocabulary particularly in unusual or unexpected circumstances.	Produces stretches of language at an appropriate tempo. There may be occasional loss of fluency on transition from rehearsed or formulaic speech to spontaneous interaction, but this does not prevent effective communication. Can make limited use of discourse markers and connectors. Fillers are not distracting.	Comprehension is mostly accurate on common, concrete, and work-related topics when the accent or variety used is sufficiently intelligible for an international community of users. When the speaker is confronted with a linguistic or situational complication or an unexpected turn of events, comprehension may be slower or require clarification strategies.	Responses are usually immediate, appropriate, and informative. Initiates and maintains exchanges even when dealing with an unexpected turn of events. Deals adequately with apparent misunderstandings by checking, confirming, or clarifying.

Pre-Operational (Level 3)	Pronunciation, stress, rhythm, and intonation are influenced by the first language or regional variation and frequently interfere with ease of understanding.	Basic grammatical structures and sentence patterns associated with predictable situations are not always well controlled. Errors frequently interfere with meaning.	Vocabulary range and accuracy are often sufficient to communicate effectively on common, concrete, and work-related topics but range is limited and the word choice often inappropriate. Is often unable to paraphrase successfully when lacking vocabulary.	Produces stretches of language, but phrasing and pausing are often inappropriate. Hesitations or slowness in language processing may prevent effective communication. Fillers are sometimes distracting.	Comprehension is often accurate on common, concrete, and work-related topics when the accent or variety used is sufficiently intelligible for an international community of users. May fall to understand a linguistic or situational complication or an unexpected turn of events.	Responses are sometimes immediate, appropriate, and informative. Can initiate and maintain exchanges with reasonable ease on familiar topics and in predictable situations. Generally inadequate when dealing with an unexpected turn of events.
Elementary (Level 2)	Pronunciation, stress, rhythm, and intonation are heavily influenced by the first language or regional variation and usually interfere with ease of understanding.	Shows only limited control of few simple memorised grammatical structures and sentence patterns.	Limited vocabulary range consisting only of isolated words and memorised phrases.	Can produce very short, isolated, memorised utterances with frequent pausing and a distracting use of fillers to search for expressions and articulate less familiar words.	Comprehension is limited to isolated, memorised phrases when they are carefully and slowly articulated.	Response time is slow, and often inappropriate. Interaction is limited to simple routine exchanges.
Pre-Elementary	Performs at a level below the elementary level.	Performs at a level below the elementary level.	Performs at a level below the elementary level.	Performs at a level below the elementary level.	Performs at a level below the elementary level.	Performs at a level below the elementary level.

(Level 1)						

Note: operational Level (Level 4) is the minimum required proficiency level for R/T communication.

Levels 1 through 3 describe pre-elementary, elementary and pre-operational levels of language proficiency respectively, all of which describe a level below the language proficiency requirement.

Levels 5 and 6 describe extended and expert levels at levels of proficiency more advanced than the minimum required standard.

AMC3 LIC.055 Language proficiency

SPECIFIC REQUIREMENTS FOR HOLDERS OF AN IR USE OF ENGLISH LANGUAGE

(a) The requirement of LIC.055(d) includes the ability to use the English language for the following purposes:

(1) flight: R/T relevant to all phases of flight, including emergency situations.

(2) ground: all information relevant to the accomplishment of a flight:

(i) be able to read and demonstrate an understanding of technical manuals written in English, for example an operations manual, a helicopter flight manual, etc.;

(ii) pre-flight planning, weather information collection, NOTAMs, ATC flight plan, etc.;

(iii) use of all aeronautical en-route, departure and approach charts and associated documents written in English.

(3) communication: be able to communicate with other crew members in English during all phases of flight, including flight preparation.

(b) Alternatively, the items in (a) above may be demonstrated:

(1) by having passed a specific examination given by the Authority after having undertaken a course of training enabling the applicant to meet all the objectives listed in (a) above; or

(2) the item in (a)(1) above is considered to be fulfilled, if the applicant has passed an IR, MPL or ATPL skill test and proficiency check during which the two-way R/T communication is performed in English;

(3) the item in (a)(2) above is considered to be fulfilled if the applicant has graduated from an IR, MPL or ATP course given in English or if he or she has passed the theoretical IR or ATPL examination in English;

(4) the item in (a)(3) above is considered to be fulfilled, if the applicant for or the holder of an IR has graduated from an MCC course given in English and is holding a certificate of satisfactory completion of that course or if the applicant has passed a MP skill test and proficiency check for the issue of a class or type rating during which the two-way R/T communication and the communication with other crew members are performed in English.

(c) Where the examination methods referred to above are equivalent to those established for the language proficiency requirements in accordance with AMC1 LIC.055, the examination may be used to issue a language proficiency endorsement.

AMC1 LIC.060(b)(1) Recent experience

When a pilot needs to carry out one or more flights with an instructor or an examiner to comply with the requirement of LIC.060(b)(1) before the pilot can carry passengers, the instructor or examiner on board those flights will not be considered as a passenger.

GM1 LIC.060(b)(1) Recent experience

AEROPLANES, HELICOPTERS, POWERED-LIFT, AIRSHIPS AND SAILPLANES

If a pilot or a PIC is operating under the supervision of an instructor to comply with the required three take-offs, approaches and landings, no passengers may be on board.

AMC1 LIC.060(b)(5) Recent experience

NON-COMPLEX HELICOPTERS

Grouping of non-complex helicopters with similar handling and operational characteristics:

(a) Group 1: Bell 206/206L, Bell 407;

(b) Group 2: Hughes 369, MD 500N, MD 520N, MD 600;

(c) Group 3: SA 341/342, EC 120;

(d) Group 4: SA 313/318, SA 315/316/319, AS 350, EC 130;

(e) Group 5: all types l

SUBPART C

PRIVATE PILOT LICENCE (PPL), SAILPLANE PILOT LICENCE (SPL) and BALLOON PILOT LICENCE (BPL)

AMC1 LIC.210; LIC.215

SYLLABUS OF THEORETICAL KNOWLEDGE FOR THE PPL(A) AND PPL(H)

The following tables contain the syllabi for the courses of theoretical knowledge, as well as for the theoretical knowledge examinations for the PPL(A) and PPL(H). The training and examination should cover aspects related to non-technical skills in an integrated manner, taking into account the particular risks associated to the licence and the activity.

An approved course shall comprise at least 100 hours of theoretical knowledge instruction. This theoretical knowledge instruction provided by the ATO should include a certain element of formal classroom work but may include also such facilities as interactive video, slide or tape presentation, computer-based training and other media distance learning courses.

The training organisation responsible for the training has to check if all the appropriate elements of the training course of theoretical knowledge instruction have been completed to a satisfactory standard before recommending the applicant for the examination.

The applicable items for each licence are marked with ‘x’. An ‘x’ on the main title of a subject means that all the sub-divisions are applicable.

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
1.	**AIR LAW AND ATC PROCEDURES**				
	International law: conventions, agreements and organisations				
	The Convention on international civil aviation (Chicago) Doc. 7300/6				
	Part I Air Navigation: relevant parts of the following chapters: (a) general principles and application of the convention; (b) flight over territory of Contracting States; (c) nationality of aircraft; (d) measures to facilitate air navigation; (e) conditions to be fulfilled on aircraft; (f) international standards and recommended practices; (g) validity of endorsed certificates and licences; (h) notification of differences.				
	Part II The International Civil Aviation Organisation (ICAO): objectives and composition	x		x	
	Annex 8: Airworthiness of aircraft				
	Foreword and definitions	x		x	
	Certificate of airworthiness	x		x	
	Annex 7: Aircraft nationality and registration marks				
	Foreword and definitions	x		x	
	Common- and registration marks	x		x	
	Certificate of registration and aircraft nationality	x		x	
	Annex 1: Personnel licensing				
	Definitions	x		x	
	Relevant parts of Annex 1 connected to CAR LIC and CAR-MED	x		x	
	Annex 2: Rules of the air				

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	Essential definitions, applicability of the rules of the air, general rules (except water operations), visual flight rules, signals and interception of civil aircraft	x		x	
	Procedures for air navigation: aircraft operations doc. 8168-ops/611, volume 1				
	Altimeter setting procedures (including IACO doc. 7030 – regional supplementary procedures)				
	Basic requirements (except tables), procedures applicable to operators and pilots (except tables)	x		x	
	Secondary surveillance radar transponder operating procedures (including ICAO Doc. 7030 – regional supplementary procedures)				
	Operation of transponders	x		x	
	Phraseology	x		x	
	Annex 11: Doc. 4444 air traffic management				
	Definitions	x		x	
	General provisions for air traffic services	x		x	
	Visual separation in the vicinity of aerodromes	x		x	
	Procedures for aerodrome control services	x		x	
	Radar services	x		x	
	Flight information service and alerting service	x		x	
	Phraseologies	x		x	
	Procedures related to emergencies, communication failure and contingencies	x		x	
	Annex 15: Aeronautical information service				
	Introduction, essential definitions	x		x	
	AIP, NOTAM, AIRAC and AIC	x		x	
	Annex 14, volume 1 and 2: Aerodromes				
	Definitions	x		x	
	Aerodrome data: conditions of the movement area and related facilities	x		x	

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	Visual aids for navigation: (a) indicators and signalling devices; (b) markings; (c) lights; (d) signs; (e) markers.	x		x	
	Visual aids for denoting obstacles: (a) marking of objects; (b) lighting of objects.	x		x	
	Visual aids for denoting restricted use of areas	x		x	
	Emergency and other services: (a) rescue and fire fighting; (b) apron management service.	x		x	
	Annex 12: Search and rescue				
	Essential definitions	x		x	
	Operating procedures: (a) procedures for PIC at the scene of an accident; (b) procedures for PIC intercepting a distress transmission;	x		x	
	Search and rescue signals: (a) signals with surface craft; (b) ground or air visual signal code; (c) air or ground signals.	x		x	
	Annex 17: Security				
	General: aims and objectives	x		x	
	Annex 13: Aircraft accident investigation				
	Essential definitions Applicability	x x		x x	
	National law				

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	National law and differences to relevant ICAO Annexes and relevant regulations.	x		x	
2.	**HUMAN PERFORMANCE**				
	Human factors: basic concepts				
	Human factors in aviation				
	Becoming a competent pilot	x		x	
	Basic aviation physiology and health maintenance				
	The atmosphere: (a) composition; (b) gas laws.	x		x	
	Respiratory and circulatory systems: (a) oxygen requirement of tissues; (b) functional anatomy; (c) main forms of hypoxia (hypoxic and anaemic): (1) sources, effects and counter- measures of carbon monoxide; (2) counter measures and hypoxia; (3) symptoms of hypoxia. (d) hyperventilation; (e) the effects of accelerations on the circulatory system; (f) hypertension and coronary heart disease.	x		x	
	Man and environment				
	Central, peripheral and autonomic nervous systems	x		x	

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	Vision: (a) functional anatomy; (b) visual field, foveal and peripheral vision; (c) binocular and monocular vision; (d) monocular vision cues; (e) night vision; (f) visual scanning and detection techniques and importance of 'look-out'; (g) defective vision.	x		x	
	Hearing: (a) descriptive and functional anatomy; (b) flight related hazards to hearing; (c) hearing loss.	x		x	
	Equilibrium: (a) functional anatomy; (b) motion and acceleration; (c) motion sickness.	x		x	
	Integration of sensory inputs: (a) spatial disorientation: forms, recognition and avoidance; (b) illusions: forms, recognition and avoidance: (1) physical origin; (2) physiological origin; (3) psychological origin. (c) approach and landing problems.	x		x	
	Health and hygiene				
	Personal hygiene: personal fitness	x		x	

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	Body rhythm and sleep: (a) rhythm disturbances; (b) symptoms, effects and management.	x		x	
	Problem areas for pilots: (a) common minor ailments including cold, influenza and gastro-intestinal upset; (b) entrapped gases and barotrauma, (scuba diving); (c) obesity; (d) food hygiene; (e) infectious diseases; (f) nutrition; (g) various toxic gases and materials.	x		x	
	Intoxication: (a) prescribed medication; (b) tobacco; (c) alcohol and drugs; (d) caffeine; (e) self-medication.	x		x	
	Basic aviation psychology				
	Human information processing				
	Attention and vigilance: (a) selectivity of attention; (b) divided attention.	x		x	
	Perception: (a) perceptual illusions; (b) subjectivity of perception; (c) processes of perception.	x		x	

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	Memory: (a) sensory memory; (b) working or short term memory; (c) long term memory to include motor memory (skills).	x		x	
	Human error and reliability				
	Reliability of human behaviour	x		x	
	Error generation: social environment (group, organisation)	x		x	
	Decision making				
	Decision-making concepts: (a) structure (phases); (b) limits; (c) risk assessment; (d) practical application.	x		x	
	Avoiding and managing errors: cockpit management				
	Safety awareness: (a) risk area awareness; (b) situational awareness.	x		x	
	Communication: verbal and non-verbal communication	x		x	
	Human behaviour				
	Personality and attitudes: (a) development; (b) environmental influences.	x		x	
	Identification of hazardous attitudes (error proneness)	x		x	
	Human overload and underload				
	Arousal	x		x	

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	Stress: (a) definition(s); (b) anxiety and stress; (c) effects of stress.	x		x	
	Fatigue and stress management: (a) types, causes and symptoms of fatigue; (b) effects of fatigue; (c) coping strategies; (d) management techniques; (e) health and fitness programmes;	x		x	
3.	**METEOROLOGY**				
	The atmosphere				
	Composition, extent and vertical division				
	Structure of the atmosphere	x		x	
	Troposphere	x		x	
	Air temperature				
	Definition and units	x		x	
	Vertical distribution of temperature	x		x	
		x		x	
	Transfer of heat	x		x	
	Lapse rates, stability and instability Development of inversions and types of inversions	x		x	
	Temperature near the earth's surface, surface effects, diurnal and seasonal variation, effect of clouds and effect of wind	x		x	
	Atmospheric pressure				
	Barometric pressure and isobars	x		x	
	Pressure variation with height	x		x	
	Reduction of pressure to mean sea level	x		x	
	Relationship between surface pressure centres and pressure centres aloft	x		x	
	Air density				

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	Relationship between pressure, temperature and density	x		x	
	ISA				
	ICAO standard atmosphere	x		x	
	Altimetry				
	Terminology and definitions Altimeter and altimeter settings Calculations	x		x	
		x		x	
	Effect of accelerated airflow due to topography	x		x	
		x		x	
	Wind				
	Definition and measurement of wind				
	Definition and measurement	x		x	
	Primary cause of wind				
	Primary cause of wind, pressure gradient, coriolis force and gradient wind	x		x	
	Variation of wind in the friction layer	x		x	
	Effects of convergence and divergence	x		x	
4.	**COMMUNICATIONS**				
	VFR COMMUNICATIONS				
	Definitions				
	Meanings and significance of associated terms	x		x	
	ATS abbreviations	x		x	
	Q-code groups commonly used in RTF air- ground communications	x		x	
	Categories of messages	x		x	
	General operating procedures				
	Transmission of letters	x		x	
	Transmission of numbers (including level information)	x		x	
	Transmission of time	x		x	
	Transmission technique	x		x	
	Standard words and phrases (relevant RTF phraseology included)	x		x	
	R/T call signs for aeronautical stations including use of abbreviated call signs	x		x	
	R/T call signs for aircraft including use of abbreviated call signs	x		x	

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	Transfer of communication	x		x	
	Test procedures including readability scale	x		x	
	Read back and acknowledgement requirements	x		x	
	Relevant weather information terms (VFR)				
	Aerodrome weather	x		x	
	Weather broadcast	x		x	
	Action required to be taken in case of communication failure	x		x	
	Distress and urgency procedures				
	Distress (definition, frequencies, watch of distress frequencies, distress signal and distress message)	x		x	
	Urgency (definition, frequencies, urgency signal and urgency message)	x		x	
	General principles of VHF propagation and allocation of frequencies	x		x	
5.	**PRINCIPLES OF FLIGHT**				
5.1.	**PRINCIPLES OF FLIGHT: AEROPLANE**				
	Subsonic aerodynamics				
	Basics concepts, laws and definitions				
	Laws and definitions:	x	x		
	(a) conversion of units; (b) Newton´s laws; (c) Bernoulli's equation and venture; (d) static pressure, dynamic pressure and total pressure; (e) density; (f) IAS and TAS.				
	Basics about airflow: (a) streamline; (b) two-dimensional airflow; (c) three-dimensional airflow.	x	x		

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	Aerodynamic forces on surfaces: (a) resulting airforce; (b) lift; (c) drag; (d) angle of attack.	x	x		
	Shape of an aerofoil section: (a) thickness to chord ratio; (b) chord line; (c) camber line; (d) camber; (e) angle of attack.	x	x		
	The wing shape: (a) aspect ratio; (b) root chord; (c) tip chord; (d) tapered wings; (e) wing planform.	x	x		
	The two-dimensional airflow about an aerofoil				
	Streamline pattern	x	x		
	Stagnation point	x	x		
	Pressure distribution	x	x		
	Centre of pressure	x	x		
	Influence of angle of attack	x	x		
	Flow separation at high angles of attack	x	x		
	The lift – α graph	x	x		
	The coefficients				
	The lift coefficient C_l: the lift formula	x	x		
	The drag coefficient C_d: the drag formula	x	x		
	The three-dimensional airflow round a wing and a fuselage				

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	Streamline pattern: (a) span-wise flow and causes; (b) tip vortices and angle of attack; (c) upwash and downwash due to tip vortices; (d) wake turbulence behind an aeroplane (causes, distribution and duration of the phenomenon).	x	x		
	Induced drag: (a) influence of tip vortices on the angle of attack; (b) the induced local ; (c) influence of induced angle of attack on the direction of the lift vector; (d) induced drag and angle of attack.	x	x		
	Drag				
	The parasite drag: (a) pressure drag; (b) interference drag; (c) friction drag.	x	x		
	The parasite drag and speed	x	x		
	The induced drag and speed	x	x		
	The total drag	x	x		
	The ground effect				
	Effect on take-off and landing characteristics of an aeroplane	x	x		
	The stall				
	Flow separation at increasing angles of attack: (a) the boundary layer: (1) laminar layer;	x	x		

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	(2) turbulent layer; (3) transition. (b) separation point; (c) influence of angle of attack; (d) influence on: (1) pressure distribution; (2) location of centre of pressure; (3) C_L; (4) C_D; (5) pitch moments. (e) buffet; (f) use of controls.				
	The stall speed: (a) in the lift formula; (b) 1g stall speed; (c) influence of: (1) the centre of gravity; (2) power setting; (3) altitude (IAS); (4) wing loading; (5) load factor n: (i) definition; (ii) turns; (iii) forces.	x	x		

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	The initial stall in span-wise direction: (a) influence of planform; (b) geometric twist (wash out); (c) use of ailerons.	x	x		
	Stall warning: (a) importance of stall warning; (b) speed margin; (c) buffet; (d) stall strip; (e) flapper switch; (f) recovery from stall.	x	x		
	Special phenomena of stall: (a) the power-on stall; (b) climbing and descending turns; (c) t-tailed aeroplane; (d) avoidance of spins: (1) spin development; (2) spin recognition; (3) spin recovery. (e) ice (in stagnation point and on surface): (1) absence of stall warning; (2) abnormal behaviour of the aircraft during stall	x	x		
	C_L augmentation				

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	Trailing edge flaps and the reasons for use in take-off and landing: (a) influence on C_L - α-graph; b) different types of flaps; (c) flap asymmetry; (d) influence on pitch movement.	x	x		
	Leading edge devices and the reasons for use in take-off and landing	x	x		
	The boundary layer				
	Different types: (a) laminar; (b) turbulent.	x	x		
	Special circumstances				
	Ice and other contamination: (a) ice in stagnation point; (b) ice on the surface (frost, snow and clear ice); (c) rain; (d) contamination of the leading edge; (e) effects on stall; (f) effects on loss of controllability; (g) effects on control surface moment; (h) influence on high lift devices during take- off, landing and low speeds.	x	x		
	Stability				
	Condition of equilibrium in steady horizontal flight				
	Precondition for static stability	x	x		
	Equilibrium: (a) lift and weight; (b) drag and thrust.	x	x		

		Aeroplane PPL	Aeroplane Bridge course	Helicopter PPL	Helicopter Bridge course
	Methods of achieving balance				
	Wing and empennage (tail and canard)	x	x		
	Control surfaces	x	x		
	Ballast or weight trim	x	x		
	Static and dynamic longitudinal stability				
	Basics and definitions: (a) static stability, positive, neutral and negative; (b) precondition for dynamic stability; (c) dynamic stability, positive, neutral and negative.	x	x		
	Location of centre of gravity: (a) aft limit and minimum stability margin; (b) forward position; (c) effects on static and dynamic stability.	x	x		
	Dynamic lateral or directional stability				
	Spiral dive and corrective actions	x	x		
	Control				
	General				
	Basics, the three planes and three axis	x	x		
	Angle of attack change	x	x		
	Pitch control				
	Elevator	x	x		
	Downwash effects	x	x		
	Location of centre of gravity	x	x		
	Yaw control				
	Pedal or rudder	x	x		
	Roll control				
	Ailerons: function in different phases of flight	x	x		
	Adverse yaw	x	x		
	Means to avoid adverse yaw: (a) frise ailerons; (b) differential ailerons deflection.	x	x		
	Means to reduce control forces				

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	Aerodynamic balance: (a) balance tab and anti-balance tab; (b) servo tab.	x	x		
	Mass balance				
	Reasons to balance: means	x	x		
	Trimming				
	Reasons to trim	x	x		
	Trim tabs	x	x		
	Limitations				
	Operating limitations				
	Flutter	x	x		
	v_{fe}	x	x		
	v_{no}, v_{ne}	x	x		
	Manoeuvring envelope				
	Manoeuvring load diagram: (a) load factor; (b) accelerated stall speed; (c) v_a; (d) manoeuvring limit load factor or certification category.	x	x		
	Contribution of mass	x	x		
	Gust envelope				
	Gust load diagram	x	x		
	Factors contributing to gust loads	x	x		
	Propellers				
	Conversion of engine torque to thrust				
	Meaning of pitch	x	x		
	Blade twist	x	x		
	Effects of ice on propeller	x	x		
	Engine failure or engine stop				
	Windmilling drag	x	x		
	Moments due to propeller operation				
	Torque reaction	x	x		
	Asymmetric slipstream effect	x	x		
	Asymmetric blade effect	x	x		

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	Flight mechanics				
	Forces acting on an aeroplane				
	Straight horizontal steady flight	x	x		
	Straight steady climb	x	x		
	Straight steady descent	x	x		
	Straight steady glide	x	x		
	Steady coordinated turn: (a) bank angle; (b) load factor; (c) turn radius; (d) rate one turn.	x	x		
5.2.	**PRINCIPLES OF FLIGHT: HELICOPTER**				
	Subsonic aerodynamics				
	Basic concepts, laws and definitions			x	x
	Conversion of units			x	x
	Definitions and basic concepts about air:			x	x
	(a) the atmosphere and International Standard Atmosphere; (b) density; (c) influence of pressure and temperature on density.				
	Newton's laws: (a) Newton's second law: Momentum equation; (b) Newton's third law: action and reaction.			x	x
	Basic concepts about airflow: (a) steady airflow and unsteady airflow; (b) Bernoulli's equation; (c) static pressure, dynamic pressure, total pressure and stagnation point; (d) TAS and IAS; (e) two-dimensional airflow and three-dimensional airflow;			x	x

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	(f) viscosity and boundary layer.				
	Two-dimensional airflow			x	x
	Aerofoil section geometry: (a) aerofoil section; (b) chord line, thickness and thickness to chord ratio of a section; (c) camber line and camber; (d) symmetrical and asymmetrical aerofoils sections.			x	x
	Aerodynamic forces on aerofoil elements: (a) angle of attack; (b) pressure distribution; (c) lift and lift coefficient (d) relation lift coefficient: angle of attack; (e) profile drag and drag coefficient; (f) relation drag coefficient: angle of attack; (g) resulting force, centre of pressure and pitching moment.			x	x
	Stall: (a) boundary layer and reasons for stalling; (b) variation of lift and drag as a function of angle of attack; (c) displacement of the centre of pressure and pitching moment.			x	x
	Disturbances due to profile contamination: (a) ice contamination; (b) ice on the surface (frost, snow and clear ice).			x	x
	The three-dimensional airflow round a wing and a fuselage			x	x
	The wing:			x	x

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	(a) planform, rectangular and tapered wings; (b) wing twist.				
	Airflow pattern and influence on lift:			x	x
	(a) span wise flow on upper and lower surface; (b) tip vortices; (c) span-wise lift distribution.				
	Induced drag: causes and vortices			x	x
	The airflow round a fuselage: (a) components of a fuselage; (b) parasite drag; (c) variation with speed.			x	x
	Transonic aerodynamics and compressibility effects				
	Airflow velocities			x	x
	Airflow speeds: (a) speed of sound; (b) subsonic, high subsonic and supersonic flows.			x	x
	Shock waves: (a) compressibility and shock waves; (b) the reasons for their formation at upstream high subsonic airflow; (c) their effect on lift and drag.			x	x
	Influence of wing planform: sweep-angle			x	x
	Rotorcraft types			x	x
	Rotorcraft			x	x
	Rotorcraft types: (a) autogyro; (b) helicopter.			x	x
	Helicopters			x	x
	Helicopters configurations: the single main rotor helicopter			x	x

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	The helicopter, characteristics and associated terminology: (a) general lay-out, fuselage, engine and gearbox;			x	x
	(b) tail rotor, fenestron and NOTAR; (c) engines (reciprocating and turbo shaft engines); (d) power transmission; (e) rotor shaft axis, rotor hub and rotor blades; (f) rotor disc and rotor disc area; (g) teetering rotor (two blades) and rotors with more than two blades; (h) skids and wheels; (i) helicopter axes and fuselage centre line; (j) roll axis, pitch axis and normal or yaw axis; (k) gross mass, gross weight and disc loading.				
	Main rotor aerodynamics			x	x
	Hover flight outside ground effect			x	x
	Airflow through the rotor discs and round the blades: (a) circumferential velocity of the blade sections; (b) induced airflow, through the disc and downstream; (c) downward fuselage drag; (d) equilibrium of rotor thrust, weight and fuselage drag; (e) rotor disc induced power; (f) relative airflow to the blade				

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	(g) pitch angle and angle of attack of a blade section; (h) lift and profile drag on the blade element; (i) resulting lift and thrust on the blade and rotor thrust; (j) collective pitch angle changes and necessity of blade feathering; (k) required total main rotor-torque and rotor-power; (l) influence of the air density.			x	x
	Anti-torque force and tail rotor: (a) force of tail rotor as a function of main rotor-torque; (b) anti-torque rotor power; (c) necessity of blade feathering of tail rotor blades and yaw pedals.			x	x
	Maximum hover altitude OGE: (a) total power required and power available; (b) maximum hover altitude as a function of pressure altitude and OAT.			x	x
	Vertical climb			x	x
	Relative airflow and angles of attack:			x	x
	(a) climb velocity V_C, induced and relative velocity and angle of attack; (b) collective pitch angle and blade feathering.				
	Power and vertical speed: (a) induced power, climb power and profile power; (b) total main rotor power and main rotor torque; (c) tail rotor power; (d) total power requirement in vertical flight.			x	x

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	Forward flight			x	x
	Airflow and forces in uniform inflow distribution: (a) assumption of uniform inflow distribution on rotor disc; (b) advancing blade (90°) and retreating blade (270°); (c) airflow velocity relative to the blade sections, area of reverse flow; (d) lift on the advancing and retreating blades at constant pitch angles; (e) necessity of cyclic pitch changes; (f) compressibility effects on the advancing blade tip and speed limitations; (g) high angle of attack on the retreating blade, blade stall and speed limitations; (h) thrust on rotor disc and tilt of thrust vector; (i) vertical component of the thrust vector and gross weight equilibrium; (j) horizontal component of the thrust vector and drag equilibrium.			x	x
	The flare (power flight):			x	x
	(a) thrust reversal and increase in rotor thrust; (b) increase of rotor RPM on non-governed rotor.				

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	Power and maximum speed: (a) induced power as a function of helicopter speed; (b) rotor profile power as a function of helicopter speed; (c) fuselage drag and parasite power as a function of forward speed; (d) tail rotor power and power ancillary equipment; (e) total power requirement as a function of forward speed; (f) influence of helicopter mass, air density and drag of additional external equipment; (g) translational lift and influence on power required.			x	x
	Hover and forward flight in ground effect			x	x
	Airflow in ground effect and downwash: rotor power decrease as a function of rotor height above the ground at constant helicopter mass			x	x
	Vertical descent			x	x
	Vertical descent, power on:			x	x
	(a) airflow through the rotor, low and moderate descent speeds; (b) vortex ring state, settling with power and consequences.				

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	Autorotation: (a) collective lever position after failure; (b) up flow through the rotor, auto-rotation and anti-autorotation rings; (c) tail rotor thrust and yaw control; (d) control of rotor RPM with collective lever; (e) landing after increase of rotor thrust by pulling collective and reduction in vertical speed.			x	x
	Forward flight: Autorotation			x	x
	Airflow through the rotor disc: (a) descent speed and up flow through the disc; (b) the flare, increase in rotor thrust, reduction of vertical speed and ground speed.			x	x
	Flight and landing: (a) turning; (b) flare; (c) autorotative landing; (d) height or velocity avoidance graph and dead man's curve.			x	x
	Main rotor mechanics			x	x
	Flapping of the blade in hover			x	x

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	Forces and stresses on the blade: (a) centrifugal force on the blade and attachments; (b) limits of rotor RPM; (c) lift on the blade and bending stresses on a rigid attachment; (d) the flapping hinge of the articulated rotor and flapping hinge offset; (e) the flapping of the hinge less rotor and flexible element.			x	x
	Coning angle in hover:			x	x
	(a) lift and centrifugal force in hover and blade weight negligible (b) flapping, tip path plane and disc area.				
	Flapping angles of the blade in forward flight			x	x
	Forces on the blade in forward flight without cyclic feathering: (a) aerodynamic forces on the advancing and retreating blades without cyclic feathering; (b) periodic forces and stresses, fatigue and flapping hinge; (c) phase lag between the force and the flapping angle (about 90°); (d) flapping motion of the hinged blades and tilting of the cone and flap back of rotor; (e) rotor disc attitude and thrust vector tilt.			x	x

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	Cyclic pitch (feathering) in helicopter mode, forward flight: (a) necessity of forward rotor disc tilt and thrust vector tilt; (b) flapping and tip path plane, virtual rotation axis or no flapping axis and plane of rotation; (c) shaft axis and hub plane; (d) cyclic pitch change (feathering) and rotor thrust vector tilt; (e) collective pitch change, collective lever, swash plate, pitch link and pitch horn; (f) cyclic stick, rotating swash plate and pitch link movement and phase angle.			x	x
	Blade lag motion			x	x
	Forces on the blade in the disc plane (tip path plane) in forward flight: (a) forces due to the Coriolis effect because of the flapping; (b) alternating stresses and the need of the drag or lag hinge. The drag or lag hinge: (a) the drag hinge in the fully articulated rotor; (b) the lag flexure in the hinge less rotor; (c) drag dampers.			x x	x x
	Ground resonance: (a) blade lag motion and movement of the centre of gravity of the blades and the rotor; (b) oscillating force on the fuselage; (c) fuselage, undercarriage and resonance.			x	x
	Rotor systems			x	x
	See-saw or teetering rotor			x	x

		Aeroplane PPL	Aeroplane Bridge course	Helicopter PPL	Helicopter Bridge course
	Fully articulated rotor: (a) three hinges arrangement; (b) bearings and elastomeric hinges.			x	x
	Hinge less rotor and bearing less rotor			x	x
	Blade sailing: (a) low rotor RPM and effect of adverse wind; (b) minimising the danger; (c) droop stops.			x	x
	Vibrations due to main rotor: (a) origins of the vibrations: in plane and vertical; (b) blade tracking and balancing.			x	x
	Tail rotors			x	x
	Conventional tail rotor			x	x
	Rotor description: (a) two-blades tail rotors with teetering hinge; (b) rotors with more than two blades; (c) feathering bearings and flapping hinges; (d) dangers to people and to the tail rotor, rotor height and safety.			x	x
	Aerodynamics: (a) induced airflow and tail rotor thrust; (b) thrust control by feathering, tail rotor drift and roll; (c) effect of tail rotor failure and vortex ring.			x	x
	The fenestron: technical lay-out			x	x
	The NOTAR: technical lay-out			x	x
	Vibrations: high frequency vibrations due to the tail rotors			x	x
	Equilibrium, stability and control			x	x

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	Equilibrium and helicopter attitudes			x	x
	Hover: (a) forces and equilibrium conditions; (b) helicopter pitching moment and pitch angle; (c) helicopter rolling moment and roll angle.			x	x
	Forward flight: (a) forces and equilibrium conditions; (b) helicopter moments and angles; (c) effect of speed on fuselage attitude.			x	x
	Control			x	x
	Control power			x	x
	(a) fully articulated rotor; (b) hinge less rotor; (c) teetering rotor.				
	Static and dynamic roll over			x	x
	Helicopter performances Engine performances Piston engines: (a) power available; (b) effects of density altitude.			x	x
	Turbine engines: (a) power available; (b) effects of ambient pressure and temperature.			x	x
	Helicopter performances			x	x

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	Hover and vertical flight: (a) power required and power available; (b) OGE and IGE maximum hover height; (c) influence of AUM, pressure, temperature and density.			x	x
	Forward flight: (a) maximum speed; (b) maximum rate of climb speed; (c) maximum angle of climb speed; (d) range and endurance; (e) influence of AUM, pressure, temperature and density.			x	x
	Manoeuvring: (a) load factor; (b) bank angle and number of g's; (c) manoeuvring limit load factor.			x	x
	Special conditions: (a) operating with limited power; (b) over pitch and over torque.			x	x
6.	**OPERATIONAL PROCEDURES**				
	General				
	Operation of aircraft: ICAO Annex 6, General requirements				
	Definitions	x	x	x	x
	Applicability	x	x	x	x
	Special operational procedures and hazards (general aspects)	x	x	x	x
	Noise abatement				
	Noise abatement procedures	x	x	x	x
	Influence of the flight procedure (departure, cruise and approach)	x	x	x	x

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	Runway incursion awareness (meaning of surface markings and signals)	x	x	x	x
	Fire or smoke				
	Carburettor fire	x	x	x	x
	Engine fire	x	x	x	x
	Fire in the cabin and cockpit, (choice of extinguishing agents according to fire classification and use of the extinguishers)	x	x	x	x
	Smoke in the cockpit and (effects and action to be taken) and smoke in the cockpit and cabin (effects and actions taken)	x	x	x	x
	Windshear and microburst				
	Effects and recognition during departure and approach	x	x	x	x
	Actions to avoid and actions taken during encounter	x	x	x	x
	Wake turbulence				
	Cause	x	x	x	x
	List of relevant parameters	x	x	x	x
	Actions taken when crossing traffic, during take-off and landing	x	x	x	x
	Emergency and precautionary landings				
	Definition	x	x	x	x
	Cause	x	x	x	x
	Passenger information	x	x	x	x
	Evacuation	x	x	x	x
	Action after landing	x	x	x	x
	Contaminated runways				
	Kinds of contamination	x	x		
	Estimated surface friction and friction coefficient	x	x		
	Rotor downwash			x	x
	Operation influence by meteorological conditions (helicopter)				
	White out, sand or dust			x	x
	Strong winds			x	x
	Mountain environment			x	x
	Emergency procedures				
	Influence by technical problems				
	Engine failure			x	x

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	Fire in cabin, cockpit or engine			x	x
	Tail, rotor or directional control failure			x	x
	Ground resonance			x	x
	Blade stall			x	x
	Settling with power (vortex ring)			x	x
	Overpitch			x	x
	Overspeed: rotor or engine			x	x
	Dynamic rollover			x	x
	Mast bumping			x	x
7.	**FLIGHT PERFORMANCE AND PLANNING**				
7.1.	**MASS AND BALANCE: AEROPLANES OR HELICOPTERS**				
	Purpose of mass and balance considerations				
	Mass limitations				
	Importance in regard to structural limitations	x	x	x	x
	Importance in regard to performance limitations	x	x	x	x
	CG limitations				
	Importance in regard to stability and controllability	x	x	x	x
	Importance in regard to performance	x	x	x	x
	Loading				
	Terminology				
	Mass terms	x	x	x	x
	Load terms (including fuel terms)	x	x	x	x
	Mass limits				
	Structural limitations	x	x	x	x
	Performance limitations	x	x	x	x
	Baggage compartment limitations	x	x	x	x
	Mass calculations				
	Maximum masses for take-off and landing	x	x	x	x
	Use of standard masses for passengers, baggage and crew	x	x	x	x
	Fundamentals of CG calculations				
	Definition of centre of gravity	x	x	x	x
	Conditions of equilibrium (balance of forces and balance of moments)	x	x	x	x

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	Basic calculations of CG	x	x	x	x
	Mass and balance details of aircraft				
	Contents of mass and balance documentation				
	Datum and moment arm	x	x	x	x
	CG position as distance from datum	x	x	x	x
	Extraction of basic mass and balance data from aircraft documentation				
	BEM	x	x	x	x
	CG position or moment at BEM	x	x	x	x
	Deviations from standard configuration	x	x	x	x
	Determination of CG position				
	Methods				
	Arithmetic method	x	x	x	x
	Graphic method	x	x	x	x
	Load and trim sheet				
	General considerations	x	x	x	x
	Load sheet and CG envelope for light aeroplanes and for helicopters	x	x	x	x
7.2.	**PERFORMANCE: AEROPLANES**				
	Introduction				
	Performance classes	x	x		
	Stages of flight	x	x		
	Effect of aeroplane mass, wind, altitude, runway slope and runway conditions	x	x		
	Gradients	x	x		
	SE aeroplanes				
	Definitions of terms and speeds	x	x		
	Take-off and landing performance				
	Use of aeroplane flight manual data	x	x		
	Climb and cruise performance				
	Use of aeroplane flight data	X	x		
	Effect of density altitude and aeroplane mass	x	x		
	Endurance and the effects of the different recommended power or thrust settings	x	x		
	Still air range with various power or thrust settings	x	x		

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
7.3.	**FLIGHT PLANNING AND FLIGHT MONITORING**				
	Flight planning for VFR flights				
	VFR navigation plan				
	Routes, airfields, heights and altitudes from VFR charts	x	x	x	x
	Courses and distances from VFR charts	x	x	x	x
	Aerodrome charts and aerodrome directory	x	x	x	x
	Communications and radio navigation planning data	x	x	x	x
	Completion of navigation plan	x	x	x	x
	Fuel planning				
	General knowledge	x	x	x	x
	Pre-flight calculation of fuel required				
	Calculation of extra fuel	x	x	x	x
	Completion of the fuel section of the navigation plan (fuel log) and calculation of total fuel	x	x	x	x
	Pre-flight preparation				
	AIP and NOTAM briefing				
	Ground facilities and services	x	x	x	x
	Departure, destination and alternate aerodromes	x	x	x	x
	Airway routings and airspace structure	x	x	x	x
	Meteorological briefing				
	Extraction and analysis of relevant data from meteorological documents	x	x	x	x
	ICAO flight plan (ATS flight plan)				
	Individual flight plan				
	Format of flight plan	x	x	x	x
	Completion of the flight plan	x	x	x	x
	Submission of the flight plan	x	x	x	x
	Flight monitoring and in-flight re- planning				
	Flight monitoring				
	Monitoring of track and time	x	x	x	x
	In-flight fuel management	x	x	x	x

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	In-flight re-planning in case of deviation from planned data	x	x	x	x
7.4.	**PERFORMANCE: HELICOPTERS**				
	General				
	Introduction				
	Stages of flight			x	x
	Effect on performance of atmospheric, airport or heliport and helicopter conditions			x	x
	Applicability of airworthiness requirements			x	x
	Definitions and terminology			x	x
	Performance: SE helicopters				
	Definitions of terms (a) masses; (b) velocities: v_x, v_y;			x	x
	(c) velocity of best range and of maximum endurance; (d) power limitations; (e) altitudes.				

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	Take-off, cruise and landing performance **Use and interpretation of diagrams and tables:** (a) Take-off: (1) take-off run and distance available; (2) take-off and initial climb; (3) effects of mass, wind and density altitude; (4) effects of ground surface and gradient. (b) Landing: (1) effects of mass, wind, density altitude and approach speed; (2) effects of ground surface and gradient. (c) In-flight: (1) relationship between power required and power available; (2) performance diagram; (3) effects of configuration, mass, temperature and altitude; (4) reduction of performance during climbing turns; (5) autorotation; (6) adverse effects (icing, rain and condition of the airframe).			x	x
8.	**AIRCRAFT GENERAL KNOWLEDGE**				
8.1.	**AIRFRAME AND SYSTEMS, ELECTRICS, POWERPLANT AND EMERGENCY EQUIPMENT**				
	System design, loads, stresses, maintenance				
	Loads and combination loadings applied to an aircraft's structure	x	x	x	x

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	Airframe				
	Wings, tail surfaces and control surfaces				
	Design and constructions	x	x		
	Structural components and materials	x	x		
	Stresses	x	x		
	Structural limitations	x	x		
	Fuselage, doors, floor, wind-screen and windows				
	Design and constructions	x	x	x	x
	Structural components and materials	x	x	x	x
	Stresses	x	x	x	x
	Structural limitations	x	x	x	x
	Flight and control surfaces				
	Design and constructions			x	x
	Structural components and materials			x	x
	Stresses and aero elastic vibrations			x	x
	Structural limitations			x	x
	Hydraulics				
	Hydromechanics: basic principles	x	x	x	x
	Hydraulic systems	x	x	x	x
	Hydraulic fluids: types and characteristics, limitations	x	x	x	x
	System components: design, operation, degraded modes of operation, indications and warnings	x	x	x	x
	Landing gear, wheels, tyres and brakes				
	Landing gear				
	Types and materials	x	x	x	x
	Nose wheel steering: design and operation	x	x		
	Brakes				
	Types and materials	x	x	x	x
	System components: design, operation, indications and warnings	x	x	x	x
	Wheels and tyres				
	Types and operational limitations	x	x	x	x
	Helicopter equipment			x	x
	Flight controls				
	Mechanical or powered	x	x	x	x

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	Control systems and mechanical	x	x	x	x
	System components: design, operation, indications and warnings, degraded modes of operation and jamming	x	x	x	x
	Secondary flight controls				
	System components: design, operation, degraded modes of operation, indications and warnings	x	x		
	Anti-icing systems				
	Types and operation (pitot and windshield)	x	x	x	x
	Fuel system				
	Piston engine				
	System components: design, operation, degraded modes of operation, indications and warnings	x	x	x	x
	Turbine engine				
	System components: design, operation, degraded modes of operation, indications and warnings			x	x
	Electrics				
	Electrics: general and definitions				
	Direct current: voltage, current, resistance, conductivity, Ohm's law, power and work	x	x	x	x
	Alternating current: voltage, current, amplitude, phase, frequency and resistance	x	x	x	x
	Circuits: series and parallel	x	x	x	x
	Magnetic field: effects in an electrical circuit	x	x	x	x
	Batteries				
	Types, characteristics and limitations	x	x	x	x
	Battery chargers, characteristics and limitations	x	x	x	x
	Static electricity: general				
	Basic principles	x	x	x	x
	Static dischargers	x	x	x	x
	Protection against interference	x	x	x	x
	Lightning effects	x	x	x	x
	Generation: production, distribution and use				
	DC generation: types, design, operation, degraded modes of operation, indications and warnings	x	x	x	x

		Aeroplane PPL	Aeroplane Bridge course	Helicopter PPL	Helicopter Bridge course
	AC generation: types, design, operation, degraded modes of operation, indications and warnings	x	x	x	x
	Electric components				
	Basic elements: basic principles of switches, circuit-breakers and relays	x	x	x	x
	Distribution				
	General: (a) bus bar, common earth and priority; (b) AC and DC comparison.	x	x	x	x
	Piston engines				
	General				
	Types of internal combustion engine: basic principles and definitions	x	x	x	x
	Engine: design, operation, components and materials	x	x	x	x
	Fuel				
	Types, grades, characteristics and limitations	x	x	x	x
	Alternate fuel: characteristics and limitations	x	x	x	x
	Carburettor or injection system				
	Carburettor: design, operation, degraded modes of operation, indications and warnings	x	x	x	x
	Injection: design, operation, degraded modes of operation, indications and warnings	x	x	x	x
	Icing	x	x	x	x
	Air cooling systems				
	Design, operation, degraded modes of operation, indications and warnings	x	x	x	x
	Lubrication systems				
	Lubricants: types, characteristics and limitations	x	x	x	x
	Design, operation, degraded modes of operation, indications and warnings	x	x	x	x
	Ignition circuits				
	Design, operation, degraded modes of operation	x	x	x	x
	Mixture				
	Definition, characteristic mixtures, control instruments, associated control levers and indications	x	x	x	x
	Propellers				

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	Definitions and general: (a) aerodynamic parameters; (b) types; (c) operating modes.	x	x		
	Constant speed propeller: design, operation and system components	x	x		
	Propeller handling: associated control levers, degraded modes of operation, indications and warnings	x	x		
	Performance and engine handling				
	Performance: influence of engine parameters, influence of atmospheric conditions, limitations and power augmentation systems	x	x	x	x
	Engine handling: power and mixture settings during various flight phases and operational limitations	x	x	x	x
	Turbine engines				
	Definitions			x	x
	Coupled turbine engine: design, operation, components and materials			x	x
	Free turbine engine: design, operation, components and materials			x	x
	Fuel				
	Types, characteristics and limitations			x	x
	Main engine components				
	Compressor: (a) types, design, operation, components and materials; (b) stresses and limitations; (c) stall, surge and means of prevention.			x	x

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	Combustion chamber: (a) types, design, operation, components and materials; (b) stresses and limitations; (c) emission problems.			x	x
	Turbine: (a) types, design, operation, components and materials; (b) stresses, creep and limitations.			x	x
	Exhaust: (a) design, operation and materials; (b) noise reduction.			x	x
	Fuel control units: types, operation and sensors			x	x
	Helicopter air intake: different types, design, operation, materials and optional equipment			x	x
	Additional components and systems				
	Helicopter additional components and systems: lubrication system, ignition circuit, starter, accessory gearbox, free wheel units: design, operation and components			x	x
	Performance aspects				
	Torque, performance aspects, engine handling and limitations: (a) engine ratings; (b) engine performance and limitations; (c) engine handling.			x	x
	Protection and detection systems				
	Fire detection systems				
	Operation and indications			x	X
	Miscellaneous systems				
	Rotor design			x	x
	Rotor heads				
	Main rotor				

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	Types			x	x
	Structural components and materials, stresses and structural limitations			x	x
	Design and construction			x	x
	Adjustment			x	x
	Tail rotor				
	Types			x	x
	Structural components and materials, stresses and structural limitations			x	x
	Design and construction			x	x
	Adjustment			x	x
	Transmission				
	Main gear box				
	Different types, design, operation and limitations			x	x
	Rotor brake				
	Different types, design, operation and limitations			x	x
	Auxiliary systems			x	x
	Drive shaft and associated installation			x	x
	Intermediate and tail gear box				
	Different types, design, operation and limitations			x	x
	Blades				
	Main rotor blade				
	Design and construction			x	x
	Structural components and materials			x	x
	Stresses			x	x
	Structural limitations			x	x
	Adjustment			x	x
	Tip shape			x	x
	Tail rotor blade				
	Design and construction			x	x
	Structural components and materials			x	x
	Stresses			x	x
	Structural limitations			x	x
	Adjustment			x	x
8.2.	**INSTRUMENTATION**				
	Instrument and indication systems				

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	Pressure gauge				
	Different types, design, operation, characteristics and accuracy	x	x	x	x
	Temperature sensing				
	Different types, design, operation, characteristics and accuracy	x	x	x	x
	Fuel gauge				
	Different types, design, operation, characteristics and accuracy	x	x	x	x
	Flow meter				
	Different types, design, operation, characteristics and accuracy	x	x	x	x
	Position transmitter				
	Different types, design, operation, characteristics and accuracy	x	x	x	x
	Torque meter				
	Design, operation, characteristics and accuracy			x	x
	Tachometer				
	Design, operation, characteristics and accuracy	x	x	x	x
	Measurement of aerodynamic parameters				
	Pressure measurement				
	Static pressure, dynamic pressure, density and definitions	x	x	x	x
	Design, operation, errors and accuracy	x	x	x	x
	Temperature measurement: aeroplane				
	Design, operation, errors and accuracy	x	x		
	Displays	x	x		
	Temperature measurement: helicopter				
	Design, operation, errors and accuracy			x	x
	Displays			x	x
	Altimeter				
	Standard atmosphere	x	x	x	x
	The different barometric references (QNH, QFE and 1013.25)	x	x	x	x
	Height, indicated altitude, true altitude, pressure altitude and density altitude	x	x	x	x
	Design, operation, errors and accuracy	x	x	x	x
	Displays	x	x	x	x
	Vertical speed indicator				

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	Design, operation, errors and accuracy	x	x	x	x
	Displays	x	x	x	x
	Air speed indicator				
	The different speeds IAS, CAS, TAS: definition, usage and relationships	x	x	x	x
	Design, operation, errors and accuracy	x	x	x	x
	Displays	x	x	x	x
	Magnetism: direct reading compass				
	Earth magnetic field	x	x	x	x
	Direct reading compass				
	Design, operation, data processing, accuracy and deviation	x	x	x	x
	Turning and acceleration errors	x	x	x	x
	Gyroscopic instruments				
	Gyroscope: basic principles				
	Definitions and design	x	x	x	x
	Fundamental properties	x	x	x	x
	Drifts	x	x	x	x
	Turn and bank indicator				
	Design, operation and errors	x	x	x	x
	Attitude indicator				
	Design, operation, errors and accuracy	x	x	x	x
	Directional gyroscope				
	Design, operation, errors and accuracy	x	x	x	x
	Communication systems				
	Transmission modes: VHF, HF and SATCOM				
	Principles, bandwidth, operational limitations and use	x	x	x	x
	Voice communication				
	Definitions, general and applications	x	x	x	x
	Alerting systems and proximity systems				
	Flight warning systems				
	Design, operation, indications and alarms	x	x	x	x
	Stall warning				
	Design, operation, indications and alarms	x	x		
	Radio-altimeter				
	Design, operation, errors, accuracy and indications			x	x

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	Rotor or engine over speed alert system				
	Design, operation, displays and alarms			x	x
	Integrated instruments: electronic displays				
	Display units				
	Design, different technologies and limitations	x	x	x	x
9.	**NAVIGATION**				
9.1.	**GENERAL NAVIGATION**				
	Basics of navigation				
	The solar system				
	Seasonal and apparent movements of the sun	x		x	
	The earth				
	Great circle, small circle and rhumb line	x		x	
	Latitude and difference of latitude	x		x	
	Longitude and difference of longitude	x		x	
	Use of latitude and longitude co-ordinates to locate any specific position	x		x	
	Time and time conversions				
	Apparent time	x		x	
	UTC	x		x	
	LMT	x		x	
	Standard times	x		x	
	Dateline	x		x	
	Definition of sunrise, sunset and civil twilight	x		x	
	Directions				
	True north, magnetic north and compass north	x		x	
	Compass deviation	x		x	
	Magnetic poles, isogonals, relationship between true and magnetic	x		x	
	Distance				
	Units of distance and height used in navigation: nautical miles, statute miles, kilometres, metres and ft	x		x	
	Conversion from one unit to another	x		x	
	Relationship between nautical miles and minutes of latitude and minutes of longitude	x		x	
	Magnetism and compasses				
	General principles				
	Terrestrial magnetism	x		x	

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	Resolution of the earth's total magnetic force into vertical and horizontal components	x		x	
	Variation-annual change	x		x	
	Aircraft magnetism				
	The resulting magnetic fields	x		x	
	Keeping magnetic materials clear of the compass	x		x	
	Charts				
	General properties of miscellaneous types of projections				
	Direct Mercator	x		x	
	Lambert conformal conic	x		x	
	The representation of meridians, parallels, great circles and rhumb lines				
	Direct Mercator	x		x	
	Lambert conformal conic	x		x	
	The use of current aeronautical charts				
	Plotting positions	x		x	
	Methods of indicating scale and relief (ICAO topographical chart)	x		x	
	Conventional signs	x		x	
	Measuring tracks and distances	x		x	
	Plotting bearings and distances	x		x	
	DR navigation				
	Basis of DR				
	Track	x		x	
	Heading (compass, magnetic and true)	x		x	
	Wind velocity	x		x	
	Air speed (IAS, CAS and TAS)	x		x	
	Groundspeed	x		x	
	ETA	x		x	
	Drift and wind correction angle	x		x	
	DR position fix	x		x	
	Use of the navigational computer				
	Speed	x		x	
	Time	x		x	
	Distance	x		x	
	Fuel consumption	x		x	
	Conversions	x		x	

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	Air speed	x		x	
	Wind velocity	x		x	
	True altitude	x		x	
	The triangle of velocities				
	Heading	x		x	
	Ground speed	x		x	
	Wind velocity	x		x	
	Track and drift angle	x		x	
	Measurement of DR elements				
	Calculation of altitude	x		x	
	Determination of appropriate speed	x		x	
	In-flight navigation				
	Use of visual observations and application to in-flight navigation	x		x	
	Navigation in cruising flight, use of fixes to revise navigation data				
	Ground speed revision	x		x	
	Off-track corrections	x		x	
	Calculation of wind speed and direction	x		x	
	ETA revisions	x		x	
	Flight log	x		x	
9.2.	**RADIO NAVIGATION**				
	Basic radio propagation theory				
	Antennas				
	Characteristics	x		x	
	Wave propagation				
	Propagation with the frequency bands	x		x	
	Radio aids				
	Ground DF				
	Principles	x		x	
	Presentation and interpretation	x		x	
	Coverage	x		x	
	Range	x		x	
	Errors and accuracy	x		x	
	Factors affecting range and accuracy	x		x	
	NDB/ADF				
	Principles	x		x	

		Aeroplane		Helicopter	
		PPL	Bridge course	PPL	Bridge course
	Presentation and interpretation	x		x	
	Coverage	x		x	
	Range	x		x	
	Errors and accuracy	x		x	
	Factors affecting range and accuracy	x		x	
	VOR				
	Principles	x		x	
	Presentation and interpretation	x		x	
	Coverage	x		x	
	Range	x		x	
	Errors and accuracy	x		x	
	Factors affecting range and accuracy	x		x	
	DME				
	Principles	x		x	
	Presentation and interpretation	x		x	
	Coverage	x		x	
	Range	x		x	
	Errors and accuracy	x		x	
	Factors affecting range and accuracy	x		x	
	Radar				
	Ground radar				
	Principles	x		x	
	Presentation and interpretation	x		x	
	Coverage	x		x	
	Range	x		x	
	Errors and accuracy	x		x	
	Factors affecting range and accuracy	x		x	
	Secondary surveillance radar and transponder				
	Principles	x		x	
	Presentation and interpretation	x		x	
	Modes and codes	x		x	
	GNSS				
	GPS, GLONASS OR GALILEO				
	Principles	x		x	
	Operation	x		x	
	Errors and accuracy	x		x	
	Factors affecting accuracy	x		x	

AMC2 LIC.210; LIC.215

SYLLABUS OF THEORETICAL KNOWLEDGE FOR THE PPL(AS)

The following table contains the syllabi for the courses of theoretical knowledge, as well as for the theoretical knowledge examinations for the PPL(As). The training and examination should cover aspects related to non-technical skills in an integrated manner, taking into account the particular risks associated to the licence and the activity.

		PPL
1.	**AIR LAW AND ATC PROCEDURES**	
	International law: conventions, agreements and organisations	x
	Airworthiness of aircraft	x
	Aircraft nationality and registration marks	x
	Personnel licensing	x
	Rules of the air	x
	Procedures for air navigation services: aircraft operations	x
	Air traffic services and air traffic management	x
	Aeronautical information service	x
	Aerodromes	x
	Search and rescue	x
	Security	x
	Aircraft accident and incident investigation	x
	National law	x
2.	**HUMAN PERFORMANCE**	
	Human factors: basic concepts	x
	Basic aviation physiology and health maintenance	x
	Basic aviation psychology	x
3.	**METEOROLOGY**	
	The atmosphere	x
	Wind	x
	Thermodynamics	x
	Clouds and fog	x
	Precipitation	x
	Air masses and fronts	x
	Pressure systems	x
	Climatology	x
	Flight hazards	x

		PPL
	Meteorological information	x
4.	COMMUNICATIONS	
	VFR COMMUNICATIONS	
	Definitions	x
	General operating procedures	x
	Relevant weather information terms (VFR)	x
	Action required to be taken in case of communication failure	x
	Distress and urgency procedures	x
	General principles of VHF propagation and allocation of frequencies	x
5.	**PRINCIPLES OF FLIGHT**	
	Basics of aerostatics	x
	Basics of subsonic aerodynamics	x
	Aerodynamics of airships	x
	Stability	x
	Controllability	x
	Limitations	x
	Propellers	x
	Basics of airship flight mechanics	x
6.	**OPERATIONAL PROCEDURES**	
	General requirements	x
	Special operational procedures and hazards (general aspects)	x
	Emergency procedures	x
7.	FLIGHT PERFORMANCE AND PLANNING	
7.1	**MASS AND BALANCE**	
	Purpose of mass and balance considerations	x
	Loading	x
	Fundamentals of CG calculations	x
	Mass and balance details of aircraft	x
	Determination of CG position	x
	Passenger, cargo and ballast handling	x
7.2	**PERFORMANCE**	
	Airworthiness requirements	x
	Basics of airship performance	x
	Definitions and terms	x
	Stages of flight	x

		PPL
	Use of flight manual	x
7.3	**FLIGHT PLANNING AND FLIGHT MONITORING**	
	Flight planning for VFR flights	x
	Fuel planning	x
	Pre-flight preparation	x
	ATS flight plan	x
	Flight monitoring and in-flight re-planning	x
8.	**AIRCRAFT GENERAL KNOWLEDGE**	
8.1	**ENVELOPE, AIRFRAME AND SYSTEMS, ELECTRICS, POWERPLANT AND EMERGENCY EQUIPMENT**	
	Design, materials, loads and stresses	x
	Envelope and airbags	x
	Framework	x
	Gondola	x
	Flight controls	x
	Landing gear	x
	Hydraulics and pneumatics	x
	Heating and air conditioning	x
	Fuel system	x
	Piston engines (propellers)	x
	Turbine engines (basics)	x
	Electrics	x
	Fire protection and detection systems	x
	Maintenance	x
8.2	**INSTRUMENTATION**	
	Sensors and instruments	x
	Measurement of air data and gas parameters	x
	Magnetism: direct reading compass and flux valve	x
	Gyroscopic instruments	x
	Communication systems	x
	Alerting systems	x
	Integrated instruments: electronic displays	x
	Flight management system (general basics)	x
	Digital circuits and computers	x
9.	**NAVIGATION**	
9.1.	**GENERAL NAVIGATION**	

		PPL
	Basics of navigation	x
	Magnetism and compasses	x
	Charts	x
	DR navigation	x
	In-flight navigation	x
9.2.	**RADIO NAVIGATION**	
	Basic radio propagation theory	x
	Radio aids	x
	Radar	x
	GNSS	x

AMC1 LIC.215; LIC.235

THEORETICAL KNOWLEDGE EXAMINATION AND SKILL TEST FOR THE PPL

(a) Theoretical knowledge examination

(1) The examinations should comprise a total of 120 multiple-choice questions covering all the subjects.

(2) Communication practical classroom testing may be conducted.

(3) The period of 18 months mentioned in LIC.025(b)(2) should be counted from the end of the calendar month when the applicant first attempted an examination.

(b) Skill test

Further training may be required following any failed skill test or part thereof. There should be no limit to the number of skill tests that may be attempted.

(c) Conduct of the test

(1) If the applicant chooses to terminate a skill test for reasons considered inadequate by the FE, the applicant should retake the entire skill test. If the test is terminated for reasons considered adequate by the FE, only those sections not completed should be tested in a further flight.

(2) Any manoeuvre or procedure of the test may be repeated once by the applicant. The FE may stop the test at any stage if it is considered that the applicant's demonstration of flying skill requires a complete retest.

(3) An applicant should be required to fly the aircraft from a position where the PIC functions can be performed and to carry out the test as if there is no other crew member. Responsibility for the flight should be allocated in accordance with national regulations.

AMC1 LIC.235 Skill test

CONTENTS OF THE SKILL TEST FOR THE ISSUE OF A PPL(A)

(a) The route to be flown for the navigation test should be chosen by the FE. The route may end at the aerodrome of departure or at another aerodrome. The applicant should be responsible for the flight planning and should ensure that all equipment and documentation for the execution of the flight are on board. The navigation section of the test should have a duration that allows the pilot to demonstrate his/her ability to complete a route with at least three identified waypoints and may, as agreed between the applicant and FE, be flown as a separate test.

(b) An applicant should indicate to the FE the checks and duties carried out, including the identification of radio facilities. Checks should be completed in accordance with the authorised checklist for the aeroplane on which the test is being taken. During pre-flight preparation for the test the applicant should be required to determine power settings and speeds. Performance data for take-off, approach and landing should be calculated by the applicant in compliance with the operations manual or flight manual for the aeroplane used.

FLIGHT TEST TOLERANCE

(c) The applicant should demonstrate the ability to:

(1) operate the aeroplane within its limitations;

(2) complete all manoeuvres with smoothness and accuracy;

(3) exercise good judgment and airmanship;

(4) apply aeronautical knowledge;

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

(d) The following limits are for general guidance. The FE should make allowance for turbulent conditions and the handling qualities and performance of the aeroplane used:

(1) height:

(i) normal flight ± 150 ft

(ii) with simulated engine failure ± 200 ft (if ME aeroplane is used)

(2) heading or tracking of radio aids:

(i) normal flight ± 10 °

(ii) with simulated engine failure ± 15 ° (if ME aeroplane is used)

(3) speed:

(i) take-off and approach +15/–5 knots

(ii) all other flight regimes ± 15 knots

CONTENT OF THE SKILL TEST

(e) The skill test contents and sections set out in this AMC should be used for the skill test for the issue of a PPL(A) on SE and ME aeroplanes or on TMGs.

SECTION 1 PRE-FLIGHT OPERATIONS AND DEPARTURE	
Use of checklist, airmanship, control of aeroplane by external visual reference, anti/de-icing procedures, etc. apply in all sections.	
a	Pre-flight documentation, NOTAM and weather briefing
b	Mass and balance and performance calculation
c	Aeroplane inspection and servicing
d	Engine starting and after starting procedures
e	Taxiing and aerodrome procedures, pre-take-off procedures
f	Take-off and after take-off checks
g	Aerodrome departure procedures
h	ATC compliance and R/T procedures
SECTION 2 GENERAL AIRWORK	
a	ATC compliance and R/T procedures
b	Straight and level flight, with speed changes
c	Climbing: i. best rate of climb; ii. climbing turns; iii. levelling off.
d	Medium (30 ° bank) turns
e	Steep (45 ° bank) turns (including recognition and recovery from a spiral dive)
f	Flight at critically low air speed with and without flaps

g	Stalling: i. clean stall and recover with power; ii. approach to stall descending turn with bank angle 20°, approach configuration; iii. approach to stall in landing configuration.
h	Descending: i. with and without power; ii. descending turns (steep gliding turns); iii. levelling off.
	SECTION 3 EN-ROUTE PROCEDURES
a	Flight plan, dead reckoning and map reading
b	Maintenance of altitude, heading and speed
c	Orientation, timing and revision of ETAs and log keeping
d	Diversion to alternate aerodrome (planning and implementation)
e	Use of radio navigation aids
f	Basic instrument flying check (180 ° turn in simulated IMC)
g	Flight management (checks, fuel systems and carburettor icing, etc.)
h	ATC compliance and R/T procedures
	SECTION 4 APPROACH AND LANDING PROCEDURES
a	Aerodrome arrival procedures
b	* Precision landing (short field landing), crosswind, if suitable conditions available
c	* Flapless landing
d	* Approach to landing with idle power (SE only)
e	Touch and go
f	Go-around from low height
g	ATC compliance and R/T procedures
h	Actions after flight

SECTION 5 ABNORMAL AND EMERGENCY PROCEDURES	
This section may be combined with sections 1 through 4	
a	Simulated engine failure after take-off (SE only)
b	* Simulated forced landing (SE only)
c	Simulated precautionary landing (SE only)
d	Simulated emergencies
e	Oral questions

SECTION 6 SIMULATED ASYMMETRIC FLIGHT AND RELEVANT CLASS OR TYPE ITEMS	
This section may be combined with sections 1 through 5	
a	Simulated engine failure during take-off (at a safe altitude unless carried out in an FFS)
b	Asymmetric approach and go-around
c	Asymmetric approach and full stop landing
d	Engine shutdown and restart
e	ATC compliance, R/T procedures or airmanship
f	As determined by the FE: any relevant items of the class or type rating skill test to include, if applicable: i. aeroplane systems including handling of auto pilot; ii. operation of pressurisation system; iii. use of de-icing and anti-icing system.
g	Oral questions

* These items may be combined, at the discretion of the FE.

AMC2 LIC.235 Skill test

CONTENTS OF THE SKILL TEST FOR THE ISSUE OF A PPL(H)

(a) The area and route to be flown should be chosen by the FE and all low level and hover work should be at an adequate aerodrome or site. Routes used for section 3 may end at the aerodrome of departure or at another aerodrome. The applicant should be responsible for the flight planning and should ensure that all equipment and documentation for the execution of the flight are on board. The navigation section of the test, as set out in this

AMC should consist of at least three legs, each leg of a minimum duration of 10 minutes. The skill test may be conducted in two flights.

(b) An applicant should indicate to the FE the checks and duties carried out, including the identification of radio facilities. Checks should be completed in accordance with the authorised checklist or pilot operating handbook for the helicopter on which the test is being taken. During pre-flight preparation for the test the applicant is required to determine power settings and speeds. Performance data for take-off, approach and landing should be calculated by the applicant in compliance with the operations manual or flight manual for the helicopter used.

FLIGHT TEST TOLERANCE

(c) The applicant should demonstrate the ability to:

(1) operate the helicopter within its limitations;

(2) complete all manoeuvres with smoothness and accuracy;

(3) exercise good judgement and airmanship;

(4) apply aeronautical knowledge;

(5) maintain control of the helicopter at all times in such a manner that the successful outcome of a procedure or manoeuvre is never seriously in doubt.

(d) The following limits are for general guidance. The FE should make allowance for turbulent conditions and the handling qualities and performance of the helicopter used.

(1) height:

(i)	normal forward flight	± 150 ft
(ii)	with simulated major emergency	± 200 ft
(iii)	hovering IGE flight	± 2 ft

(2) heading or tracking of radio aids:

(i)	normal flight	± 10 °
(ii)	with simulated major emergency:	± 15 °

(3) speed

(i)	take-off approach	– 10 knots/+15 knots
(ii)	all other flight regimes	± 15 knots

(4) ground drift:

(i) take-off hover IGE ± 3 ft

(ii) landing no sideways or backwards movement

CONTENT OF THE SKILL TEST

(e) The skill test contents and sections set out in this AMC should be used for the skill test for the issue of a PPL(H) on SE or ME helicopters.

SECTION 1 PRE-FLIGHT OR POST-FLIGHT CHECKS AND PROCEDURES	
Use of checklist, airmanship, control of helicopter by external visual reference, anti- icing procedures, etc. apply in all sections	
a	Helicopter knowledge, (for example technical log, fuel, mass and balance, performance), flight planning, NOTAM and weather briefing
b	Pre-flight inspection or action, location of parts and purpose
c	Cockpit inspection and starting procedure
d	Communication and navigation equipment checks, selecting and setting frequencies
e	Pre-take-off procedure, R/T procedure and ATC compliance
f	Parking, shutdown and post-flight procedure
SECTION 2 HOVER MANOEUVRES, ADVANCED HANDLING AND CONFINED AREAS	
a	Take-off and landing (lift-off and touch down)
b	Taxi and hover taxi
c	Stationary hover with head, cross or tail wind
d	Stationary hover turns, 360 ° left and right (spot turns)
e	Forward, sideways and backwards hover manoeuvring
f	Simulated engine failure from the hover
g	Quick stops into and downwind
h	Sloping ground or unprepared sites landings and take-offs
i	Take-offs (various profiles)
j	Crosswind and downwind take-off (if practicable)

k	Take-off at maximum take-off mass (actual or simulated)
l	Approaches (various profiles)
m	Limited power take-off and landing
n	Autorotations, (FE to select two items from: basic, range, low speed and 360 ° turns)
o	Autorotative landing
p	Practice forced landing with power recovery
q	Power checks, reconnaissance technique, approach and departure technique
SECTION 3 NAVIGATION - EN ROUTE PROCEDURES	
a	Navigation and orientation at various altitudes or heights and map reading
b	Altitude or height, speed, heading control, observation of airspace and altimeter setting
c	Monitoring of flight progress, flight log, fuel usage, endurance, ETA, assessment of track error and re-establishment of correct track and instrument monitoring
d	Observation of weather conditions and diversion planning
e	Use of navigation aids (where available)
f	ATC liaison with due observance of regulations, etc.
SECTION 4 FLIGHT PROCEDURES AND MANOEUVRES	
a	Level flight, control of heading, altitude or height and speed
b	Climbing and descending turns to specified headings
c	Level turns with up to 30 ° bank, 180 ° to 360 ° left and right
d	Level turns 180 ° left and right by sole reference to instruments
SECTION 5 ABNORMAL AND EMERGENCY PROCEDURES (SIMULATED WHERE APPROPRIATE)	
Note (1) Where the test is conducted on an ME helicopter, a simulated engine failure drill, including an SE approach and landing should be included in the test. Note (2) The FE should select four items from the following:	
a	Engine malfunctions, including governor failure, carburettor or engine icing and oil system, as appropriate

b	Fuel system malfunction
c	Electrical system malfunction
d	Hydraulic system malfunction, including approach and landing without hydraulics, as applicable
e	Main rotor or anti-torque system malfunction (FFS or discussion only)
f	Fire drills, including smoke control and removal, as applicable
g	Other abnormal and emergency procedures as outlined in an appropriate flight manual and with reference to Appendix 9 C to CAR LIC, sections 3 and 4, including for ME helicopters: (a) Simulated engine failure at take-off: (1) rejected take-off at or before TDP or safe forced landing at or before DPATO; (2) shortly after TDP or DPATO. (b) Landing with simulated engine failure: (1) landing or go-around following engine failure before LDP or DPBL; (2) following engine failure after LDP or safe forced landing after DPBL.

AMC3 LIC.235 Skill test

CONTENT OF THE SKILL TEST FOR THE ISSUE OF THE PPL(AS)

(a) The area and route to be flown is chosen by the FE. Routes used for section 3 may end at the aerodrome of departure or at another aerodrome and one destination should be a controlled aerodrome. The skill test may be conducted in two flights. The total duration of the flight(s) should be at least 60 minutes.

(b) The applicant should demonstrate the ability to:

(1) operate the airship within its limitations;

(2) complete all manoeuvres with smoothness and accuracy;

(3) exercise good judgement and airmanship;

(4) apply aeronautical knowledge;

(5) maintain control of the airship at all times in such a manner that the successful outcome of a procedure or manoeuvre is never seriously in doubt.

FLIGHT TEST TOLERANCES

(c) The following limits should apply, corrected to make allowance for turbulent conditions and the handling qualities and performance of the airship used.

(1) height:

(i) normal flight ±200 ft

(ii) simulated major emergency ±300 ft

(2) tracking on radio aids: ±15 °

(3) heading:

(i) normal flight ±15 °

(ii) simulated major emergency ±20 °

CONTENT OF THE TEST

(d) The skill test contents and sections set out in this AMC should be used for the skill test for the issue of a PPL(As).

(e) Items in sections 5 and 6 may be performed in an FNPT (As) or a FS (As).

SECTION 1 PRE-FLIGHT OPERATIONS AND DEPARTURE Use of airship checklists, airmanship, control of airship by external visual reference, anti-icing procedures, and principles of threat and error management, etc. apply in all sections	
a	Pre-flight, including: flight planning, documentation, mass and balance, NOTAM and weather briefing
b	Airship inspection and servicing
c	Off-mast procedure, ground manoeuvring and take-off
d	Performance considerations and trim
e	Aerodrome and traffic pattern operations
f	Departure procedure, altimeter setting, collision avoidance (look-out)
g	ATC compliance and R/T procedures
SECTION 2 GENERAL AIRWORK	
a	Control of the airship by external visual reference, including straight and level, climb, descent and look-out
b	Flight close to pressure height
c	Turns

d	Steep descents and climbs
e	Flight by reference solely to instruments, including: i. Level flight, control of heading, altitude and air speed; ii. Climbing and descending turns; iii. Recoveries from unusual attitudes.
f	ATC compliance and R/T procedures
SECTION 3 EN-ROUTE PROCEDURES	
a	Flight plan, dead reckoning and map reading
b	Maintenance of altitude, heading and speed and collision avoidance (look-out procedures)
c	Orientation, timing and revision of ETAs and log keeping
d	Observation of weather conditions and diversion to alternate aerodrome (planning and implementation)
e	Use of radio navigation aids
f	Flight management (checks, fuel systems, etc.)
g	ATC compliance and R/T procedures
SECTION 4 APPROACH AND LANDING PROCEDURES	
a	Aerodrome arrival procedures, altimeter setting, checks and look-out
b	ATC compliance and R/T procedures
c	Go-around action
d	Normal landing
e	Short field landing
f	Post-flight actions
SECTION 5 ABNORMAL AND EMERGENCY PROCEDURES	
This section may be combined with sections 1 through 4	
a	Simulated engine failure after take-off (at a safe altitude) and fire drill
b	Equipment malfunctions
c	Forced landing (simulated)
d	ATC compliance and R/T procedures
e	Oral questions
SECTION 6 RELEVANT TYPE ITEMS	

This section may be combined with sections 1 through 5	
a	Simulated engine failure during take-off (at a safe altitude unless carried out in a FFS)
b	Approach and go-around with failed engine(s)
c	Approach and full stop landing with failed engine(s)
d	Malfunctions in the envelope pressure system
e	ATC compliance, R/T procedures and airmanship
f	As determined by the FE: any relevant items of the type rating skill test to include, if applicable: i. Airship systems; ii. Operation of envelope pressure system.
g	Oral questions

AMC1 LIC.210.A PPL(A) — Experience requirements and crediting

FLIGHT INSTRUCTION FOR THE PPL(A)

(a) Entry to training
Before being accepted for training an applicant should be informed that the appropriate medical certificate must be obtained before solo flying is permitted.

(b) Flight instruction

(1) The PPL(A) flight instruction syllabus takes into account the principles of threat and error management and also covers:

(i) pre-flight operations, including mass and balance determination, aircraft inspection and servicing;

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

(iii) control of the aircraft by external visual reference;

(iv) flight at critically low air speeds, recognition of, and recovery from, incipient and full stalls;

(v) flight at critically high air speeds, recognition of, and recovery from, spiral dive;

(vi) normal and crosswind take-offs and landings;

(vii) maximum performance (short field and obstacle clearance) take- offs, short-field landings;

(viii) flight by reference solely to instruments, including the completion of a level 180 ° turn;

(ix) cross-country flying using visual reference, dead reckoning and radio navigation aids;

(x) emergency operations, including simulated aeroplane equipment malfunctions;

(xi) operations to, from and transiting controlled aerodromes, compliance with air traffic services procedures, communication procedures and phraseology.

(2) Before allowing the applicant for a PPL(A) to undertake his/her first solo flight, the FI should ensure that the applicant can use R/T communication.

(c) Syllabus of flight instruction

(1) The numbering of exercises should be used primarily as an exercise reference list and as a broad instructional sequencing guide; therefore the demonstrations and practices need not necessarily be given in the order listed. The actual order and content will depend upon the following interrelated factors:

(i) the applicant’s progress and ability;

(ii) the weather conditions affecting the flight;

(iii) the flight time available;

(iv) instructional technique considerations;

(v) the local operating environment;

(vi) applicability of the exercises to the aeroplane.

(2) Each of the exercises involves the need for the applicant to be aware of the needs of good airmanship and look-out, which should be emphasised at all times.

(i) Exercise 1a: Familiarisation with the aeroplane:
(A) characteristics of the aeroplane;

(B) cockpit layout;

(C) systems;

(D) checklists, drills and controls.

(ii) Exercise 1b: Emergency drills:

(A) action if fire on the ground and in the air;

(B) engine cabin and electrical system fire;

(C) systems failure;

(D) escape drills, location and use of emergency equipment and exits.

(iii) Exercise 2: Preparation for and action after flight:

(A) flight authorisation and aeroplane acceptance;

(B) serviceability documents;

(C) equipment required, maps, etc.;

(D) external checks;

(E) internal checks;

(F) harness, seat or rudder panel adjustments;

(G) starting and warm-up checks;

(H) power checks;

(I) running down system checks and switching off the engine;

(J) parking, security and picketing (for example tie down);

(K) completion of authorisation sheet and serviceability documents.

iv Exercise 3: Air experience: flight exercise.

(v) Exercise 4: Effects of controls:

(A) primary effects when laterally level and when banked;

(B) further effects of aileron and rudder;

(C) effects of:

(a) air speed;

(b) slipstream;

(c) power;

(d) trimming controls; (e) flaps;

(f) other controls, as applicable.

(D) operation of:

(a) mixture control;

(b) carburettor heat;

(c) cabin heating or ventilation.

(vi) Exercise 5a: Taxiing:

(A) pre-taxi checks;

(B) starting, control of speed and stopping;

(C) engine handling;

(D) control of direction and turning;

(E) turning in confined spaces;

(F) parking area procedure and precautions;

(G) effects of wind and use of flying controls;

(H) effects of ground surface;

(I) freedom of rudder movement;

(J) marshalling signals;

(K) instrument checks;

(L) air traffic control procedures.

(vii) Exercise 5b: Emergencies: brake and steering failure.

(viii) Exercise 6: Straight and level:

(A) at normal cruising power, attaining and maintaining straight and level flight;

(B) flight at critically high air speeds;

(C) demonstration of inherent stability;

(D) control in pitch, including use of trim;

(E) lateral level, direction and balance and trim;

(F) at selected air speeds (use of power);

(G) during speed and configuration changes;

(H) use of instruments for precision.

(ix) Exercise 7: Climbing:

(A) entry, maintaining the normal and max rate climb and levelling off;

(B) levelling off at selected altitudes;

(C) en-route climb (cruise climb);

(D) climbing with flap down;

(E) recovery to normal climb;

(F) maximum angle of climb;

(G) use of instruments for precision.

(x) Exercise 8: Descending:

(A) entry, maintaining and levelling off;

(B) levelling off at selected altitudes;

(C) glide, powered and cruise descent (including effect of power and air speed);

(D) side slipping (on suitable types);

(E) use of instruments for precision flight.

(xi) Exercise 9: Turning:

(A) entry and maintaining medium level turns;

(B) resuming straight flight;

(C) faults in the turn (for example in correct pitch, bank and balance);

(D) climbing turns;

(E) descending turns;

(F) faults in the turns (slipping and skidding on suitable types);

(G) turns onto selected headings, use of gyro heading indicator and compass;

(H) use of instruments for precision.

(xii) Exercise 10a: Slow flight:

Note: the objective is to improve the student's ability to recognise inadvertent flight at critically low speeds and provide practice in maintaining the aeroplane in balance while returning to normal air speed.

(A) safety checks;

(B) introduction to slow flight;

(C) controlled flight down to critically slow air speed;

(D) application of full power with correct attitude and balance to achieve normal climb speed.

(xiii) Exercise 10b: Stalling:

(A) safety checks;

(B) symptoms;

(C) recognition;

(D) clean stall and recovery without power and with power;

(E) recovery when a wing drops;

(F) approach to stall in the approach and in the landing configurations, with and without power and recovery at the incipient stage.

(xiv) Exercise 11: Spin avoidance:

(A) safety checks;

(B) stalling and recovery at the incipient spin stage (stall with excessive wing drop, about 45 °);

(C) instructor induced distractions during the stall.

Note 1: at least two hours of stall awareness and spin avoidance flight training should be completed during the course.

Note 2: consideration of manoeuvre limitations and the need to refer to the aeroplane manual and mass and balance calculations.

(xv) Exercise 12: Take-off and climb to downwind position:

(A) pre-take-off checks;

(B) into wind take-off;

(C) safeguarding the nose wheel;

(D) crosswind take-off;

(E) drills during and after take-off;

(F) short take-off and soft field procedure/techniques including performance calculations;

(G) noise abatement procedures.

(xvi) Exercise 13: Circuit, approach and landing:

(A) circuit procedures, downwind and base leg;

(B) powered approach and landing;

(C) safeguarding the nose wheel;

(D) effect of wind on approach and touchdown speeds and use of flaps;

(E) crosswind approach and landing;

(F) glide approach and landing;

(G) short landing and soft field procedures or techniques;

(H) flapless approach and landing;

(I) wheel landing (tail wheel aeroplanes);

(J) missed approach and go-around;

(K) noise abatement procedures.

(xvii) Exercise 12/13: Emergencies:

(A) abandoned take-off;

(B) engine failure after take-off;

(C) mislanding and go-around;

(D) missed approach.

Note: in the interests of safety it will be necessary for pilots trained on nose wheel aeroplanes to undergo dual conversion training before flying tail wheel aeroplanes, and vice-versa.

(xviii) Exercise 14: First solo:

(A) instructor's briefing, observation of flight and de-briefing;

Note: during flights immediately following the solo circuit consolidation the following should be revised:

(B) procedures for leaving and rejoining the circuit;

(C) the local area, restrictions, map reading;

(D) use of radio aids for homing;

(E) turns using magnetic compass, compass errors.

(xix) Exercise 15: Advanced turning:

(A) steep turns (45 °), level and descending;

(B) stalling in the turn and recovery;

(C) recoveries from unusual attitudes, including spiral dives.

(xx) Exercise 16: Forced landing without power:

(A) forced landing procedure;

(B) choice of landing area, provision for change of plan;

(C) gliding distance;

(D) descent plan;

(E) key positions;

(F) engine cooling;

(G) engine failure checks;

(H) use of radio;

(I) base leg;

(J) final approach;

(K) landing;

(L) actions after landing.

(xxi) Exercise 17: Precautionary landing:

(A) full procedure away from aerodrome to break-off height;

(B) occasions necessitating;

(C) in-flight conditions;

(D) landing area selection:

(a) normal aerodrome;

(b) disused aerodrome;

(c) ordinary field.

(E) circuit and approach;

(F) actions after landing.

(xxii) Exercise 18a: Navigation:

(A) flight planning:

(a) weather forecast and actuals;

(b) map selection and preparation:

(1) choice of route;

(2) controlled airspace;

(3) danger, prohibited and restricted areas;

(4) safety altitudes.

(c) calculations:

(1) magnetic heading(s) and time(s) en-route;

(2) fuel consumption;

(3) mass and balance;

(4) mass and performance.

(d) flight information:

(1) NOTAMs etc.;

(2) radio frequencies;

(3) selection of alternate aerodromes.

(e) aeroplane documentation;

(f) notification of the flight:

(1) pre-flight administrative procedures;

(2) flight plan form.

(B) departure:

(a) organisation of cockpit workload;

(b) departure procedures:

(1) altimeter settings;

(2) ATC liaison in controlled or regulated airspace;

(3) setting heading procedure;

(4) noting of ETAs.

(c) maintenance of altitude and heading;

(d) revisions of ETA and heading;

(e) log keeping;

(f) use of radio;

(g) use of navaids;

(h) minimum weather conditions for continuation of flight;

(i) in-flight decisions;

(j) transiting controlled or regulated airspace;

(k) diversion procedures;

(l) uncertainty of position procedure;

(m) lost procedure.

(C) arrival and aerodrome joining procedure:

(a) ATC liaison in controlled or regulated airspace;

(b) altimeter setting;

(c) entering the traffic pattern;

(d) circuit procedures; (e) parking;

(f) security of aeroplane;

(g) refuelling;

(h) closing of flight plan, if appropriate;

(i) post-flight administrative procedures.

(xxiii) Exercise 18b: Navigation problems at lower levels and in reduced visibility:

(A) actions before descending;

(B) hazards (for example obstacles and terrain);

(C) difficulties of map reading;

(D) effects of wind and turbulence;

(E) vertical situational awareness (avoidance of controlled flight into terrain);

(F) avoidance of noise sensitive areas;

(G) joining the circuit;

(H) bad weather circuit and landing.

(xxiv) Exercise 18c: Radio navigation:

(A) use of GNSS:

(a) selection of waypoints;

(b) to or from indications and orientation;

(c) error messages.

(B) use of VHF omni range:

(a) availability, AIP and frequencies;

(b) selection and identification;

(c) OBS;

(d) to or from indications and orientation;

(e) CDI;

(f) determination of radial;

(g) intercepting and maintaining a radial;

(h) VOR passage;

(i) obtaining a fix from two VORs.

(C) use of ADF equipment: NDBs:

(a) availability, AIP and frequencies;

(b) selection and identification;

(c) orientation relative to the beacon;

(d) homing.

(D) use of VHF/DF:

(a) availability, AIP, frequencies;

(b) R/T procedures and ATC liaison;

(c) obtaining a QDM and homing.

(E) use of en-route or terminal radar:

(a) availability and AIP;

(b) procedures and ATC liaison;

(c) pilot's responsibilities;

(d) secondary surveillance radar:

(1) transponders;

(2) code selection;

(3) interrogation and reply.

(F) use of DME:

(a) station selection and identification;

(b) modes of operation: distance, groundspeed and time to run.

(xxv) Exercise 19: Basic instrument flight:

(A) physiological sensations;

(B) instrument appreciation; attitude instrument flight;

(C) instrument limitations;

(D) basic manoeuvres:

(a) straight and level at various air speeds and configurations;

(b) climbing and descending;

(c) standard rate turns, climbing and descending, onto selected headings;

(d) recoveries from climbing and descending turns.

(d) BITD

(1) A BITD may be used for flight training for:

(i) flight by reference solely to instruments;

(ii) navigation using radio navigation aids;

(iii) basic instrument flight.

(2) The use of the BITD should be subject to the following:

(i) the training should be complemented by exercises on an aeroplane;

(ii) the record of the parameters of the flight must be available;

(iii) A FI(A) or STI(A) should conduct the instruction.

AMC1 LIC.210.H PPL(H) — Experience requirements and crediting

FLIGHT INSTRUCTION FOR THE PPL(H)

(a) Entry to training

Before being accepted for training an applicant should be informed that the appropriate medical certificate must be obtained before solo flying is permitted.

(b) Ground instruction

Enhanced ground instruction in weather interpretation, planning and route assessment, decision making on encountering DVE including reversing course or conducting a precautionary landing.

(c) Flight instruction

(1) The PPL(H) flight instruction syllabus should take into account the principles of threat and error management and cover:

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

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

(iii) control of the helicopter by external visual reference;

(iv) take-offs, landings, hovering, look-out turns and normal transitions from and to the hover;

(v) emergency procedures, basic autorotations, simulated engine failure, ground resonance recovery if relevant to type;

(vi) sideways and backwards flight, turns on the spot; (vii) incipient vortex ring recognition and recovery;

(viii) touchdown autorotations, simulated engine-off landings, practice forced landings. Simulated equipment malfunctions and emergency procedures relating to malfunctions of engines, controls, electrical and hydraulic circuits;

(ix) steep turns;

(x) transitions, quick stops, out of wind manoeuvres, sloping ground landings and take-offs;

(xi) limited power and confined area operations, including selection of and operations to and from unprepared sites;

(xii) flight by sole reference to basic flight instruments, including completion of a level 180 ° turn and recovery from unusual attitudes to simulate inadvertent entry into cloud (this training may be conducted by a FI(H));

(xiii) cross-country flying by using visual reference, DR, GNNS and, where available, radio navigation aids; simulation of deteriorating weather conditions and actions to divert or conduct precautionary landing;

(xiv) operations to, from and transiting controlled aerodromes; compliance with air traffic services procedures, communication procedures and phraseology.

(2) Before allowing the applicant for a PPL(H) to undertake his/her first solo flight, the FI should ensure that the applicant can use R/T communication.

(3) Wherever possible, flight simulation should be used to demonstrate to student pilots the effects of flight into DVE and to enhance their understanding and need for avoidance of this potentially fatal flight regime.

(d) Syllabus of flight instruction

(1) The numbering of exercises should be used primarily as an exercise reference list and as a broad instructional sequencing guide; therefore the demonstrations and practices need not necessarily be given in the order listed. The actual order and content will depend upon the following interrelated factors:

(i) the applicant’s progress and ability;

(ii) the weather conditions affecting the flight;

(iii) the flight time available;

(iv) instructional technique considerations;

(v) the local operating environment;

(vi) applicability of the exercises to the helicopter.

(2) Each of the exercises involves the need for the applicant to be aware of the needs of good airmanship and look-out, which should be emphasised at all times.

(i) Exercise 1a: Familiarisation with the helicopter:

(A) characteristics of the helicopter, external features;

(B) cockpit layout;

(C) systems;

(D) checklists, procedures and controls.

(ii) Exercise 1b: Emergency procedures:

(A) action if fire on the ground and in the air;

(B) engine, cabin and electrical system fire;

(C) systems failures;

(D) escape drills, location and use of emergency equipment and exits.

(iii) Exercise 2: Preparation for and action after flight:

(A) flight authorisation and helicopter acceptance;

(B) serviceability documents;

(C) equipment required, maps, etc.;

(D) external checks;

(E) internal checks;

(F) seat, harness and flight controls adjustments;

(G) starting and warm up checks clutch engagement and starting rotors;

(H) power checks;

(I) running down system checks and switching off the engine;

(J) parking, security and picketing;

(K) completion of authorisation sheet and serviceability documents.

(iv) Exercise 3: Air experience:

(A) to introduce the student to rotary wing flight;

(B) flight exercise.

(v) Exercise 4: Effects of controls:

(A) function of flight controls, primary and secondary effect;

(B) effects of:

(a) air speed;

(b) power changes (torque);

(c) yaw (sideslip);

(d) disc loading (bank and flare);

(e) controls of selecting hydraulics on/off;

(f) control friction.

(C) instruments;

(D) use of carburettor heat or anti-icing control.

(vi) Exercise 5: Power and attitude changes:

(A) relationship between cyclic control position, disc attitude, fuselage attitude and air speed;

(B) flapback;

(C) power required diagram in relation to air speed;

(D) power and air speed changes in level flight;

(E) use of instruments for precision;

(F) engine and air speed limitations.

(vii) Exercise 6: Straight and level:

(A) at normal cruising power, attaining and maintaining straight and level flight;

(B) control in pitch, including use of control friction or trim;

(C) maintaining direction and balance, (ball or yawstring use);

(D) setting power for selected air speeds and speed changes;

(E) use of instruments for precision.

(viii) Exercise 7: Climbing:

(A) optimum climb speed, best angle or rate of climb from power required diagram;

(B) initiation, maintaining the normal and maximum rate of climb, levelling off;

(C) levelling off at selected altitudes or heights;

(D) use of instruments for precision.

(ix) Exercise 8: Descending:

(A) optimum descent speed, best angle or rate of descent from power required diagram;

(B) initiation, maintaining and levelling off;

(C) levelling off at selected altitudes or heights;

(D) descent (including effect of power and air speed);

(E) use of instruments for precision.

(x) Exercise 9: Turning:

(A) initiation and maintaining medium level turns;

(B) resuming straight flight;

(C) altitude, bank and co-ordination;

(D) climbing and descending turns and effect on rate of climb or descent;

(E) turns onto selected headings, use of gyro heading indicator and compass;

(F) use of instruments for precision.

(xi) Exercise 10: Basic autorotation:

(A) safety checks, verbal warning and look-out;

(B) entry, development and characteristics;

(C) control of air speed and RRPM, rotor and engine limitations;

(D) effect of AUM, IAS, disc loading, G forces and density altitude;

(E) re-engagement and go-around procedures (throttle over- ride or ERPM control);

(F) vortex condition during recovery;

(G) gentle and medium turns in autorotation;

(H) demonstration of variable flare simulated engine off landing.

(xii) Exercise 11a: Hovering:

(A) demonstrate hover IGE, importance of wind effect and attitude, ground cushion, stability in the hover and effects of over controlling;

(B) student holding cyclic stick only;

(C) student handling collective lever (and throttle) only;

(D) student handling collective lever, (throttle) and pedals;

(E) student handling all controls;

(F) demonstration of ground effect;

(G) demonstration of wind effect;

(H) demonstrate gentle forward running touchdown;

(I) specific hazards for example snow, dust and litter.

(xiii) Exercise 11b: Hover taxiing and spot turns:

(A) revise hovering;

(B) precise ground speed and height control;

(C) effect of wind direction on helicopter attitude and control margin;

(D) control and co-ordination during spot turns;

(E) carefully introduce gentle forward running touchdown.

(xiv) Exercise 11c: Hovering and taxiing emergencies:

(A) revise hovering and gentle forward running touchdown, explain (demonstrate where applicable) effect of hydraulics failure in the hover;

(B) demonstrate simulated engine failure in the hover and hover taxi;

(C) demonstrate dangers of mishandling and over-pitching.

(xv) Exercise 12: Take-off and landing:

(A) pre-take-off checks or drills;

(B) look-out;

(C) lifting to hover;

(D) after take-off checks;

(E) danger of horizontal movement near ground;

(F) danger of mishandling and overpitching;

(G) landing (without sideways or backwards movement);

(H) after landing checks or drills;

(I) take-off and landing crosswind and downwind.

(xvi) Exercise 13: Transitions from hover to climb and approach to hover:

(A) look-out;

(B) revise take-off and landing;

(C) ground effect, translational lift and its effects;

(D) flapback and its effects;

(E) effect of wind speed and direction during transitions from or to the hover;

(F) the constant angle approach;

(G) demonstration of variable flare simulated engine off landing.

(xvii) Exercise 14a: Circuit, approach and landing:

(A) revise transitions from hover to climb and approach to hover;

(B) circuit procedures, downwind and base leg;

(C) approach and landing with power;

(D) pre-landing checks;

(E) effect of wind on approach and IGE hover;

(F) crosswind approach and landing;

(G) go-around;

(H) noise abatement procedures.

(xviii) Exercise 14b: Steep and limited power approaches and landings:

(A) revise the constant angle approach;

(B) the steep approach (explain danger of high sink rate and low air speed)

(C) limited power approach (explain danger of high speed at touch down);

(D) use of the ground effect;

(E) variable flare simulated engine off landing.

(xix) Exercise 14c: Emergency procedures:

(A) abandoned take-off;

(B) missed approach and go-around;

(C) hydraulic off landing (if applicable);

(D) tail rotor control or tail rotor drive failure (briefing only)

(E) simulated emergencies in the circuit to include:

(a) hydraulics failure;

(b) simulated engine failure on take-off, crosswind, downwind and base leg;

(c) governor failure.

(xx) Exercise 15: First solo:

(A) instructor's briefing, observation of flight and debriefing;

(B) warn of change of attitude from reduced and laterally displaced weight;

(C) warn of low tail, low skid or wheel during hover, landing;

(D) warn of dangers of loss of RRPM and overpitching;

(E) pre-take-off checks;

(F) into wind take-off;

(G) procedures during and after take-off;

(H) normal circuit, approaches and landings;

(I) action if an emergency.

(xxi) Exercise 16: Sideways and backwards hover manoeuvring:

(A) manoeuvring sideways flight heading into wind;

(B) manoeuvring backwards flight heading into wind;

(C) combination of sideways and backwards manoeuvring;

(D) manoeuvring sideways and backwards and heading out of wind;
(E) stability and weather cocking;

(F) recovery from backwards manoeuvring (pitch nose down);

(G) limitations for sideways and backwards manoeuvring.

(xxii) Exercise 17: Spot turns:

(A) revise hovering into wind and downwind;

(B) turn on spot through 360º:

(a) around pilots position;

(b) around tail rotor;

(c) around helicopter geometric centre;

(d) square and safe visibility clearing turn.

(C) rotor RPM control, torque effect, cyclic limiting stops due to CG position and wind speed and direction.

(xxiii) Exercise 18: Hover OGE and vortex ring:

(A) establishing hover OGE;

(B) drift, height or power control;

(C) demonstration of incipient stage of vortex ring, recognition and recovery (from a safe altitude);

(D) loss of tail rotor effectiveness.

(xxiv) Exercise 19: Simulated EOL:

(A) the effect of weight, disc loading, density attitude and RRPM decay;

(B) revise basic autorotation entry;

(C) optimum use of cyclic and collective to control speed or RRPM;

(D) variable flare simulated EOL;

(E) demonstrate constant attitude simulated EOL;

(F) demonstrate simulated EOL from hover or hover taxi;

(G) demonstrate simulated EOL from transition and low level.

(xxv) Exercise 20: Advanced autorotation:

(A) over a selected point at various height and speed;

(B) revise basic autorotation: note ground distance covered;

(C) range autorotation;

(D) low speed autorotation;

(E) constant attitude autorotation (terminate at safe altitude);

(F) 'S' turns;

(G) turns through 180 ° and 360 °;

(H) effects on angles of descent, IAS, RRPM and effect of AUM.

(xxvi) Exercise 21: Practice forced landings:

(A) procedure and choice of the forced landing area;

(B) forced landing checks and crash action;

(C) re-engagement and go-around procedures.

(xxvii) Exercise 22: Steep turns:

(A) steep (level) turns (30 ° bank);

(B) maximum rate turns (45 ° bank if possible);

(C) steep autorotative turns;

(D) faults in the turn: balance, attitude, bank and co-ordination;

(E) RRPM control and disc loading;

(F) vibration and control feedback;

(G) effect of wind at low level.

(xxviii) Exercise 23: Transitions:

(A) revise ground effect, translational lift and flapback;

(B) maintaining constant height, (20-30 ft AGL);

(C) transition from hover to minimum 50 knots IAS and back to hover;

(D) demonstrate effect of wind.

(xxix) Exercise 24: Quick stops:

(A) use of power and controls;

(B) effect of wind;

(C) quick stops into wind;

(D) quick stops from crosswind and downwind terminating into wind;

(E) danger of vortex ring;

(F) danger of high disc loading.

(xxx) Exercise 25a: Navigation:

(A) flight planning:

(a) weather forecast and actuals;

(b) map selection and preparation and use;

(1) choice of route:

(2) controlled airspace, danger and prohibited areas;

(3) safety altitudes and noise abatement considerations.

(c) calculations:

(1) magnetic heading(s) and time(s) en-route;

(2) fuel consumption;

(3) mass and balance.

(d) flight information:

(1) NOTAMs, etc.;

(2) radio frequencies;

(3) selection of alternate landing sites.

(e) helicopter documentation;

(f) notification of the flight:

(1) pre-flight administrative procedures;

(2) flight plan form (where appropriate).

(B) departure:

(a) organisation of cockpit workload;

(b) departure procedures:

(1) altimeter settings;

(2) ATC liaison in controlled or regulated airspace;

(3) setting heading procedure;

(4) noting of ETAs.

(c) maintenance of height or altitude and heading;

(d) revisions of ETA and heading:

(1) 10 ° line, double track and track error and closing angle;

(2) 1 in 60 rule;

(3) amending an ETA.

(e) log keeping;

(f) use of radio;

(g) use of navaids (if fitted);

(h) minimum weather conditions for continuation of flight;

(i) in-flight decisions;

(j) transiting controlled or regulated airspace;

(k) uncertainty of position procedure;

(l) lost procedure.

(C) arrival and aerodrome joining procedure:

(a) ATC liaison in controlled or regulated airspace;

(b) altimeter setting;

(c) entering the traffic pattern;

(d) circuit procedures.

(e) parking;

(f) security of helicopter;

(g) refuelling;

(h) closing of flight plan (if appropriate);

(i) post-flight administrative procedures.

(xxxi) Exercise 25b: Navigation problems at low heights and in reduced visibility:

(A) actions before descending;

(B) hazards (for example obstacles and other aircraft);

(C) difficulties of map reading;

(D) effects of wind and turbulence;

(E) avoidance of noise sensitive areas;

(F) actions in the event of encountering DVE;

(G) decision to divert or conduct precautionary landing;

(H) bad weather circuit and landing;

(I) appropriate procedures and choice of landing area;

(J) precautionary landing.

(xxxii) Exercise 25c: Radio navigation:

(A) use of GNSS:

(a) selection of waypoints;

(b) to or from indications and orientation;

(c) error messages;

(d) hazards of over-reliance on the use of GNSS in the continuation of flight in DVE.

(B) use of VHF omni range:

(a) availability, AIP and frequencies;

(b) selection and identification;

(c) OBS;

(d) to or from indications and orientation;

(e) CDI;

(f) determination of radial;

(g) intercepting and maintaining a radial;

(h) VOR passage;

(i) obtaining a fix from two VORs.

(C) use of ADF equipment: NDBs:

(a) availability, AIP and frequencies;

(b) selection and identification;

(c) orientation relative to the beacon;

(d) homing.

(D) use of VHF/DF:

(a) availability, AIP and frequencies;

(b) RTF procedures and ATC liaison;

(c) obtaining a QDM and homing.

(E) use of en-route or terminal radar:

(a) availability and AIP;

(b) procedures and ATC liaison;

(c) pilots responsibilities;

(d) secondary surveillance radar (if transponder fitted):

(1) transponders;

(2) code selection;

(3) interrogation and reply.

(F) use of DME:

(a) station selection and identification;

(b) modes of operation: distance, groundspeed and time to run.

(xxxiii) Exercise 26: Advanced take-off, landings and transitions:

(A) landing and take-off out of wind (performance reduction);

(B) ground effect, translational lift and directional stability variation when out of wind;

(C) downwind transitions;

(D) vertical take-off over obstacles;

(E) running take-off;

(F) cushion creep take-off;

(G) reconnaissance of landing site;

(H) running landing;

(I) zero speed landing;

(J) crosswind and downwind landings;

(K) steep approach;

(L) go-around.

(xxxiv) Exercise 27: Sloping ground:

(A) limitations and assessing slope angle;

(B) wind and slope relationship: blade and control stops;

(C) effect of CG when on slope;

(D) ground effect on slope and power required;

(E) right skid up slope;

(F) left skid up slope;

(G) nose up slope;

(H) avoidance of dynamic roll over, dangers of soft ground and sideways movement on touchdown;

(I) danger of striking main or tail rotor by harsh control movement near ground.

(xxxv) Exercise 28: Limited power:

(A) take-off power check;

(B) vertical take-off over obstacles;

(C) in-flight power check;

(D) running landing;

(E) zero speed landing;

(F) approach to low hover;

(G) approach to hover;

(H) approach to hover OGE;

(I) steep approach;

(J) go-around.

(xxxvi) Exercise 29: Confined areas:

(A) landing capability and performance assessment;

(B) locating landing site and assessing wind speed and direction;

(C) reconnaissance of landing site;

(D) select markers;

(E) select direction and type of approach;

(F) circuit;

(G) approach to committed point and go-around;

(H) approach;

(I) clearing turn;

(J) landing;

(K) power check and performance assessment in and out of ground effect;

(L) normal take-off to best angle of climb speed;

(M) vertical take-off from hover.

(xxxvii) Exercise 30: Basic instrument flight:

(A) physiological sensations;

(B) instrument appreciation:

(a) attitude instrument flight;

(b) instrument scan.

(C) instrument limitations;

(D) basic manoeuvres:

(a) straight and level at various air speeds and configurations;

(b) climbing and descending;

(c) standard rate turns, climbing and descending, onto selected headings.

(E) recoveries from climbing and descending turns;

(F) recoveries from unusual attitudes.

(xxxviii) Exercise 31a: Night flying (if night rating required):

(A) pre-flight inspection using torch, pan lights, etc.;

(B) take-off (no sideways or backwards manoeuvring);

(C) hover taxi (higher and slower than by day);

(D) transition to climb;

(E) level flight;

(F) approach and transition to hover;

(G) landing;

(H) autorotation;

(I) practice forced landing (with flares if appropriate: simulated);

(J) night emergencies (for example failure of lights, etc.).

(xxxix) Exercise 31b: Night cross-country (if night rating required):

(A) navigation principles as for day cross-country;

(B) map marking (highlighting built-up areas with thicker lines, etc.).

AMC1 LIC.210.As PPL(As) — Experience requirements and crediting

FLIGHT INSTRUCTION FOR THE PPL(AS)

(a) Entry to training

Before being accepted for training an applicant should be informed that the appropriate medical certificate must be obtained before solo flying is permitted.

(b) Flight instruction

(1) The PPL(As) flight instruction syllabus should take into account the principles of threat and error management and cover:

(i) pre-flight operations, including mass and balance determination, airship inspection and servicing;

(ii) ground manoeuvring, masting and unmasting procedures;

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

(iv) control of the airship by external visual reference;

(v) take-offs and landings;

(vi) flight by reference solely to instruments, including the completion of a level 180 ° turn;

(vii) cross-country flying using visual reference, dead reckoning and radio navigation aids;

(viii) emergency operations, including simulated airship equipment malfunctions;

(ix) operations to, from and transiting controlled aerodromes, compliance with air traffic services procedures, communication procedures and phraseology.

(2) Before allowing the applicant for a PPL(As) to undertake his/her first solo flight, the FI should ensure that the applicant can use R/T communication.

(c) Syllabus of flight instruction

(1) The numbering of exercises should be used primarily as an exercise reference list and as a broad instructional sequencing guide; therefore the demonstrations and practices need not necessarily be given in the order listed. The actual order and content will depend upon the following interrelated factors:

(i) the applicant's progress and ability;

(ii) the weather conditions affecting the flight; (iii) the flight time available;

(iv) instructional technique considerations;

(v) the local operating environment;

(vi) applicability of the exercises to the airship.

(2) Each of the exercises involves the need for the applicant to be aware of the needs of good airmanship and look-out, which should be emphasised at all times.

(i) Exercise 1a: Familiarisation with the airship:

(A) characteristics of the airship;

(B) cockpit layout;

(C) systems;

(D) checklists, drills and controls.

(ii) Exercise 1b: Emergency drills:

(A) action if fire on the ground and in the air;

(B) engine cabin and electrical system fire;

(C) systems failure;

(D) escape drills, location and use of emergency equipment and exits.

(iii) Exercise 2: Preparation for and action after flight:

(A) flight authorisation and airship acceptance;

(B) serviceability documents;

(C) equipment required, maps, etc.;

(D) mass and balance;

(E) external checks;

(F) ground crew briefing;

(G) internal checks;

(H) harness, seat or rudder panel adjustments;

(I) starting and warm-up checks;

(J) power checks;

(K) running down system checks and switching off the engine;

(L) parking, security and masting;

(M) completion of authorisation sheet and serviceability documents.

(iv) Exercise 3: Air experience: flight exercise.

(v) Exercise 4: Effects of controls:

(A) primary effects;

(B) further effects;

(C) effects of:

(a) air speed;

(b) power;

(c) trimming controls;

(d) other controls, as applicable.

(D) operation of:

(a) mixture control;

(b) carburettor heat;

(c) cabin heating or ventilation.

(vi) Exercise 5: Ground manoeuvring:

(A) pre-taxi checks;

(B) starting, control of speed and stopping;

(C) engine handling;

(D) masting procedures;

(E) control of direction and turning;

(F) effects of wind;

(G) effects of ground surface;

(H) marshalling signals;

(I) instrument checks;

(J) air traffic control procedures;

(K) emergencies.

(vii) Exercise 6a: Take-off procedures:

(A) pre-take-off checks;

(B) take-off with different static heaviness;

(C) drills during and after take-off;

(D) noise abatement procedures.

(viii) Exercise 6b: Emergencies:

(A) abandoned take-off;

(B) engine failure after take-off;

(C) malfunctions of thrust vector control;

(D) aerodynamic control failures;

(E) electrical and system failures.

(ix) Exercise 7: Climbing:

(A) entry, maintaining the normal and max rate climb and levelling off;

(B) levelling off at selected altitudes;

(C) maximum angle of climb;

(D) maximum rate of climb.

(x) Exercise 8: Straight and level:

(A) attaining and maintaining straight and level flight;

(B) flight at or close to pressure height;

(C) control in pitch, including use of trim;

(D) at selected air speeds (use of power);

(E) during speed changes;

(F) use of instruments for precision.

(xi) Exercise 9: Descending:

(A) entry, maintaining and levelling off;

(B) levelling off at selected altitudes;

(C) maximum rate of descent;

(D) maximum angle of descent;

(E) use of instruments for precision flight.

(xii) Exercise 10: Turning:

(A) entry and maintaining level turns;

(B) resuming straight flight;

(C) faults in the turn;

(D) climbing turns;

(E) descending turns;

(F) turns onto selected headings, use of gyro heading indicator and compass;

(G) use of instruments for precision.

(xiii) Exercise 11: Hovering: hovering manoeuvres (as applicable);

(xiv) Exercise 12a: Approach and landing:

(A) effect of wind on approach and touchdown speeds;

(B) landing with different static heaviness;

(C) missed approach and go-around procedures;

(D) noise abatement procedures.

(xv) Exercise 12b: Emergencies:

(A) aborted approach or go-around;

(B) malfunction of thrust vector control;

(C) envelope emergencies;

(D) fire emergencies;

(E) aerodynamic control failures;

(F) electrical and system failures.

(xvi) Exercise 13: Precautionary landing:

(A) occasions necessitating;

(B) in-flight conditions;

(C) landing area selection;

(D) circuit and approach;

(E) actions after landing;

(xvii) Exercise 14a: Navigation:

(A) flight planning:

(a) weather forecast and actuals;

(b) map selection and preparation:

(1) choice of route

(2) airspace structure

(3) sensitive areas

(4) safety altitudes

(c) Calculations

(1) magnetic heading(s) and time(s) en-route;

(2) fuel consumption;

(3) mass and balance;

(4) performance.

(d) flight information:

(1) NOTAMs etc.;

(2) radio frequencies;

(3) selection of alternate aerodromes.

(e) airship documentation;

(f) notification of the flight:

(1) pre-flight administrative procedures;

(2) flight plan form.

(B) departure:

(a) organisation of cockpit workload;

(b) departure procedures:

(1) altimeter settings;

(2) ATC liaison in controlled or regulated airspace;

(3) setting heading procedure;

(4) noting of ETAs.

(c) maintenance of altitude and heading;

(d) revisions of ETA and heading;

(e) log keeping;

(f) use of radio;

(g) use of navaids;

(h) minimum weather conditions for continuation of flight;

(i) in-flight decisions;

(j) transiting controlled or regulated airspace;

(k) diversion procedures;

(l) uncertainty of position procedure;

(m) lost procedure.

(C) arrival, aerodrome joining procedure:

(a) ATC liaison in controlled or regulated airspace;

(b) altimeter setting;

(c) entering the traffic pattern;

(d) circuit procedures;

(e) parking or on masting;

(f) security of airship;

(g) refuelling;

(h) closing of flight plan, if appropriate;

(i) post-flight administrative procedures.

(xviii) Exercise 14b: Navigation problems at lower levels and in reduced visibility:

(A) actions before descending;

(B) hazards (for example obstacles, and terrain);

(C) difficulties of map reading;

(D) effects of winds, turbulence and precipitation;

(E) vertical situational awareness;

(F) avoidance of noise sensitive areas;

(G) joining the circuit;

(H) bad weather circuit and landing.

(xix) Exercise 14c: Radio navigation:

(A) use of GNSS

(a) selection of waypoints;

(b) to or from indications and orientation;

(c) error messages.

(B) use of VHF omni range (if applicable):

(a) availability, AIP and frequencies;

(b) selection and identification;

(c) OBS;

(d) to or from indications and orientation;

(e) CDI;

(f) determination of radial;

(g) intercepting and maintaining a radial;

(h) VOR passage;

(i) obtaining a fix from two VORs.

(C) use of ADF equipment: NDBs (if applicable):

(a) availability, AIP and frequencies;

(b) selection and identification;

(c) orientation relative to the beacon;

(d) homing.

(D) use of VHF/DF:

(a) availability, AIP and frequencies;

(b) R/T procedures and ATC liaison;

(c) obtaining a QDM and homing.

(E) use of en-route or terminal radar:

(a) availability and AIP;

(b) procedures and ATC liaison;

(c) pilot’s responsibilities;

(d) secondary surveillance radar:

(1) transponders;

(2) code selection;

(3) interrogation and reply.

(F) use of DME (if applicable);

(a) station selection and identification;

(b) modes of operation: distance, groundspeed and time to run.

(xx) Exercise 15: Basic instrument flight:

(A) physiological sensations;

(B) instrument appreciation: attitude instrument flight;

(C) instrument limitations;

(D) basic manoeuvres:

(a) straight and level;

(b) climbing and descending;

(c) turns, climbing and descending, onto selected headings;

(d) recoveries from climbing and descending turns.

(d) BITD

(1) A BITD may be used for flight training for:

(i) flight by reference solely to instruments;

(ii) navigation using radio navigation aids;

(iii) basic instrument flight.

(2) The use of the BITD should be subject to the following:

(i) the training should be complemented by exercises on an airship;

(ii) the record of the parameters of the flight must be available; and a FI(As) should conduct the instruction.

AMC1 LIC.205.S(b) SPL — Privileges and conditions

CONTENTS OF THE PROFICIENCY CHECK FOR THE EXTENSION OF SPL PRIVILEGES TO EXERCISE COMMERCIAL PRIVILEGES ON A SAILPLANE

(a) The applicant should be responsible for the flight planning and should ensure that all equipment and documentation for the execution of the flight are on board.

(b) An applicant should indicate to the FE the checks and duties carried out. Checks should be completed in accordance with the authorised checklist for the sailplane on which the test is being taken.

FLIGHT TEST TOLERANCE

(c) The applicant should demonstrate the ability to:

(1) operate the sailplane within its limitations;

(2) complete all manoeuvres with smoothness and accuracy;

(3) exercise good judgment and airmanship;

(4) apply aeronautical knowledge;

(5) maintain control of the sailplane at all times in such a manner that the successful outcome of a procedure or manoeuvre is never seriously in doubt.

CONTENT OF THE SKILL TEST

(d) The applicant should demonstrate his/her skill in at least the winch or aerotow method of launching.

SECTION 1 PRE-FLIGHT OPERATIONS AND TAKE-OFF	
Use of checklist, airmanship, control of sailplane by external visual reference, look- out procedures, etc. apply in all sections.	
a	Pre-flight sailplane (daily) inspection, documentation, NOTAM and weather briefing
b	Verifying in-limits mass and balance and performance calculation
c	Passenger briefing
d	Sailplane servicing compliance
e	Pre-take-off checks
SECTION 2 LAUNCH METHOD *Note: at least for one of the three launch methods all the mentioned items are fully exercised during the skill test.*	
SECTION 2 (a) WINCH OR CAR LAUNCH	
a	Signals before and during launch, including messages to winch driver
b	Initial roll and take-off climb
c	Adequate profile of winch launch
d	Launch failures (simulated)
e	Situational awareness
SECTION 2 (b) AEROTOW LAUNCH	
a	Signals before and during launch, including signals to or communications with tow plane pilot for any problems
b	Initial roll and take-off climb

c	Launch abandonment (simulation only or 'talk-through')
d	Correct positioning during straight flight and turns
e	Out of position and recovery
f	Correct release from tow
g	Lookout and airmanship through whole launch phase
SECTION 2 (c) SELF LAUNCH (TMGs excluded)	
a	ATC compliance
b	Aerodrome departure procedures
c	Initial roll and take-off climb
d	Simulated engine failure after take-off
e	Engine shut down and stowage
f	Lookout and airmanship through whole launch phase
SECTION 3 GENERAL AIRWORK	
a	Maintain straight flight: attitude and speed control
b	Steep (45 ° bank) turns, look-out procedures and collision avoidance
c	Turning on to selected headings visually and with use of compass
d	Flight at high angle of attack (critically low air speed)
e	Clean stall and recovery
f	Spin avoidance and recovery
g	Local area navigation and awareness
SECTION 4 CIRCUIT, APPROACH AND LANDING	
a	Aerodrome circuit joining procedure
b	Collision avoidance: look-out procedures
c	Pre-landing checks
d	Circuit, approach control and landing
e	Precision landing (simulation of out-landing: short field)
f	Cross wind landing if suitable conditions available

AMC1 LIC.205.B(b) BPL — Privileges and conditions

CONTENTS OF THE PROFICIENCY CHECK FOR EXTENSION OF BPL PRIVILEGES TO EXERCISE COMMERCIAL PRIVILEGES ON A BALLOON

(a) The take-off site should be chosen by the applicant depending on the actual meteorological conditions, the area which has to be overflown and the possible options for suitable landing sites. The applicant should be responsible for the flight planning and should ensure that all equipment and documentation for the execution of the flight are on board. The proficiency check may be conducted in two flights. The total duration of the flight(s) should be at least 60 minutes.

(b) An applicant should indicate to the FE the checks and duties carried out. Checks should be completed in accordance with the flight manual or the authorised checklist for the balloon on which the test is being taken. During pre-flight preparation for the test the applicant should be required to perform crew and passenger briefings and demonstrate crowd control. The load calculation should be performed by the applicant in compliance with the operations manual or flight manual for the balloon used.

FLIGHT TEST TOLERANCE

(c) The applicant should demonstrate the ability to:

(1) operate the balloon within its limitations;

(2) complete all manoeuvres with smoothness and accuracy;

(3) exercise good judgment and airmanship;

(4) apply aeronautical knowledge;

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

(d) The following limits are for general guidance. The FE should make allowance for turbulent conditions and the handling qualities and performance of the hot-air balloon used:

Height

(1) normal flight ± 100 ft

(2) with simulated emergency ± 150 ft

CONTENT OF THE SKILL TEST

(e) The contents and sections of the proficiency check set out in this AMC should be used for the extension of BPL privileges to exercise commercial privileges on a hot-air balloon.

	SECTION 1 PRE-FLIGHT OPERATIONS, INFLATION AND TAKE-OFF Use of checklist, airmanship, control of balloon by external visual reference, look- out procedures, etc. apply in all sections.
a	Pre-flight documentation, flight planning, NOTAM and weather briefing
b	Balloon inspection and servicing
c	Load calculation
d	Crowd control and crew briefing

e	Passenger briefing
f	Assembly and layout
g	Inflation and pre-take-off procedures
h	Take-off
i	ATC compliance
SECTION 2 GENERAL AIRWORK	
a	Climb to level flight
b	Level flight
c	Descent to level flight
d	Operating at low level
e	ATC compliance
SECTION 3 EN-ROUTE PROCEDURES	
a	Dead reckoning and map reading
b	Marking positions and time
c	Orientation, airspace structure
d	Maintenance of altitude
e	Fuel management
f	Communication with retrieve crew
g	ATC compliance or R/T communication
SECTION 4 APPROACH AND LANDING PROCEDURES	
a	Approach from low level and missed approach and fly on
b	Approach from high level and missed approach and fly on
c	Passenger pre-landing briefing
d	Pre-landing checks
e	Selection of landing field
f	Landing, dragging and deflation
g	ATC compliance or R/T communication
h	Actions after flight
SECTION 5 ABNORMAL AND EMERGENCY PROCEDURES	
This section may be combined with sections 1 through 6	

a	Simulated fire on the ground and in the air
b	Simulated pilot light and burner failures
c	Simulated passenger health problems
d	Other abnormal and emergency procedures as outlined in the appropriate flight manual
e	Oral questions

(f) The contents and sections of the proficiency check set out in this AMC should be used for the extension of BPL privileges to exercise commercial privileges on a gas balloon.

SECTION 1 PRE-FLIGHT OPERATIONS, INFLATION AND TAKE-OFF	
Use of checklist, airmanship, control of balloon by external visual reference, look-out procedures, etc. apply in all sections.	
a	Pre-flight documentation, flight planning and NOTAM and weather briefing
b	Balloon inspection and servicing
c	Load calculation
d	Crowd control and crew briefings
e	Passenger briefing
f	Assembly and layout
g	Inflation and pre-take-off procedures
h	Take-off
i	ATC liaison: compliance
SECTION 2 GENERAL AIRWORK	
a	Climb to level flight
b	Level flight
c	Descent to level flight
d	Operating at low level
e	ATC liaison: compliance
SECTION 3 EN-ROUTE PROCEDURES	
a	Dead reckoning and map reading
b	Marking positions and time
c	Orientation, airspace structure
d	Maintenance of altitude

e	Ballast management
f	Communication with retrieve crew
g	ATC compliance or R/T communication
SECTION 4 APPROACH AND LANDING PROCEDURES	
a	Approach from low level and missed approach and fly on
b	Approach from high level and missed approach and fly on
c	Passenger pre-landing briefing
d	Pre-landing checks
e	Selection of landing field
f	Landing, dragging and deflation
g	ATC compliance or R/T communication
h	Actions after flight
SECTION 5 ABNORMAL AND EMERGENCY PROCEDURES	
This section may be combined with sections 1 through 4	
a	Simulated closed appendix during take-off and climb
b	Simulated parachute or valve failure
c	Simulated passenger health problems
d	Other abnormal and emergency procedures as outlined in the appropriate flight manual
e	Oral questions

AMC1 LIC.225.B BPL — Extension of privileges to another balloon class or group

(a) The aim of the flight training is to qualify BPL holders to exercise the privileges on a different class or group of balloons.

(b) The following classes should be recognised:

(1) hot-air balloons;

(2) gas balloons;

(3) hot-air airships.

(c) The following groups should be recognised:

(1) group A:

(i) hot-air balloons and hot-air airships with a maximum envelope capacity of 3 400m³;

(ii) gas balloons with a maximum envelope capacity of 1 260m³.

(2) group B:

(i) hot-air balloons and hot-air airship with an envelope capacity between 3 401m³ and 6 000m³;

(ii) gas balloons with an envelope capacity of more than 1 260m³.

(3) group C:

hot-air balloons and hot-air airship with an envelope capacity between 6 001m³ and 10 500m³.

(4) group D:

hot-air balloons and hot-air airships with an envelope capacity of more than 10 500m³.

(d) An extension to group B is also valid for group A. The extension for the group C is also valid for the groups A and B. An extension to group D will include the privilege for the other three groups.

(e) The ATO should issue a certificate of satisfactory completion of the instruction to licence endorsement.

SUBPART D

COMMERCIAL PILOT LICENCE — CPL

AMC1 LIC.310; LIC.515 (b); LIC.615 (b)

SYLLABUS OF THEORETICAL KNOWLEDGE FOR THE ATPL, CPL AND IR

The following tables contain the detailed theoretical knowledge syllabus for the ATPL, CPL and IR.

Aspects related to non-technical skills shall be included in an integrated manner, taking into account the particular risks associated to the licence and the activity.

The applicable items for each licence or rating are marked with 'x'. An 'x' on the main title of a subject means that all the sub-divisions are applicable.

(a) Aeroplanes and helicopters

		Aeroplane		Helicopter			
		ATPL	CPL	ATPL/IR	ATPL	CPL	IR
010 00 00 00	**AIR LAW AND ATC PROCEDURES**	x	x	x	x	x	x
010 01 00 00	International Law: Conventions, Agreements and Organisations						
010 02 00 00	Airworthiness of Aircraft						
010 03 00 00	Aircraft Nationality and Registration Marks						
010 04 00 00	Personnel Licensing						
010 05 00 00	Rules of the Air						
010 06 00 00	Procedures for Air Navigation Services: Aircraft Operations						
010 07 00 00	Air Traffic Services and Air Traffic Management						
010 08 00 00	Aeronautical Information Service						
010 09 00 00	Aerodromes or Heliports						
010 10 00 00	Facilitation						
010 11 00 00	Search and Rescue						
010 12 00 00	Security						
010 13 00 00	Aircraft Accident and Incident Investigation						
021 00 00 00	**AIRCRAFT GENERAL KNOWLEDGE: AIRFRAME AND SYSTEMS, ELECTRICS, POWERPLANT AND EMERGENCY EQUIPMENT**	x	x	x	x	x	x
021 01 00 00	System Design, Loads, Stresses and Maintenance						

		Aeroplane		Helicopter			
		ATPL	CPL	ATPL/IR	ATPL	CPL	IR
021 02 00 00	Airframe						
021 03 00 00	Hydraulics						
021 04 00 00	Landing Gear, Wheels, Tyres and Brakes						
021 05 00 00	Flight Controls						
021 06 00 00	Pneumatics: Pressurisation And Air Conditioning						
021 07 00 00	Anti and De-Icing Systems						
021 08 00 00	Fuel System						
021 09 00 00	Electrics						
021 10 00 00	Piston Engines						
021 11 00 00	Turbine Engines						
021 12 00 00	Protection and Detection Systems						
021 13 00 00	Oxygen Systems						
021 14 00 00	Helicopter: Miscellaneous Systems						
021 15 00 00	Helicopter: Rotor Heads						
021 16 00 00	Helicopter: Transmission						
021 17 00 00	Helicopter: Blades						
022 00 00 00	**AIRCRAFT GENERAL KNOWLEDGE: INSTRUMENTATION**	x	x	x	x	x	x
022 01 00 00	Sensors and Instruments						
022 02 00 00	Measurement of Air Data Parameters						
022 03 00 00	Magnetism: Direct Reading Compass And Flux Valve						
022 04 00 00	Gyroscopic Instruments						
022 05 00 00	Inertial Navigation and Reference Systems						
022 06 00 00	Aeroplane: Automatic Flight Control Systems						
022 07 00 00	Helicopter: Automatic Flight Control Systems						
022 08 00 00	Trims, Yaw Damper and Flight Envelope Protection						
022 09 00 00	Autothrottle: Automatic Thrust Control System						
022 10 00 00	Communication Systems						
022 11 00 00	FMS						
022 12 00 00	Alerting Systems and Proximity Systems						
022 13 00 00	Integrated Instruments: Electronic Displays						
022 14 00 00	Maintenance, Monitoring and Recording Systems						

		Aeroplane		Helicopter			
		ATPL	CPL	ATPL/IR	ATPL	CPL	IR
022 15 00 00	Digital Circuits And Computers						
030 00 00 00	**FLIGHT PERFORMANCE AND PLANNING**	x	x	x	x	x	
031 00 00 00	**MASS AND BALANCE: AEROPLANES OR HELICOPTERS**	x	x	x	x	x	
031 01 00 00	Purpose of Mass and Balance Considerations						
031 02 00 00	Loading						
031 03 00 00	Fundamentals of CG Calculations						
031 04 00 00	Mass and Balance Details of Aircraft						
031 05 00 00	Determination of CG Position						
031 06 00 00	Cargo Handling						
032 00 00 00	**PERFORMANCE: AEROPLANES**	x	x				
032 01 00 00	General						
032 02 00 00	Performance Class B: SE Aeroplanes						
032 03 00 00	Performance Class B: ME Aeroplanes						
032 04 00 00	Performance Class A : Aeroplanes Certificated Under CS-25 Only						
033 00 00 00	**FLIGHT PLANNING AND FLIGHT MONITORING**	x	x	x	x	x	x
033 01 00 00	Flight Planning for VFR Flights						
033 02 00 00	Flight Planning for IFR Flights						
033 03 00 00	Fuel Planning						
033 04 00 00	Pre-Flight Preparation						
033 05 00 00	ATS Flight Plan						
033 06 00 00	Flight Monitoring and In-Flight Re-Planning						
034 00 00 00	**PERFORMANCE: HELICOPTERS**			x	x	x	
034 01 00 00	General						
034 02 00 00	Performance Class 3 SE Helicopters Only						
034 03 00 00	Performance Class 2						
034 04 00 00	Performance Class 1 Helicopters Certificated Under CS 29 Only						
040 00 00 00	**HUMAN PERFORMANCE**	x	x	x	x	x	x
040 01 00 00	Human Factors: Basic Concepts						

		Aeroplane		Helicopter			
		ATPL	CPL	ATPL/IR	ATPL	CPL	IR
040 02 00 00	Basic Aviation Physiology and Health Maintenance						
040 03 00 00	Basic Aviation Psychology						
050 00 00 00	**METEOROLOGY**	x	x	x	x	x	x
050 01 00 00	The Atmosphere						
050 02 00 00	Wind						
050 03 00 00	Thermodynamics						
050 04 00 00	Clouds and Fog						
050 05 00 00	Precipitation						
050 06 00 00	Air Masses and Fronts						
050 07 00 00	Pressure Systems						
050 08 00 00	Climatology						
050 09 00 00	Flight Hazards						
050 10 00 00	Meteorological Information						
060 00 00 00	**NAVIGATION**	x	x	x	x	x	x
061 00 00 00	**GENERAL NAVIGATION**	x	x	x	x	x	x
061 01 00 00	Basics of Navigation						
061 02 00 00	Magnetism and Compasses						
061 03 00 00	Charts						
061 04 00 00	Dead Reckoning Navigation						
061 05 00 00	In-Flight Navigation						
062 00 00 00	**RADIO NAVIGATION**	x	x	x	x	x	x
062 01 00 00	Basic Radio Propagation Theory						
062 02 00 00	Radio Aids						
062 03 00 00	Radar						
062 04 00 00	*Intentionally Left Blank*						
062 05 00 00	Area Navigation Systems and RNAV or FMS						
062 06 00 00	GNSS						
070 00 00 00	**OPERATIONAL PROCEDURES**	x	x	x	x	x	
071 01 00 00	General Requirements						
071 02 00 00	Special Operational Procedures and Hazards (General Aspects)						
071 03 00 00	Helicopter Emergency Procedures						
080 00 00 00	**PRINCIPLES OF FLIGHT**	x	x	x	x	x	
081 00 00 00	**PRINCIPLES OF FLIGHT: AEROPLANE**	x	x				

		Aeroplane		Helicopter			
		ATPL	CPL	ATPL/IR	ATPL	CPL	IR
081 01 00 00	Subsonic Aerodynamics						
081 02 00 00	High Speed Aerodynamics						
081 03 00 00	*Intentionally Left Blank*						
081 04 00 00	Stability						
081 05 00 00	Control						
081 06 00 00	Limitations						
081 07 00 00	Propellers						
081 08 00 00	Flight Mechanics						
082 00 00 00	**PRINCIPLES OF FLIGHT: HELICOPTER**			x	x	x	
082 01 00 00	Subsonic Aerodynamics						
082 02 00 00	Transonic Aerodynamics and Compressibility Effects						
082 03 00 00	Rotorcraft Types						
082 04 00 00	Main Rotor Aerodynamics						
082 05 00 00	Main Rotor Mechanics						
082 06 00 00	Tail Rotors						
082 07 00 00	Equilibrium, Stability and Control						
082 08 00 00	Helicopter Flight Mechanics						
090 00 00 00	**COMMUNICATIONS**	x	x	x	x	x	x
091 00 00 00	**VFR COMMUNICATIONS**						
091 01 00 00	Definitions						
091 02 00 00	General Operating Procedures						
091 03 00 00	Relevant Weather Information Terms (VFR)						
091 04 00 00	Action Required to be Taken in Case of Communication Failure						
091 05 00 00	Distress And Urgency Procedures						
091 06 00 00	General Principles of VHF propagation and Allocation of Frequencies						
092 00 00 00	**IFR COMMUNICATIONS**						
092 01 00 00	Definitions						
092 02 00 00	General Operating Procedures						
092 03 00 00	Action Required to be Taken in Case of Communication Failure						
092 04 00 00	Distress and Urgency Procedures						
092 05 00 00	Relevant Weather Information Terms (IFR)						

		Aeroplane		Helicopter			
		ATPL	CPL	ATPL/IR	ATPL	CPL	IR
092 06 00 00	General Principles of VHF Propagation and Allocation of Frequencies						
092 07 00 00	Morse Code						

(b) Airships

		CPL	IR
1.	**AIR LAW AND ATC PROCEDURES**	x	
	International Law: Conventions, Agreements and Organisations		
	Airworthiness of Aircraft		
	Aircraft Nationality and Registration Marks		
	Personnel Licensing		x
	Rules of the Air		x
	Procedures for Air Navigation Services: Aircraft Operations		x
	Air Traffic Services and Air Traffic Management		x
	Aeronautical Information Service		x
	Aerodromes		x
	Facilitation		
	Search and Rescue		
	Security		
	Aircraft Accident and Incident Investigation		
2.	**AIRSHIP GENERAL KNOWLEDGE: ENVELOPE, AIRFRAME AND SYSTEMS, ELECTRICS, POWERPLANT AND EMERGENCY EQUIPMENT**	x	
	Design, Materials, Loads and Stresses		
	Envelope and Airbags		
	Framework		
	Gondola		
	Flight Controls		
	Landing Gear		
	Hydraulics and Pneumatics		
	Heating and Air Conditioning		
	Fuel System		
	Piston Engines		
	Turbine Engines (Basics)		
	Electrics		

		CPL	IR
	Fire Protection And Detection Systems		
	Maintenance		
3.	**AIRSHIP GENERAL KNOWLEDGE: INSTRUMENTATION**	x	
	Sensors and Instruments		
	Measurement of Air Data and Gas Parameters		
	Magnetism: Direct Reading Compass and Flux Valve		
	Gyroscopic Instruments		
	Communication Systems		
	Alerting Systems		
	Integrated Instruments: Electronic Displays		
	Flight Management System (General Basics)		
	Digital Circuits and Computers		
4.	**FLIGHT PERFORMANCE AND PLANNING**	x	
4.1.	**MASS AND BALANCE: AIRSHIPS**	x	
	Purpose of Mass and Balance Considerations		
	Loading		
	Fundamentals of CG Calculations		
	Mass And Balance Details of Aircraft		
	Determination of CG Position		
	Passenger, Cargo and Ballast Handling		
4.2.	**FLIGHT PLANNING AND FLIGHT MONITORING**		
	Flight Planning for VFR Flights	x	
	Flight Planning for IFR Flights		x
	Fuel Planning	x	x
	Pre-Flight Preparation	x	x
	ATS Flight Plan	x	x
	Flight Monitoring and In-Flight Re-Planning	x	x
4.3.	**PERFORMANCE: AIRSHIPS**	x	
	Airworthiness Requirements		
	Basics of Airship Performance		
	Definitions and Terms		
	Stages of Flight		
	Use of Flight Manual		
5.	**HUMAN PERFORMANCE**	x	
	Human Factors: Basic Concepts		
	Basic Aviation Physiology and Health Maintenance		
	Basic Aviation Psychology		

		CPL	IR
6.	**METEOROLOGY**	x	
	The Atmosphere		
	Wind		
	Thermodynamics		
	Clouds and Fog		
	Precipitation		
	Air Masses and Fronts		
	Pressure Systems		
	Climatology		
	Flight Hazards		
	Meteorological Information		
7.	**NAVIGATION**		
7.1.	**GENERAL NAVIGATION**	x	
	Basics of Navigation		
	Magnetism and Compasses		
	Charts		
	DR Navigation		
	In-Flight Navigation		
7.2.	**Radio Navigation**		
	Basic Radio Propagation Theory	x	x
	Radio Aids	x	x
	Radar	x	x
	Intentionally Left Blank		
	Area Navigation Systems and RNAV/FMS		x
	GNSS	x	x
8.	**OPERATIONAL PROCEDURES AIRSHIP**	x	
	General Requirements		
	Special Operational Procedures and Hazards (General Aspects)		
	Emergency Procedures		
9.	**PRINCIPLES OF FLIGHT**	x	
9.1.	**PRINCIPLES OF FLIGHT: AIRSHIPS**	x	
	Basics of Aerostatics		
	Basics of Subsonic Aerodynamics		
	Aerodynamics of Airships		
	Stability		
	Controllability		
	Limitations		

		CPL	IR
	Propellers		
	Basics of Airship Flight Mechanics		
10.	**COMMUNICATIONS**		
10.1.	**VFR COMMUNICATIONS**	x	
	Definitions	x	
	General Operating Procedures	x	
	Relevant Weather Information Terms (VFR)	x	
	Action Required to be Taken in Case of Communication Failure	x	
	Distress and Urgency Procedures	x	
	General Principles of VHF Propagation and Allocation of Frequencies	x	
10.2.	**IFR COMMUNICATIONS**		
	Definitions		x
	General Operating Procedures		x
	Action Required to be Taken in Case of Communication Failure		x
	Distress and Urgency Procedures		x
	Relevant Weather Information Terms (IFR)		x
	General Principles of VHF Propagation and Allocation of Frequencies		x
	Morse Code		x

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SUBPART F

AIRLINE TRANSPORT PILOT LICENCE — ATPL

AMC1 LIC.510.A (b)(1) ATPL(A) — Prerequisites, experience and crediting

Equivalent requirements for CS-25 and CS-23 commuter category are the JAR/FAR-25 transport category, JAR/FAR-23 commuter category, or BCAR or AIR 2051.

AMC1 LIC.520.A; LIC.520.H

ATPL SKILL TEST

The ATPL skill test may serve at the same time as a skill test for the issue of the licence and a proficiency check for the revalidation of the type rating for the aircraft used in the test and may be combined with the skill test for the issue of a MP type rating.

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SUBPART G

INSTRUMENT RATING — IR

AMC1 LIC.615(b) IR – Theoretical knowledge and flight instruction

SYLLABUS OF THEORETICAL KNOWLEDGE FOR THE IR FOLLOWING THE COMPETENCY-BASED MODULAR COURSE AND EIR

(a) The following tables contain the detailed theoretical knowledge syllabus for the IR following the competency-based modular route (IR(A)) and the EIR.

(b) Aspects related to non-technical skills should be included in an integrated manner, taking into account the particular risks associated to the licence and the activity.

(c) The applicant who has completed a modular IR(A) course according to Appendix 6 A and passed the IR(A) theoretical knowledge examination should be fully credited towards the requirements of theoretical knowledge instruction and examination for a competency-based IR(A) or EIR within the validity period of the examination. An applicant wishing to transfer to a competency-based IR(A) or EIR course during a modular IR(A) course should be credited towards the requirements of theoretical knowledge instruction and examination for a competency-based IR(A) or EIR for those subjects or theory items already completed.

(d) The applicant for an IR(A) who has completed an EIR theoretical knowledge course and passed the EIR theoretical knowledge examination according to LIC.825 should be fully credited towards the requirements of theoretical knowledge instruction and examination for an competency-based IR(A).

AMC1 LIC.625(c) IR — Validity, revalidation and renewal

RENEWAL OF INSTRUMENT RATING: REFRESHER TRAINING

(a) Paragraph (b)(1) of LIC.740 determines that if the instrument rating has lapsed, the applicant shall go through refresher training at an ATO, to reach the level of proficiency needed to pass the instrument element of the skill test prescribed in Appendix 9 to CAR LIC. The amount of refresher training needed should be determined on a case-by-case basis by the ATO, taking into account the following factors:

  (1) the experience of the applicant. To determine this, the ATO should evaluate the pilot's log book, and, if necessary, conduct a test in an FSTD.

  (2) the amount of time lapsed since the expiry of the validity period of the rating. The amount of training needed to reach the desired level of proficiency should increase with the time lapsed. In some cases, after evaluating the pilot, and when the time lapsed is very limited (less than 3 months), the ATO may even determine that no further refresher training is necessary. The following may be taken as guidance when determining the needs of the applicant:

    (i) expiry for a period shorter than 3 months:

no supplementary requirements;

(ii) expiry for longer than 3 months but shorter than 1 year:

a minimum of one training session;

(iii) expiry for longer than 1 year but shorter than 7 years:

a minimum of three training sessions;

(iv) expiry for longer than 7 years:

the applicant should undergo the full training course for the issue of the IR.

(b) Once the ATO has determined the needs of the applicant, it should develop an individual training programme, which should be based on the initial training for the issue of instrument ratings and focus on the aspects where the applicant has shown the greatest needs.

(c) After successful completion of the training, the ATO should give a certificate to the applicant, to be submitted to the Authority when applying for the renewal.

SUBPART H

CLASS AND TYPE RATINGS

GM1 LIC.700 Circumstances in which class or type ratings are required

LIST OF CLASS OR TYPE RATINGS

The following tables contain lists of aeroplanes or TMG that are included in class ratings.

(a) Class ratings (aeroplane): SP and SEP or MEP aeroplane (land or sea):

Manufacturer	Aeroplanes		Licence Endorsement
All manufacturers	SEP (land)	(D)	SEP (land)
	SEP (land) with variable pitch		
	SEP (land) with retractable undercarriage		
	SEP (land) with turbo or super charged engines		
	SEP (land) with cabin pressurisation		
	SEP (land) with tail wheels		
	SEP (land) with EFIS		
	SEP (land) with SLPC		
	SEP (sea)	(D)	SEP (sea)
	SEP (sea) with variable pitch		
	SEP (sea) with turbo or super charged engines		
	SEP (sea) with cabin pressurisation		
	SEP (sea) with EFIS		
	SEP (sea) with SLPC		
All manufacturers	MEP (land)	(D)	MEP (land)
	MEP (sea)	(D)	MEP (sea)

(b) Class ratings (aeroplane): SP and SEP TMG (land):

Manufacturer	Aeroplanes		Licence Endorsement
All manufacturers	All TMGs having an integrally mounted, non-retractable engine and a non- retractable propeller		TMG

(c) Additional class and type rating lists and endorsement lists may be developed.

(d) Whenever (D) is indicated in one of the lists mentioned in paragraphs (a) to (c), it indicates that differences training in accordance with LIC.710 is required.

GM1 LIC.710 Class and type ratings — variants

Differences and familiarisation training

(a) Differences training requires the acquisition of additional knowledge and training on an appropriate training device or the aircraft.

(b) Familiarisation training requires the acquisition of additional knowledge.

AMC1 LIC.725(a) Requirements for the issue of class and type ratings

SYLLABUS OF THEORETICAL KNOWLEDGE FOR CLASS OR TYPE RATINGS I. SE AND ME AEROPLANES

(a) Detailed listing for aeroplane structure and equipment, normal operation of systems and malfunctions:

(1) dimensions: minimum required runway width for 180 ° turn.

(2) engine including auxiliary power unit:

(i) type of engine or engines;

(ii) in general, function of the following systems or components:

(A) engine;

(B) auxiliary power unit;

(C) oil system;

(D) fuel system;

(E) ignition system;

(F) starting system;

(G) fire warning and extinguishing system;

(H) generators and generator drives;

(I) power indication;

(J) reverse thrust;

(K) water injection.

(iii) on piston or turbine-propeller engines additionally:

(A) propeller system;

(B) feathering system.

(iv) engine controls (including starter), engine instruments and indications in the cockpit, their function, interrelation and interpretation;

(v) engine operation, including APU, during engine start, start and engine malfunctions, procedures for normal operation in the correct sequence.

(3) fuel system:

(i) location of the fuel tanks, fuel pumps, fuel lines to the engines, tank capacities, valves and measuring;

(ii) location of the following systems:

(A) filtering;

(B) heating;

(C) fuelling and defueling;

(D) dumping;

(E) venting.

(iii) in the cockpit:

(A) the monitors and indicators of the fuel system;

(B) quantity and flow indication, interpretation.

(iv) procedures:

(A) fuel procedures distribution into the various tanks;

(B) fuel supply, temperature control and fuel dumping.

(4) pressurisation and air conditioning:

(i) components of the system and protection devices;

(ii) cockpit monitors and indicators;

(iii) interpretation about the operational condition;

(iv) normal operation of the system during start, cruise, approach and landing, air conditioning airflow and temperature control.

(5) ice and rain protection, windshield wipers and rain repellent:

(i) ice protected components of the aeroplane including engines, heat sources, controls and indications;

(ii) operation of the anti-icing or de-icing system during take-off, climb, cruise and descent, conditions requiring the use of the protection systems;

(iii) controls and indications of the windshield wipers and rain repellent systems operation.

(6) hydraulic system:

(i) components of the hydraulic system(s), quantities and system pressure, hydraulically actuated components associated to the respective hydraulic system;

(ii) controls, monitors and indicators in the cockpit, function and interrelation and interpretation of indications.

(7) landing gear:

(i) main components of the:

(A) main landing gear;

(B) nose gear;

(C) gear steering;

(D) wheel brake system, including anti-skid.

(ii) gear retraction and extension (including changes in trim and drag caused by gear operation);

(iii) required tyre pressure, or location of the relevant placard;

(iv) controls and indicators including warning indicators in the cockpit in relation to the retraction or extension condition of the landing gear and brakes;

(v) components of the emergency extension system.

(8) flight controls and high lift devices:

(i) (A) aileron system;

(B) elevator system;

(C) rudder system;

(D) trim system;

(E) spoiler system;

(F) lift devices;

(G) stall warning system;

(H) take-off configuration warning system.

(ii) flight control system from the cockpit controls to the flight control or surfaces;

(iii) controls, monitors and indicators including warning indicators of the systems mentioned under (8) (i), interrelation and dependencies.

(9) electrical power supply:

(i) number, power, voltage, frequency and location of the main power system (AC or DC), auxiliary power system location and external power system;

(ii) location of the controls, monitors and indicators in the cockpit;

(iii) flight instruments, communication and navigation systems, main and back-up power sources;

(iv) location of vital circuit breakers;

(v) generator operation and monitoring procedures of the electrical power supply.

(10) flight instruments, communication, radar and navigation equipment, autoflight and flight data recorders:

(i) visible antennae;

(ii) controls and instruments of the following equipment in the cockpit during normal operation:

(A) flight instruments;

(B) flight management systems;

(C) radar equipment, including radio altimeter;

(D) communication and navigation systems;

(E) autopilot;

(F) flight data recorder, cockpit voice recorder and data-link communication recording function;

(G) TAWS;

(H) collision avoidance system;

(I) warning systems.

(11) cockpit, cabin and cargo compartment:

(i) operation of the exterior, cockpit, cabin and cargo compartment lighting and the emergency lighting;

(ii) operation of the cabin and cargo doors, stairs, windows and emergency exits;

(iii) main components of the oxygen system and their location, oxygen masks and operation of the oxygen systems for the crew and passengers, required amount of oxygen by means of a table or diagram.

(12) emergency equipment operation and correct application of the following emergency equipment in the aeroplane:

(i) portable fire extinguisher;

(ii) first-aid kits;

(iii) portable oxygen equipment;

(iv) emergency ropes;

(v) life-jacket;

(vi) life rafts;

(vii) emergency transmitters;

(viii) crash axes;

(ix) megaphones;

(x) emergency signals.

(13) pneumatic system:

(i) components of the pneumatic system, pressure source and actuated components;

(ii) controls, monitors and indicators in the cockpit and function of the system;

(iii) vacuum system.

(b) Limitations:

(1) general limitations:

(i) certification of the aeroplane, category of operation, noise certification and maximum and minimum performance data for all flight profiles, conditions and aircraft systems:

(A) maximum tail and crosswind-components at take-off and landing;

(B) maximum speeds for flap extension v_{fo};

(C) at various flap settings v_{fe};

(D) for landing gear operation v_{lo}, M_{lo};

(E) for extended landing gear v_{le}, M_{le};

(F) for maximum rudder deflection v_a, M_a;

(G) for tyres;

(H) one propeller feathered.

(ii) (A) minimum control speed air v_{mca};

(B) minimum control speed ground v_{mcg};

(C) stall speed under various conditions v_{so}, v_{s1};

(D) maximum speed v_{ne}, M_{ne};

(E) maximum speed for normal operation v_{mo}, M_{mo};

(F) altitude and temperature limitations;

(G) stick shaker activation.

(iii) (A) maximum airport pressure altitude, runway slope;

(B) maximum taxi mass;

(C) maximum take-off mass;

(D) maximum lift off mass;

(E) maximum landing mass;

(F) zero fuel mass;

(G) maximum dumping speed v_{dco}, M_{dco}, v_{dce}, M_{dce};

(H) maximum load factor during operation;

(I) certificated range of centre of gravity.

(2) engine limitations:

(i) operating data of the engines:

(A) time limits and maximum temperatures;

(B) minimum RPMs and temperatures;

(C) torque;

(D) maximum power for take-off and go-around on pressure altitude or flight altitude and temperature;

(E) piston engines: certified range of mixture;

(F) minimum and maximum oil temperature and pressure;

(G) maximum starter time and required cooling;

(H) time between two start attempts for engines and auxiliary power unit;

(I) for propeller: maximum RPM of propeller triggering of automatic feathering device.

(ii) certified oil grades.

(3) systems limitations:

(i) operating data of the following systems:

(A) pressurisation, air conditioning maximum pressures;

(B) electrical power supply, maximum load of main power system (AC or DC);

(C) maximum time of power supply by battery in case of emergency;

(D) mach trim system and yaw damper speed limits;

(E) autopilot limitations of various modes;

(F) ice protection;

(G) speed and temperature limits of window heat;

(H) temperature limits of engine and wing anti-ice.

(ii) fuel system: certified fuel specifications, minimum and maximum pressures and temperature of the fuel.

(4) minimum equipment list.

(c) Performance, flight planning and monitoring:

(1) performance calculation about speeds, gradients, masses in all conditions for take-off, en-route, approach and landing according to the documentation available (for example for take-off v_1, v_{mbe}, v_r, v_{lof}, v_2, take-off distance, maximum take-off mass and the required stop distance) on the following factors:

(i) accelerate or stop distance;

(ii) take-off run and distance available (TORA, TODA);

(iii) ground temperature, pressure altitude, slope, wind;

(iv) maximum load and maximum mass (for example ZFM);

(v) minimum climb gradient after engine failure;

(vi) influence of snow, slush, moisture and standing water on the runway;

(vii) possible single or dual engine failure during cruise flight;

(viii) use of anti-icing systems;

(ix) failure of water injection system or antiskid system;

(x) speeds at reduced thrust, v_1, v_{1red}, v_{mbe}, v_{mu}, v_r, v_{lof}, v_2;

(xi) safe approach speed v_{ref}, on v_{mca} and turbulent conditions;

(xii) effects of excessive approach speed and abnormal glideslope on the landing distance;

(xiii) minimum climb gradient during approach and landing;

(xiv) limiting values for a go-around with minimum fuel;

(xv) maximum allowable landing mass and the landing distance for the destination and alternate aerodrome on the following factors:

(A) available landing distance;

(B) ground temperature, pressure altitude, runway slope and wind;

(C) fuel consumption to destination or alternate aerodrome;

(D) influence of moisture on the runway, snow, slush and standing water;

(E) failure of the water injection system or the anti-skid system;

(F) influence of thrust reverser and spoilers.

(2) flight planning for normal and abnormal conditions:

(i) optimum or maximum flight level;

(ii) minimum required flight altitude;

(iii) drift down procedure after an engine failure during cruise flight;

(iv) power setting of the engines during climb, cruise and holding under various circumstances, as well as the most economic cruising flight level;

(v) calculation of a short range or long range flight plan;

(vi) optimum and maximum flight level and power setting of the engines after engine failure.

(3) flight monitoring.

(d) Load and balance and servicing:

(1) load and balance:

(i) load and trim sheet on the maximum masses for take-off and landing;

(ii) centre of gravity limits;

(iii) influence of fuel consumption on the centre of gravity;

(iv) lashing points, load clamping, maximum ground load.

(2) servicing on ground, servicing connections for:

(i) fuel;

(ii) oil;

(iii) water;

(iv) hydraulic;

(v) oxygen;

(vi) nitrogen;

(vii) conditioned air;

(viii) electric power;

(ix) start air;

(x) toilet and safety regulations.

(e) Emergency procedures:

(1) recognition of the situation as well as immediate memory actions in correct sequence and for those conditions recognised as emergencies by the manufacturer and Authority for certification:

(i) engine failure during take-off before and after v_1, as well as in- flight;

(ii) malfunctions of the propeller system;

(iii) engine overheat, engine fire on ground and in-flight;

(iv) wheel well fire;

(v) electrical smoke or fire;

(vi) rapid decompression and emergency descent;

(vii) air-conditioning overheat, anti-ice system overheat;

(viii) fuel pump failure;

(ix) fuel freezing overheat;

(x) electric power failure;

(xi) equipment cooling failure;

(xii) flight instrument failure;

(xiii) partial or total hydraulic failure;

(xiv) failures at the lift devices and flight controls including boosters;

(xv) cargo compartment smoke or fire.

(2) actions according to the approved abnormal and emergency checklist:

(i) engine restart in-flight;

(ii) landing gear emergency extension;

(iii) application of the emergency brake system;

(iv) emergency extension of lift devices;

(v) fuel dumping;

(vi) emergency descent.

(f) Special requirements for extension of a type rating for instrument approaches down to decision heights of less than 200 ft (60 m):

(1) airborne and ground equipment:

(i) technical requirements;

(ii) operational requirements;

(iii) operational reliability;

(iv) fail operational;

(v) fail passive;

(vi) equipment reliability;

(vii) operating procedures;

(viii) preparatory measures;

(ix) operational downgrading;

(x) communications.

(2) procedures and limitations:

(i) operational procedures;

(ii) crew coordination.

(g) Special requirements for 'glass cockpit' aeroplanes with EFIS Additional learning objectives:

(1) general rules of aeroplanes computer hardware and software design;

(2) logic of all crew information and alerting systems and their limitations;

(3) interaction of the different aeroplane computer systems, their limitations, the possibilities of computer fault recognition and the actions to be performed on computer failures;

(4) normal procedures including all crew coordination duties;

(5) aeroplane operation with different computer degradations (basic flying).

(h) Flight management systems.

II. SE AND ME HELICOPTERS

(a) Detailed listing for helicopters structure, transmissions, rotors and equipment, normal and abnormal operation of systems:

(1) dimensions.

(2) engine including aux. power unit, rotor and transmissions; if an initial type rating for a turbine engine helicopter is applied for, the applicant should have received turbine engine instruction:

(i) type of engine or engines;

(ii) in general, the function of the following systems or components:

(A) engine;

(B) auxiliary power unit;

(C) oil system;

(D) fuel system;

(E) ignition system;

(F) starting system;

(G) fire warning and extinguishing system;

(H) generators and generator drive;

(I) power indication;

(J) water or methanol injection.

(iii) engine controls (including starter), engine instruments and indications in the cockpit, their function and interrelation and interpretation;

(iv) engine operation, including APU, during engine start and engine malfunctions, procedures for normal operation in the correct sequence;

(v) transmission system:

(A) lubrication;

(B) generators and generator drives;

(C) freewheeling units;

(D) hydraulic drives;

(E) indication and warning systems.

(vi) type of rotor systems: indication and warning systems.

(3) fuel system:

(i) location of the fuel tanks, fuel pumps, fuel lines to the engines tank capacities, valves and measuring;

(ii) the following systems:

(A) filtering;

(B) fuelling and defueling heatings;

(C) dumping;

(D) transferring;

(E) venting.

(iii) in the cockpit: the monitors and indicators of the fuel system, quantity and flow indication, interpretation;

(iv) fuel procedures distribution into the various tanks fuel supply and fuel dumping.

(4) air conditioning:

(i) components of the system and protection devices;

(ii) cockpit monitors and indicators;

Note: interpretation about the operational condition: normal operation of the system during start, cruise approach and landing, air conditioning airflow and temperature control.

(5) ice and rain protection, windshield wipers and rain repellent:

(i) ice protected components of the helicopter, including engines and rotor systems, heat sources, controls and indications;

(ii) operation of the anti-icing or de-icing system during take-off, climb, cruise and descent, conditions requiring the use of the protection systems;

(iii) controls and indications of the windshield wipers and rain repellent system operation.

(6) hydraulic system:

(i) components of the hydraulic system(s), quantities and system pressure, hydraulically actuated components associated to the respective hydraulic system;

(ii) controls, monitors and indicators in the cockpit, function and interrelation and interpretation of indications.

(7) landing gear, skids fixed and floats:

(i) main components of the:

(A) main landing gear;

(B) nose gear;

(C) tail gear;

(D) gear steering;

(E) wheel brake system.

(ii) gear retraction and extension;

(iii) required tyre pressure, or location of the relevant placard;

(iv) controls and indicators including warning indicators in the cockpit in relation to the retraction or extension condition of the landing gear;

(v) components of the emergency extension system.

(8) flight controls, stab- and autopilot systems: controls, monitors and indicators including warning indicators of the systems, interrelation and dependencies.

(9) electrical power supply:

(i) number, power, voltage, frequency and if applicable phase and location of the main power system (AC or DC) auxiliary power system location and external power system;

(ii) location of the controls, monitors and indicators in the cockpit;

(iii) main and back-up power sources flight instruments, communication and navigation systems, main and back-up power sources;

(iv) location of vital circuit breakers;

(v) generator operation and monitoring procedures of the electrical power supply.

(10) flight instruments, communication, radar and navigation equipment, autoflight and flight data recorders:

(i) antennas;

(ii) controls and instruments of the following equipment in the cockpit:

(A) flight instruments (for example air speed indicator, pitot static system, compass system, flight director);

(B) flight management systems;

(C) radar equipment (for example weather radar, transponder);

(D) communication and navigation system (for example HF, VHF, ADF, VOR/DME, ILS, marker beacon) and area navigation systems;

(E) stabilisation and autopilot system;

(F) flight data recorder, cockpit voice recorder, data-link communication recording function and radio altimeter;

(G) collision avoidance system;

(H) TAWS;

(I) HUMS.

(11) cockpit, cabin and cargo compartment:

(i) operation of the exterior, cockpit, cabin and cargo compartment lighting and the emergency lighting;

(ii) operation of the cabin doors and emergency exits.

(12) emergency equipment:

(i) operation and correct application of the following mobile emergency equipment in the helicopter:

(A) portable fire extinguisher;

(B) first-aid kits;

(C) portable oxygen equipment;

(D) emergency ropes;

(E) life-jacket;

(F) life rafts;

(G) emergency transmitters;

(H) crash axes;

(I) megaphones;

(J) emergency signals;

(K) torches.

(ii) operation and correct application of the fixed emergency equipment in the helicopter: emergency floats.

(b) Limitations:

(1) general limitations, according to the helicopter flight manual;

(2) minimum equipment list.

(c) Performance, flight planning and monitoring:

(1) performance calculation about speeds, gradients, masses in all conditions for take-off, en-route, approach and landing:

(i) take-off:

(A) hover performance in and out of ground effect;

(B) all approved profiles, cat A and B;

(C) HV diagram;

(D) take-off and rejected take-off distance;

(E) take-off decision point (TDP) or (DPATO);

(F) calculation of first and second segment distances;

(G) climb performance.

(ii) en-route:

(A) air speed indicator correction;

(B) service ceiling;

(C) optimum or economic cruising altitude;

(D) max endurance;

(E) max range;

(F) cruise climb performance.

(iii) landing:

(A) hovering in and out of ground effect;

(B) landing distance;

(C) landing decision point (LDP) or (DPBL).

(iv) knowledge or calculation of: v_{lo}, v_{le}, v_{mo}, v_x, v_y, v_{toss}, v_{ne}, $v_{max\ range}$, v_{mini}.

(2) flight planning for normal and abnormal conditions:

(i) optimum or maximum flight level;

(ii) minimum required flight altitude;

(iii) drift down procedure after an engine failure during cruise flight;

(iv) power setting of the engines during climb, cruise and holding under various circumstances as well as at the most economic cruising flight level;

(v) optimum and maximum flight level and power setting after an engine failure.

(3) effect of optional equipment on performance.

(d) Load, balance and servicing:

(1) load and balance:

(i) load and trim sheet on the maximum masses for take-off and landing;

(ii) centre of gravity limits;

(iii) influence of the fuel consumption on the centre of gravity;

(iv) lashing points, load clamping, max ground load.

(2) servicing on the ground, servicing connections for:

(i) fuel;

(ii) oil, etc.;

(iii) and safety regulations for servicing.

(e) Emergency procedures.

(f) Special requirements for extension of a type rating for instrument approaches down to a decision height of less than 200 ft (60 m):

(1) airborne and ground equipment:

(i) technical requirements;

(ii) operational requirements;

(iii) operational reliability;

(iv) fail operational;

(v) fail passive;

(vi) equipment reliability;

(vii) operating procedures;

(viii) preparatory measures;

(ix) operational downgrading;

(x) communication.

(2) procedures and limitations:

(i) operational procedures;

(ii) crew co-ordination.

(g) Special requirements for helicopters with EFIS.

(h) Optional equipment.

III. AIRSHIPS

(a) Detailed listing for airship structure and equipment, normal operation of systems and malfunctions:

(1) dimensions;

(2) structure and envelope:

(i) internal structure;

(ii) envelope;

(iii) pressure system;

(iv) gondola;

(v) empennage.

(3) flight controls;

(4) systems:

(i) hydraulic;

(ii) pneumatic.

(5) landing gear;

(6) fuel system;

(7) fire warning and extinguishing system;

(8) emergency equipment;

(9) electrical systems;

(10) avionics, radio navigation and communication equipment;

(11) instrumentation;

(12) engines and propellers;

(13) heating, ventilation and air-condition;

(14) operational procedures during start, cruise, approach and landing:

(i) normal operations;

(ii) abnormal operations.

(b) Limitations:

(1) general limitations:

(i) certification of the airship, category of operation, noise certification and maximum and minimum performance data for all flight profiles, conditions and aircraft systems;

(ii) speeds;

(iii) altitudes.

(2) engine limitations;

(3) systems limitations;

(4) minimum equipment list.

(c) Performance and flight planning:

(1) performance calculation;

(2) flight planning.

(d) Load and balance and servicing:

(1) load and balance;

(2) servicing.

(e) Emergency procedures:

(1) recognition of emergency situations;

(2) actions according to the approved abnormal and emergency checklist.

AMC2 LIC.725(a) Requirements for the issue of class and type ratings

TRAINING COURSE

FLIGHT INSTRUCTION FOR TYPE RATINGS: HELICOPTERS

(a) The amount of flight instruction depends on:

(i) complexity of the helicopter type, handling characteristics, level of technology;

(ii) category of helicopter (SEP or SE turbine helicopter, ME turbine and MP helicopter);

(iii) previous experience of the applicant;

(iv) the availability of FSTDs.

(b) FSTDs

The level of qualification and the complexity of the type will determine the amount of practical training that may be accomplished in FSTDs, including completion of the skill test. Before undertaking the skill test, a student should demonstrate competency in the skill test items during the practical training.

(c) Initial issue

The flight instruction (excluding skill test) should comprise:

Helicopter types	In helicopter	In helicopter and FSTD associated training Credits
SEP (H)	5 hrs	Using FFS C/D: At least 2 hrs helicopter and at least 6 hrs total Using FTD 2/3: At least 4 hrs helicopter and at least 6 hrs total
SET(H) under 3175 kg MTOM	5 hrs	Using FFS C/D: At least 2 hrs helicopter and at least 6 hrs total Using FTD 2/3: At least 4 hrs helicopter and at least 6 hrs total
SET(H) at or over 3175 kg MTOM	8 hrs	Using FFS C/D: At least 2 hrs helicopter and at least 10 hrs total Using FTD 2/3: At least 4 hrs helicopter and at least 10 hrs total
SPH MET (H) CS and FAR 27 and 29	8 hrs	Using FFS C/D: At least 2 hrs helicopter and at least 10 hrs total Using FTD 2/3: At least 4 hrs helicopter and at least 10 hrs total
MPH	10 hrs	Using FFS C/D: At least 2 hrs helicopter, and at least 12 hrs total Using FTD 2/3: At least 4 hrs helicopter, and at least 12 hrs total

(d) Additional types

The flight instruction (excluding skill test) should comprise:

Helicopter types	In helicopter	In helicopter and FSTD associated training Credits
SEP(H) to SEP(H) within AMC1 LIC.740.H (a)(3)	2 hrs	Using FFS C/D: At least 1 hr helicopter and at least 3 hrs total Using FTD 2/3: At least 1 hr helicopter and at least 4 hrs total
SEP(H) to SEP(H) not included in AMC1 LIC.740.H (a)(3)	5 hrs	Using FFS C/D: At least 1 hr helicopter and at least 6 hrs total Using FTD 2/3: At least 2 hr helicopter and at least 7 hrs total
SET(H) to SET(H)	2 hrs	Using FFS C/D: At least 1 hr helicopter and at least 3 hrs total Using FTD 2/3: At least 1 hr helicopter and at least 4 hrs total
SE difference training	1 hr	N/A
MET(H) to MET(H)	3 hrs	Using FFS C/D: At least 1 hr helicopter and at least 4 hrs total Using FTD 2/3: At least 2 hrs helicopter and at least 5 hrs total
ME difference training	1 hrs	N/A

MPH to MPH	5 hrs	Using FFS C/D: At least 1 hr helicopter and at least 6 hrs total Using FTD 2/3: At least 2 hrs helicopter and at least 7 hrs total
Extend privileges on the same type rating from SPH to MPH (except for initial	2 hrs	Using FFS C/D: At least 1 hr helicopter and at least 3 hrs total

(e) Holders of an IR(H) wishing to extend the IR(H) to further types should have additionally 2 hours flight training on type by sole reference to instruments according to IFR which may be conducted in an FFS C/D or FTD 2/3. Holders of an SE IR(H) wishing to extend the IR privileges to an ME IR(H) for the first time should complete at least 5 hours training.

AMC1 LIC.740(b)(1) Validity and renewal of class and type ratings

RENEWAL OF CLASS AND TYPE RATINGS: REFRESHER TRAINING

(a) Paragraph (b)(1) of LIC.740 determines that if a class or type rating has lapsed, the applicant shall take refresher training at an ATO. The objective of the training is to reach the level of proficiency necessary to safely operate the relevant type or class of aircraft. The amount of refresher training needed should be determined on a case-by-case basis by the ATO, taking into account the following factors:

(1) the experience of the applicant. To determine this, the ATO should evaluate the pilot's log book, and, if necessary, conduct a test in an FSTD;

(2) the complexity of the aircraft;

(3) the amount of time lapsed since the expiry of the validity period of the rating. The amount of training needed to reach the desired level of proficiency should increase with the time lapsed. In some cases, after evaluating the pilot, and when the time lapsed is very limited (less than 3 months), the ATO may even determine that no further refresher training is necessary. When determining the needs of the pilot, the following items can be taken into consideration:

(i) expiry shorter than 3 months: no supplementary requirements;

(ii) expiry longer than 3 months but shorter than 1 year: a minimum of two training sessions;

(iii) expiry longer than 1 year but shorter than 3 years: a minimum of three training sessions in which the most important malfunctions in the available systems are covered;

(iv) expiry longer than 3 years: the applicant should again undergo the training required for the initial issue of the rating or, in case of helicopter, the training required for the 'additional type issue', according to other valid ratings held.

(b) Once the ATO has determined the needs of the applicant, it should develop an individual training programme that should be based on the initial training for the issue of the rating and focus on the aspects where the applicant has shown the greatest needs.

(c) After successful completion of the training, the ATO should give a certificate, or other documental evidence that the training has been successfully achieved to the applicant, to be submitted to the Authority when applying for the renewal. The certificate or documental evidence needs to contain a description of the training programme.

AMC1 LIC.720.A(b)(2)(i) Experience requirements and prerequisites for the issue of class or type ratings — aeroplanes

ADDITIONAL THEORETICAL KNOWLEDGE FOR A CLASS OR TYPE RATING FOR HIGH PERFORMANCE SP AEROPLANES

(a) A number of aeroplanes certificated for SP operation have similar performances, systems and navigation capabilities to those more usually associated with MP types of aeroplanes, and regularly operate within the same airspace. The level of knowledge required to operate safely in this environment is not part of, or not included to the necessary depth of knowledge in the training syllabi for the PPL, CPL or IR(A) but these licence holders may fly as PIC of such aeroplanes. The additional theoretical knowledge required to operate such aeroplanes safely is obtained by completion of a course at an ATO.

(b) The aim of the theoretical knowledge course is to provide the applicant with sufficient knowledge of those aspects of the operation of aeroplanes capable of operating at high speeds and altitudes, and the aircraft systems necessary for such operation.

(c) The course should cover at least the following items of the aeroplane syllabus to the ATPL(A) level:

LO number	LO topics
021 00 00 00	**AIRCRAFT GENERAL KNOWLEGDE: AIRFRAME AND SYSTEMS, ELECTRICS, POWERPLANT AND EMERGENCY EQUIPMENT**
021 02 02 01 to 021 02 02 03	Alternating current: general Generators AC power distribution
021 01 08 03	Pressurisation (Air driven systems - piston engines)
021 01 09 04	Pressurisation (Air driven systems - turbojet and turbo propeller)
021 03 01 06 021 03 01 07 021 03 01 08	Engine performance - piston engines Power augmentation (turbo or supercharging) Fuel Mixture

021 03 02 00 to 021 03 04 09	Turbine engines
021 04 05 00	Aircraft oxygen equipment
032 03 00 00	**Performance class B: ME aeroplanes**
032 03 01 00 to 032 03 04 01	Performance of ME aeroplanes not certificated under CS and FAR 25: entire subject
040 00 00 00	**HUMAN PERFORMANCE**
040 02 01 00 to 040 02 01 03	Basic human physiology and High altitude environment
050 00 00 00	**METEOROLOGY**
050 02 07 00 to 050 02 08 01	Jet streams CAT Standing waves
050 09 01 00 to 050 09 04 05	Flight hazards Icing and turbulence Thunderstorms
062 02 00 00	**BASIC RADAR PRINCIPLES**
062 02 01 00 to 062 02 05 00	Basic radar principles Airborne radar SSR
081 00 00 00	**PRINCIPLES OF FLIGHT: AEROPLANES**
081 02 01 00 to 081 02 03 02	Transonic aerodynamics: entire subject Mach number or shockwaves buffet margin or aerodynamic ceiling

(d) Demonstration of acquisition of this knowledge is undertaken by passing an examination set by ATO. A successful pass of this examination results in the issue of a certificate indicating that the course and examination have been completed.

(e) The certificate represents a ‘once only’ qualification and satisfies the requirement for the addition of all future high performance aeroplanes to the holder’s licence. The certificate is valid indefinitely and is to be submitted with the application for the first HPA type or class rating.

(f) A pass in any theoretical knowledge subjects as part of the HPA course will not be credited against meeting future theoretical examination requirements for issue of a CPL(A), IR(A) or ATPL(A).

AMC1 LIC.725.A(b) Theoretical knowledge and flight instruction for the issue of class and type ratings — aeroplanes

CLASS RATING SEA

(a) The theoretical knowledge instruction should be conducted by an instructor having appropriate experience of class rating sea.

(b) Depending on the equipment and systems installed, the instruction should include, but not be limited to, the following content:

(1) theoretical knowledge:

(i) the aim of the training is to teach:

(A) the importance of preparation for flight and the safe planning taking into consideration all the factors for manoeuvring the aircraft on the wind, tidal currents, high and low water times and water movements at sea, river estuaries and lakes In addition, icing conditions, ice covered water and broken ice flows;

(B) the techniques about the most critical moments at take- off, landing, taxiing and mooring the aircraft;

(C) the construction methods and characteristics of floats and water rudders and the importance of checking for leaks in the floats;

(D) the necessary requirements for the compliance of the rules for the avoidance of collisions at sea, in regard to sea charts, buoys and lights and horns.

(ii) after completing the training, the student should be able to:

(A) describe the factors that have significance for planning and decision about initiation of seaplane flying and alternative measures for completion of flight;

(B) describe how the water level is affected by air pressure, wind, tide, regularisations and the flight safety depending on changes in the water level;

(C) describe the origin of different ice conditions in water areas;

(D) interpret nautical charts and maps about depths and shoals and risk for water currents, shifts of the wind, turbulence;

(E) decide what required equipment to bring during seaplane flying according to the operational requirements;

(F) describe the origin and extension of water waves, swells and water currents and their effect on the aeroplane;

(G) describe how water and air forces effect the aeroplane on water;

(H) describe the effect of water resistance on the aeroplanes' performance on glassy water and during different wave conditions;

(I) describe the consequences of taxiing with too high engine RPM;

(J) describe the effect of pressure and temperature on performance at take-off and climb from lakes located at higher altitude;

(K) describe the effect of wind, turbulence, and other meteorological conditions of special importance for flight over lakes, islands in mountain areas and other broken ground;

(L) describe the function of the water rudder and its handling, including the effect of lowered water rudder at take-off and landing;

(M) describe the parts of the float installation and their function;

(N) describe the effect of the floats on the aeroplanes' aerodynamics and performance in water and in air;

(O) describe the consequences of water in the floats and fouling of float bottoms;

(P) describe aviation requirements that apply specifically for the conduct of aircraft activity on water;

(Q) describe requirements about animal, nature and environment protection of significance for flight by seaplane, including flight in national parks;

(R) describe the meaning of navigation buoys;

(S) describe the organisation and working methods of the Sea Rescue Service;

(T) describe the requirements in ICAO Annex 2 as set out in paragraph 3.2.6 'Water operation', including relevant parts of the Convention on the International Regulations for Preventing Collisions at Sea.

(2) practical training:

(i) the aim of the practical training is to learn:

(A) the skills in manoeuvring aeroplanes on water and in mooring the aeroplane;

(B) the skills required for the reconnaissance of landing and mooring areas from the air, including the take-off area;

(C) the skills for assessing the effects of different water depths, shoals, wind, height of waves and swell;

(D) the skills for flying with floats about their effect on performance and flight characteristics;

(E) the skills for flying in broken ground during different wind and turbulence conditions;

(F) the skills for take-off and landing on glassy water, different ° of swell and water current conditions.

(ii) after the training, the student should be able to:

(A) handle the equipment that shall be brought during seaplane flying;

(B) perform pre-flight daily inspection on aeroplane, float installation and special seaplane equipment, including emptying of floats;

(C) sail, taxi and turn the aeroplane at swell with correct handling of the water rudder;

(D) taxi on the step and perform turns;

(E) establish the wind direction with the aeroplane;

(F) take necessary actions if loss of steering ability and person falling overboard;

(G) make land and moor aeroplane at bridge, buoy and beach with the use of appropriate knots to secure the aircraft;

(H) maintain given rate of descent by means of variometer only;

(I) perform take-off and landing on glassy water with and without outer references;

(J) perform take-off and landing under swell;

(K) perform power-off landing;

(L) from the air, reconnaissance of landing, mooring and take-off areas, observing;

(M) wind direction and strength during landing and take-off;

(N) surrounding terrain;

(O) overhead wires and other obstacles above and under water;

(P) congested areas;

(Q) determine wind direction and assess wind strength from water level and when airborne;

(R) state, for the aeroplane type in question;

(a) maximum wave height allowed;

(b) maximum number of ERPM allowed during taxi;

(S) describe how flying with floats affects the performance and flight characteristics of the aeroplane;

(T) take corrective action at critical moments due to wind shear and turbulence;

(U) navigate on the water with reference to buoys markers, obstacles and other traffic on the water.

(c) For the initial issue of class rating sea for SP, SE and ME aeroplanes, the number of multi-choice questions in the written or computer-based examination should at least comprise thirty questions, and may be conducted by the training organisation. The pass mark should be 75 %.

AMC1 LIC.735.A; LIC.735.H; LIC.735.As

MULTI-CREW COOPERATION COURSE

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

(b) The objectives of MCC training are to develop the technical and non- technical components of the knowledge, skills and attitudes required to operate a multi-crew aircraft.

(c) Training should comprise both theoretical and practical elements and be designed to achieve the following competencies:

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Competency	Performance indicators	Knowledge	Practical exercises
Communication	(a) Know what, how much and who to communicate to; (b) Ensure the recipient is ready and able to receive the information; (c) Pass messages and information clearly, accurately, timely and adequately; (d) Check if the other person has the correct understanding when passing important information; (e) Listen actively, patiently and demonstrate understanding when receiving information; (f) Ask relevant and effective questions, and offer suggestions; (g) Use appropriate body language, eye contact and tone; (h) Open and receptive to other people's view.	(a) Human Factors, TEM and CRM; (b) Application of TEM and CRM principles to training.	In a commercial air transport environment, apply multi-crew procedures, including principles of TEM and CRM to the following: (a) Pre-flight preparation: (1) FMS initialisation; (2) radio and navigation equipment preparation; (3) flight documentation; (4) Computation of take-off performance data. (b) Take-off and climb: (1) before take-off checks; (2) normal take-offs; (3) rejected take-offs; (4) take-offs with abnormal and emergency situations included.

Competency	Performance indicators	Knowledge	Practical exercises
Leadership and team working	(a) Friendly, enthusiastic, motivating and considerate of others; (b) Use initiative, give direction and take responsibility when required; (c) Open and honest about thoughts, concerns and intentions; (d) Give and receive criticism and praise well, and admit mistakes; (e) Confidently do and say what is important to him or her; (f) Demonstrate respect and tolerance towards other people; (g) Involve others in planning and share activities fairly.		(c) Cruise: emergency descent. (d) Descent and approach: (1) instrument flight procedures; (2) holding; (3) precision approach using raw data; (4) precision approach using flight director; (5) precision approach using autopilot; (6) one-engine-inoperative approach; (7) non-precision and circling approaches; (8) computation of approach and landing data; (9) all engines go-around; (10) go-around with one engine inoperative; (11) wind shear during approach.

Competency	Performance indicators	Knowledge	Practical exercises
Situation awareness	(a) Aware of what the aircraft and its systems are doing; (b) Aware of where the aircraft is and its environment; (c) Keep track of time and fuel; (d) Aware of the condition of people involved in the operation including passengers; (e) Recognise what is likely to happen, plan and stay ahead of the game; (f) Develop what-if scenarios and make pre-decisions; (g) Identify threats to the safety of the aircraft and of the people.		(e) landing: transition from instrument to visual flight on reaching decision altitude or height or minimum descent altitude or height; (f) after landing and post flight procedures; (g) selected emergency and abnormal procedures.

Competency	Performance indicators	Knowledge	Practical exercises
Workload management	(a) Calm, relaxed, careful and not impulsive; (b) Prepare, prioritise and schedule tasks effectively; (c) Use time efficiently when carrying out tasks; (d) Offer and accept assistance, delegate when necessary and ask for help early; (e) Review and monitor and cross-check actions conscientiously; (f) Follow procedures appropriately and consistently;		
Problem solving and decision making	(a) Identify and verify why things have gone wrong and do not jump to conclusions or make assumptions; (b) Seek accurate and adequate information from appropriate resources; (c) Persevere in working through a problem;		

Competency	Performance indicators	Knowledge	Practical exercises
	(d) Use and agree an appropriate decision making process; (e) Agree essential and desirable criteria and prioritises; (f) Consider as many options as practicable; (g) Make decisions when they need to, reviews and changes if required; (h) Consider risks but do not take unnecessary risks.		
Monitoring and cross- checking	(a) Monitor and cross-checks all actions; (b) Monitor aircraft trajectory in critical flight phases; (c) Take appropriate actions in response to deviations from the flight path.	(a) SOPs; (b) Aircraft systems; (c) Undesired aircraft states.	
Task sharing	(a) Apply SOPs in both PF and PNF roles; (b) Makes and responds to standard callouts.	(a) PF and PNF roles; (b) SOPs.	

Competency	Performance indicators	Knowledge	Practical exercises
Use of checklists	Utilise checklists appropriately according to SOPs.	(a) SOPs; (b) Checklist philosophy.	
Briefings	Prepare and deliver appropriate briefings.	(a) SOPs; (b) Interpretation of FMS data and in-flight documentation.	
Flight management	(a) Maintain a constant awareness of the aircraft automation state; (b) Manage automation to achieve optimum trajectory and minimum workload; (c) Take effective recovery actions from automation anomalies; (d) Manage aircraft navigation, terrain clearance; (e) Manage aircraft fuel state and take appropriate actions.	(a) Understanding of aircraft performance and configuration; (b) Systems; (c) SOPs; (d) Interpretation of FMS data and in-flight documentation; (e) Minimum terrain clearance; (f) Fuel management IFR and VFR regulation.	
FMS use	Programme, manage and monitor FMS in accordance with SOPs.	(a) Systems (FMS); (b) SOPs; (c) Automation.	

Competency	Performance indicators	Knowledge	Practical exercises
operations	operation in accordance with SOPs.		
Systems abnormal and emergency operations	(a) Perform and monitor abnormal systems operation in accordance with SOPs; (b) Utilise electronic and paper abnormal checklists in accordance with SOPs.	(a) Systems; (b) SOPs; (c) Emergency and abnormal procedures and checklists; (d) Recall items.	
Environment, weather and ATC	(a) Communicate effectively with ATC; (b) Avoid misunderstandings by requesting clarification; (c) Adhere to ATC instructions; (d) Construct a mental model of the local ATC and weather environment.	(a) Systems; (b) SOPs; (c) ATC environment and phraseology; (d) Procedures for hazardous weather conditions.	

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CERTIFICATE OF COMPLETION FORM

CERTIFICATE OF COMPLETION OF MCC-TRAINING

Applicant's last name(s):			First name(s):	
Type of licence:			Number:	State:
ME/IR:		***OR***	ME/IR skill test:	
Issued on:			passed on:	
	Signature of applicant:			

The satisfactory completion of MCC-Training according to requirements is certified below:

TRAINING			
Multi-crew co-operation training received during period:			
from:	to:	at:	ATO / operator*
Location and date:		Signature of head of ATO or authorised instructor*:	
Type and number of licence and state of issue:		Name(s) in capital letters of authorised instructor:	

** Delete as appropriate*

AMC1 LIC.740.H(a)(3) Revalidation of type ratings — helicopters

Only the following SEP helicopter types can be considered for crediting of the proficiency check. Other SEP helicopters (for example the R22 and R44) should not be given credit for.

Manufacturer	Helicopter type and licence endorsement
Agusta-Bell	
SEP	Bell47
Bell Helicopters	
SEP	Bell47
Brantley	
SEP	Brantley B2
Breda Nardi	
SEP	HU269
Enstrom	
SEP	ENF28
Hélicoptères Guimbal	
SEP	Cabri G2
Hiller	
SEP	UH12
Hughes or Schweizer	
SEP	HU269
Westland	
SEP	Bell47

GM1 LIC.720.PL Experience requirements and prerequisites for the issue of type ratings — powered-lift aircraft

The endorsement of a powered-lift type rating to an aeroplane or helicopter licence does not confer upon its holder the privileges to fly helicopters or aeroplanes, respectively.

GM1 LIC.750.A Type ratings for aeroplanes where two pilots are required

Procedures for upset prevention and recovery training are contained in the Procedures for Air Navigation Services — Training (PANS-TRG, Doc 9868).

Guidance on upset prevention and recovery training is contained in the Manual on Aeroplane Upset Prevention and Recovery Training (Doc 10011).

The Manual of Criteria for the Qualification of Flight Simulation Training Devices (Doc 9625) provides guidance on the approval of flight simulation training devices for upset prevention and recovery training.

The aeroplane upset prevention and recovery training may be integrated in the type rating programme or be conducted immediately after, as an additional module.

SUBPART I

ADDITIONAL RATINGS

AMC1 LIC.800 Aerobatic rating

THEORETICAL KNOWLEDGE AND FLYING TRAINING

(a) The aim of the aerobatic training is to qualify licence holders to perform aerobatic manoeuvres.

(b) The ATO should issue a certificate of satisfactory completion of the instruction to licence endorsement.

(c) Theoretical knowledge

The theoretical knowledge syllabus should cover the revision or explanation of:

(1) human factors and body limitation:

(i) spatial disorientation;

(ii) airsickness;

(iii) body stress and G-forces, positive and negative;

(iv) effects of grey- and blackouts.

(2) technical subjects:

(i) legislation affecting aerobatic flying to include environmental and noise subjects;

(ii) principles of aerodynamics to include slow flight, stalls and spins, flat and inverted;

(iii) general airframe and engine limitations (if applicable).

(3) limitations applicable to the specific aircraft category (and type):

(i) air speed limitations (aeroplane, helicopter, TMG and sailplane, as applicable);

(ii) symmetric load factors (type-related, as applicable);

(iii) rolling Gs (type-related, as applicable).

(4) aerobatic manoeuvres and recovery:

(i) entry parameters;

(ii) planning systems and sequencing of manoeuvres;

(iii) rolling manoeuvres;

(iv) looping manoeuvres;

(v) combination manoeuvres;

(vi) entry and recovery from developed spins, flat, accelerated and inverted.

(5) emergency procedures:

(i) recovery from unusual attitudes;

(ii) drills to include the use of parachutes (if worn) and aircraft abandonment.

(d) Flying training

The exercises of the aerobatic flying training syllabus should be repeated as necessary until the applicant achieves a safe and competent standard. Having completed the flight training, the student pilot should be able to perform a solo flight containing a sequence of aerobatic manoeuvres. The dual training and the supervised solo training flights should be tailored to the category of aircraft and limited to the permitted manoeuvres of that type of aircraft. The exercises should comprise at least the following practical training items:

(1) confidence manoeuvres and recoveries:

(i) slow flights and stalls;

(ii) steep turns;

(iii) side slips;

(iv) engine restart in-flight (if applicable);

(v) spins and recovery;

(vi) recovery from spiral dives;

(vii) recovery from unusual attitudes.

(2) aerobatic manoeuvres:

(i) Chandelle;

(ii) Lazy Eight;

(iii) rolls;

(iv) loops;

(v) inverted flight;

(vi) Hammerhead turn;

(vii) Immelmann.

AMC1 LIC.805 Sailplane towing and banner towing rating

THEORETICAL KNOWLEDGE AND FLYING TRAINING

(a) The aim of the towing instruction is to qualify licence holders to tow banners or sailplanes.

(b) The ATO should issue a certificate of satisfactory completion of the instruction that can be used for licence endorsement.

(c) Theoretical knowledge: towing of sailplanes

The theoretical knowledge syllabus for towing of sailplanes should cover the revision or explanation of:

(1) regulations about towing flights;

(2) equipment for the towing activity;

(3) sailplane towing techniques, including:

(i) signals and communication procedures;

(ii) take-off (normal and crosswind);

(iii) in-flight launch procedures;

(iv) descending on tow;

(v) sailplane release procedure;

(vi) tow rope release procedure;

(vii) landing with tow rope connected (if applicable);

(viii) emergency procedures during tow, including equipment malfunctions;

(ix) safety procedures;

(x) flight performance of the applicable aircraft type when towing sailplanes;

(xi) look-out and collision avoidance;

(xii) performance data sailplanes, including:

(A) suitable speeds;

(B) stall characteristics in turns.

(d) Theoretical knowledge: banner towing

The theoretical knowledge syllabus for banner towing should cover the revision or explanation of:

(1) regulations about banner towing;

(2) equipment for the banner towing activity;

(3) ground crew coordination;

(4) pre-flight procedures;

(5) banner towing techniques, including:

(i) take-off launch;

(ii) banner pickup manoeuvres;

(iii) flying with a banner in tow;

(iv) release procedure;

(v) landing with a banner in tow (if applicable);

(vi) emergency procedures during tow, including equipment malfunctions;

(vii) safety procedures;

(viii) flight performance of the applicable aircraft type when towing a heavy or light banner;

(ix) prevention of stall during towing operations.

(e) Flying training: towing of sailplanes

The exercises of the towing training syllabus for towing sailplanes should be repeated as necessary until the student achieves a safe and competent standard and should comprise at least the following practical training items:

(1) take-off procedures (normal and crosswind take-offs);

(2) 360 ° circles on tow with a bank of 30 ° and more;

(3) descending on tow;

(4) release procedure of the sailplane;

(5) landing with the tow rope connected (if applicable);

(6) tow rope release procedure in-flight;

(7) emergency procedures (simulation);

(8) signals and communication during tow.

(f) Flying training: banner towing

The exercises of the towing training syllabus for banner towing should be repeated as necessary until the student achieves a safe and competent standard and should comprise at least the following practical training items:

(1) pickup manoeuvres;

(2) towing in-flight techniques;

(3) release procedures;

(4) flight at critically low air speeds;

(5) maximum performance manoeuvres;

(6) emergency manoeuvres to include equipment malfunctions (simulated);

(7) specific banner towing safety procedures;

(8) go-around with the banner connected;

(9) loss of engine power with the banner attached (simulated).

AMC1 LIC.810(b) Night rating

PPL(H) NIGHT RATING COURSE

(a) The aim of the course is to qualify PPL(H) holders to exercise the privileges of the licence at night.

(b) The ATO should issue a certificate of satisfactory completion of the instruction that can be used for licence endorsement.

(c) Theoretical knowledge

The theoretical knowledge syllabus should cover the revision or explanation of:

(1) night VMC minima;

(2) rules about airspace control at night and facilities available;

(3) rules about aerodrome ground, runway, landing site and obstruction lighting;

(4) aircraft navigation lights and collision avoidance rules;

(5) physiological aspects of night vision and orientation;

(6) dangers of disorientation at night;

(7) dangers of weather deterioration at night;

(8) instrument systems or functions and errors;

(9) instrument lighting and emergency cockpit lighting systems;

(10) map marking for use under cockpit lighting;

(11) practical navigation principles;

(12) radio navigation principles;

(13) planning and use of safety altitude;

(14) danger from icing conditions, avoidance and escape manoeuvres.

(d) Flying training

The exercises of the night rating flight syllabus should be repeated as necessary until the student achieves a safe and competent standard:

(1) In all cases, exercises 4 to 6 of the night rating flight syllabus should be completed.

(2) For exercises 1 to 3, up to 50 % of the required flight training may be completed in an FSTD(H). However, all items within each exercise should be conducted in a helicopter in-flight.

(3) Items marked (*) should be completed in simulated IMC and may be completed in daylight.

(4) The flying exercises should comprise:

(i) Exercise 1:

(A) revise basic manoeuvres when flying by sole reference to instruments*;

(B) explain and demonstrate transition to instrument flight from visual flight*;

(C) explain and revise recovery from unusual attitudes by sole reference to instruments*.

(ii) Exercise 2:

Explain and demonstrate the use of radio navigation aids when flying by sole reference to instruments, to include position finding and tracking*.

(iii) Exercise 3:

Explain and demonstrate the use of radar assistance*.

(iv) Exercise 4:

(A) explain and demonstrate the use and adjustment of landing light;

(B) explain and demonstrate night hovering:

(a) higher and slower than by day;

(b) avoidance of unintended sideways or backwards movements.

(C) explain and demonstrate night take-off techniques;

(D) explain and demonstrate night circuit technique;

(E) explain and demonstrate night approaches (constant angle) with or without visual approach aids to:

(a) heliports;

(b) illuminated touchdown areas.

(F) practise take-off's, circuits and approaches;

(G) explain and demonstrate night emergency procedures to include:

(a) simulated engine failure (to be terminated with power recovery at a safe altitude);

(b) simulated engine failure, including SE approach and landing (ME only);

(c) simulated inadvertent entry to IMC (not on base leg or final);

(d) simulated hydraulic control failure (to include landing);

(e) internal and external lighting failure;

(f) other malfunctions and emergency procedures as required by the aircraft flight manual.

(v) Exercise 5:

Solo night circuits.

(vi) Exercise 6:

(A) explain and demonstrate night cross-country techniques;

(B) practice night cross-country dual and as SPIC to a satisfactory standard.

AMC1 LIC.815 Mountain rating

THEORETICAL KNOWLEDGE AND FLYING TRAINING

THEORETICAL KNOWLEDGE	
WHEEL	SKI
1. Equipment	
W.1.1 Personal equipment for the flight W.1.2 Aircraft equipment for the flight	S.1.1 Personal equipment for the flight S.1.2 Aircraft equipment for the flight
2. Take-off techniques	
W.2.1 Technique for approach and landing on a mountain surface W.2.2 Rolling techniques of the aircraft on various runway profiles W.2.3 Take-off technique W.2.4 Aircraft and engine performances about altitude	S.2.1 Technique for approach and landing on a mountain surface S.2.2 Landing technique on skis S.2.3 Rolling techniques of the aircraft on skis about the snow nature S.2.4 Take-off technique on surfaces covered with snow S.2.5. Aircraft and engine performances about altitude
3. Rules	
W.3.1 Mountain rating W.3.2 Overflight rules W.3.3 Surfaces classification W.3.4 PIC responsibilities W.3.5 Responsibilities of the surface manager W.3.6 Flight plan	S.3.1 Mountain rating S.3.2 Overflight rules S.3.3 Surfaces classification S.3.4 PIC responsibilities S.3.5 Responsibilities of the surface manager S.3.6 Flight plan S.3.7 Certification of the ski mounted aeroplanes
4. Meteorology	
W.4.1 Movements of the air mass W.4.2 Flight consequences W.4.3 Relief effect on the movement of the air masses W.4.4 Altimetry	S.4.1 Movements of the air mass S.4.2 Flight consequences S.4.3 Relief effect on the movement of the air masses S.4.4 Altimetry
5. Human Performance and Limitations	

W.5.1 The cold W.5.2 The food W.5.3 The hypoxia W.5.4 The radiance W.5.5 The thirst W.5.6 The tiredness W.5.7 Turbulence effects in altitude	S.5.1 The cold S.5.2 The food S.5.3 The hypoxia S.5.4 The radiance S.5.5 The thirst S.5.6 The tiredness S.5.7 Turbulence effects in altitude
6. Navigation	
W.6.1 Progress of the flight W.6.2 Dead reckoning W.6.3 The path over the relief	S.6.1 Progress of the flight S.6.2 Dead reckoning S.6.3 The path over the relief
W.6.4 Progress in the valleys W.6.5 Detection of obstacles (high voltage lines, chairlifts, cables, etc.).	S.6.4 Progress in the valleys S.6.5 Detection of obstacles (high voltage lines, chairlifts, cables, etc.)
7. Specific items	
	S.7.1 Knowledge of the snow and assessment of the snow nature in-flight S.7.2 Knowledge of the glacier S.7.3 Life of the glacier S.7.4 Formation of the cracks S.7.5 Snow bridges S.7.6 Avalanches
8. Survival	
	S.8.1 Ways of survival (psychological aspects) S.8.2 Use of the equipments S.8.3 Removal of snow from the aircraft S.8.4 Building of a shelter S.8.5 How to eat and feed
FLIGHT INSTRUCTION	
WHEEL	SKI
I.- Navigation	
W.I.1 Flight techniques in the valleys W.I.2 Flight over mountain passes and ridges W.I.3 U-turn in narrow valleys W.I.4 Choice of the flight path of aerology W.I.5 Map reading	S.I.I Flight techniques in the valleys S.I.2 Flight over mountain passes and ridges. S.I.3 U-turn in narrow valleys S.I.4 Choice of the flight path of aerology S.I.5 Map reading
II. – Arrival and reconnaissance	

W.II.1 Choice of the altitude of arrival W.II.2 Choice of the arrival and overflight pattern W.II.3 Choice of the landing pattern W.II.4 Aerology awareness W.II.5 Evaluation of the length of the runway W.II.6 Evaluation of the runway profile (slope and banking) W.II.7 Collision avoidance. W.II.8 Definition of the references for the landing (touchdown point) W.II.9 Determination of the circuit pattern altitude W.II.10 Choice of the final speed depending on the runway profile	S.II.1 Choice of the arrival altitude S.II.2 Choice of the arrival and overflight pattern S.II.3 Description of the circuit pattern S.II.4 Aerology awareness S.II.5 Evaluation of the runway length S.II.6 Evaluation of the runway profile (slope and banking) S.II.7 Collision avoidance S.II.8 Definition of the references for the landing (touchdown point) S.II.9 Determination of the circuit pattern altitude S.II.10 Choice of the final speed depending on the runway profile S.II.11 Choice of the take-off axis S.II.12. Choice of the landing axis S.II.13 Choice of the parking area S.II.14 Observation of the obstacles on the ground (cracks, snow bridges, avalanches) S.II.15 Estimation of the snow nature
	S.II.16 Observation of the way to reach a refuge from the landing area
III – Approach and landing	
W.III.1 Landing pattern altitude W.III.2 Precision of flight along the landing path W.III.3 Corrections on the landing path (accuracy and effectiveness) W.III.4 Landing (precision of the flare and of the touchdown point) W.III.5 Taxiing (use of the engine power) on various profiles W.III.6 Parking of the aircraft (depending on the runway profile, the traffic, etc.)	S.III.1 Landing pattern altitude S.III.2 Precision of flight along the landing path S.III.3 Corrections on the landing path (accuracy and effectiveness) S.III.4 Landing (precision of the flare and of the touchdown point) S.III.5 Taxi of the aircraft on various snows and various runway profiles S.III.6 Parking of the aircraft (depending on the snow nature and the profile of the apron) S.III.7 Turns on various snow nature and various ground profiles
IV. – Take-off	
W.IV.1 Safety checks before take-off W.IV.2 Lining up on the runway W.IV.3 Control of the runway axis during take-off W.IV.4 Choice and use of the visual references of the take-off axis	S. IV.1 Safety checks before take-off. S.IV.2 Lining up on the runway S.IV.3 Control of the runway axis during take-off S.IV.4 Choice and use of the visual references of the take-off axis S.IV.5 Acceleration depending on the nature of the snow S.IV.6 Short take-off S.IV.7 Take-off avoiding the skid of the skis

V. - Survival	
	S.V.1 Use of the snowshoes S.V.2 Use of the markings

AMC2 LIC.815 Mountain rating

SKILL TEST AND PROFICIENCY CHECK

The skill test for the issue or the proficiency check for the revalidation or renewal of a mountain rating should contain the following elements:

(a) oral examination

These regulations should be done before the flight and should cover all the relevant parts of the theoretical knowledge. At least one question for each of the following sections should be asked:

(1) specific equipment for a mountain flight (personal and aircraft);

(2) rules of the mountain flight.

If the oral examination reveals a lack in theoretical knowledge, the flight test should not be done and the skill test is failed.

(b) practical skill test

During the flight test, two sites different from the departure airport should be used for recognition, approach, landing and take-off. For the mountain rating ski or the extension from wheel to ski, one of the two different sites should be a glacier.

AMC1 LIC.820 Flight test rating

TRAINING COURSE GENERAL

(a) Competency-based training:

(1) Training courses for the flight test rating should be competency-based. The training programme should follow as much as possible the syllabus outlined below, but may be adapted taking into account the previous experience, skill and theoretical knowledge level of the applicants.

(2) It should also be recognised that the syllabi below assume that suitable flight test experience will be gained subsequent to attendance at the course. Should the applicant be significantly experienced already, then consideration should be made of that experience and it is possible that course content might be reduced in areas where that experience has been obtained.

(3) Furthermore, it should be noted that flight test ratings are specific to both a certain category of aircraft (aeroplanes or helicopters) and to a certain category of flight test (category 1 or 2). Therefore, holders of a flight test rating wishing to extend their privileges to further categories of aircraft or to further categories of flight test (this is only relevant for holders of a category 2 flight test rating since the category one flight test rating includes the privileges for category 2 test flights) should not be requested to undertake the same course as an 'ab-initio' applicant. In

these cases, the ATO should develop specific 'bridge courses' taking into account the same principles mentioned above.

(4) To allow proper consideration of the applicant's previous experience, a pre-entry assessment of the applicant's skills should be undertaken by the applicant, on the basis of which the ATO may evaluate the level of the applicant to better tailor the course. Thus, the syllabi listed below should be regarded as a list of individual demonstrable competencies and qualifications rather than a list of mandatory training objectives.

(b) Continuous evaluation

Training courses for the flight test rating should be built on a continuous evaluation model to guarantee that successful completion of the course ensures that the applicant has reached the level of competence (both theoretical and practical) to be issued a flight test rating.

CONTENT OF THE COURSE

(c) In addition, the content of the course should vary taking into account whether the applicant seeks privileges for a category 1 or 2 flight test rating, as well as the relevant category of aircraft, and their level of complexity. To better take these factors into account, training courses for the flight test rating have been divided into two conditions:

(1) condition 1 courses apply to category 1 flight test ratings on:

(i) helicopters certificated in accordance with the standards of CS-27 or CS-29 or equivalent airworthiness codes;

(ii) aeroplanes certificated in accordance with:

(A) the standards of CS-25 or equivalent airworthiness codes; or

(B) the standards of CS-23 or equivalent airworthiness codes, within the commuter category or having an M_D above 0.6 or a maximum ceiling above 25 000 ft.

(2) condition 2 training courses apply to:

(i) category 2 flight test ratings for:

(A) helicopters certificated in accordance with the standards of CS-27 or CS-29 or equivalent airworthiness codes;

(B) aeroplanes certificated in accordance with:

(a) the standards of CS-25 or equivalent airworthiness codes; or

(b) the standards of CS-23 or equivalent airworthiness codes (included those mentioned in (c)(1)(ii)(B)), except for aeroplanes with a maximum take-off mass of less than 2 000 kg.

(ii) category 1 flight tests for aeroplanes certificated in accordance with the standards of CS-23, with a maximum take-off mass of more than 2 000kg, with the exclusion of those mentioned in (c)(1)(ii)(B) (which are subject to condition 1 courses).

AEROPLANES

(d) Condition 1 courses for aeroplanes

(1) These courses should include approximately:

(i) 350 hours of ground training;

(ii) 100 hours of flight test training, during which at least 15 flights should be made without an instructor on board;

(iii) principles of test management and risk and safety managements should be integrated throughout the course. In addition, principles and methods applicable to the certification activity, as well as safety assessments should be taught.

(2) These courses should include instruction on at least 10 different aeroplane types, of which at least one should be certificated in accordance with CS-25 standards or equivalent airworthiness codes.

(3) During the course the student should be required to develop at least five substantial flight test reports.

(4) The student should be evaluated through examinations on all of the theoretical knowledge subjects, and undertake a final in-flight test upon completion of the syllabus.

(5) Syllabus. The following subjects should be covered in the course:

CONDITION 1 - AEROPLANES		
Theoretical knowledge	(a) aerodynamics; (b) stability and control or handling qualities; (c) engines and performance; (d) measurements and flight test instrumentation (including telemetry).	
Flight test techniques and flight training	(a) performance:	(1) air speed calibration; (2) climb ME; (3) take-off and landing, including turboprop or turbofan OEI. (at least one flight test report should be developed)

	(b) engines	Turboprop or turbofan limitations and relight envelope
	(c) handling qualities (at least two flight test reports should be developed)	(1) flight controls characteristics; (2) longitudinal handling qualities; (3) longitudinal manoeuvre stability; (4) take-off and landing MET or ME turbofan, including v_{mcq} and v_{mu}; (5) lateral, directional handling qualities; (6) handling qualities evaluation; (7) variable stability demo flights including HOFCS; (8) stalls; (9) spins; (10) v_{mca}.
	(d) systems (at least one flight test report should be developed)	At least three different systems, for example: (1) autopilot or AFCS; (2) glass cockpit evaluation; (3) radio navigation, instruments qualification and integrated avionics; (4) TAWS; (5) ACAS.
	(e) high speed certification test	
	(f) final evaluation exercise (a flight test report should be developed)	

(e) Condition 2 courses for aeroplanes

(1) These courses should include approximately:

(i) 150 hours of ground training;

(ii) 50 hours of flight test training, during which at least eight flights should be made without an instructor on board.

Principles of test management and risk and safety managements should be integrated throughout the course. In addition, principles and methods applicable to the certification activity, as well as safety assessments should be taught.

(2) These courses should include instruction on at least seven different aeroplane types, of which at least one should be certificated in accordance with CS-25 standards or equivalent airworthiness codes.

(3) During the course the student should be required to develop at least three substantial flight test reports.

(4) The student should be evaluated through examinations on all of the theoretical knowledge subjects, and undertake a final in-flight test upon completion of the syllabus.

(5) Syllabus. The following subjects should be covered in the course:

CONDITION 2 - AEROPLANES		
Theoretical knowledge	(a) aerodynamics; (b) stability and control or handling qualities; (c) engines and performance; (d) measurements and flight test instrumentation (including telemetry).	
Flight test techniques and flight training	(a) performance: (at least one flight test report should be developed)	(1) air speed calibration; (2) climb ME; (3) take-off and landing MET or ME turbofan.
	(b) handling qualities	(1) flight control characteristics; (2) longitudinal static, dynamic stability and control or handling qualities; (3) lateral, directional stability and control or handling qualities; (4) stalls; (5) spins.
	(c) systems	At least three different systems, for example: (1) autopilot or AFCS; (2) glass cockpit evaluation; (3) radio navigation, instruments qualification and integrated avionics; (4) TAWS; (5) ACAS. (at least one flight test report should be developed)
	(d) final evaluation exercise (a) flight test report should be developed)	

HELICOPTERS

(f) Condition 1 courses for helicopters:

(1) These courses should include approximately:

(i) 350 hours of ground training;

(ii) 100 hours of flight test training, during which at least 20 flights should be made without an instructor on board.

Principles of test management and risk and safety managements should be integrated throughout the course. In addition, principles and methods applicable to the certification activity, as well as safety assessments should be taught.

(2) These courses should include instruction on at least eight different helicopter types, of which at least one should be certificated in accordance with CS-29 standards or equivalent airworthiness codes.

(3) During the course the student should be required to develop at least five substantial flight test reports.

(4) The student should be evaluated through examinations on all of the theoretical knowledge subjects, and undertake a final in-flight test upon completion of the syllabus.

(5) Syllabus. The following subjects should be covered in the course:

CONDITION 1 - HELICOPTERS	
Theoretical knowledge	(a) aerodynamics; (b) stability and control or handling qualities; (c) engines and performance; (d) measurements and flight test instrumentation (including telemetry).
Flight test techniques and flight training	(a) performance: (1) air speed calibration; (2) level flight, climb and descent, vertical and hover performance; (at least one flight test report should be developed)
	(b) engines (1) digital engine governing; (2) turbine or piston engine evaluation.

	(c) handling qualities (1) flight control characteristics; (2) longitudinal static, dynamic stability and control or handling qualities; (3) lateral, directional dynamic stability and control or handling qualities; (4) ADS 33; (5) teetering rotor assessment; (6) rigid rotor assessment; (7) variable stability demo flights including HOFCS. (at least one flight test report should be developed)
	(d) systems At least three different systems,for example: (1) navigation management systems) (2) autopilot or AFCS; (3) night vision goggles or electro-optics; (4) glass cockpit evaluation; (at least one flight test report should be developed)
	(e) height and velocity envelope and EOL, including relights
	(f) category A procedure
	(g) vibrations and rotor adjustments
	(h) auto rotations
	(i) final evaluation exercise (a flight test report should be developed)

(g) Condition 2 courses for helicopters

(1) These courses should include approximately:

(i) 150 hours of ground training;

(ii) 50 hours of flight test training, during which at least eight flights should be made without an instructor on board.

Principles of test management and risk and safety management should be integrated throughout the course. In addition, principles and methods applicable to the certification activity, as well as safety assessments should be taught.

(2) These courses should include instruction on at least four different helicopters types, of which at least one should be certificated in accordance with CS-29 standards or equivalent airworthiness codes.

(3) During the course the student should be required to develop at least three substantial flight test reports.

(4) The student should be evaluated through examinations on all of the theoretical knowledge subjects, and undertake a final in-flight test upon completion of the syllabus.

(5) Syllabus. The following subjects should be covered in the course:

CONDITION 2 - HELICOPTERS	
Theoretical knowledge	(a) aerodynamics; (b) stability and control or handling qualities; (c) engines and performance; (d) measurements and flight test instrumentation (including telemetry).
Flight test techniques and flight training	(a) performance: (1) air speed calibration; (2) level flight, climb and descent, vertical and hover performance. (at least one flight test report should be developed)
	(b) engines (1) digital engines governing; (2) turbine or piston engine evaluation.
	(c) handling qualities (1) flight control characteristics; (2) longitudinal static, dynamic stability and control or handling qualities; (3) lateral, directional stability and control or handling qualities.

	(d) systems At least three different systems, for example: (1) navigation management systems; (2) autopilot or AFCS; (3) night vision goggles or electro-optics; (4) glass cockpit evaluation. (at least one flight test report should be developed)
	(e) vibration and rotor adjustments
	(f) final evaluation exercise (a flight test report should be developed)

SUBPART J

INSTRUCTORS

GM1 LIC.900 Instructor certificates

GENERAL

(a) Nin e instructor categories are recognised:

(1) FI certificate: aeroplane (FI(A)), helicopter (FI(H)), airship (FI(As)), sailplane (FI(S)) and balloon (FI(B));

(2) TRI certificate: aeroplane (TRI(A)), helicopter (TRI(H)), powered-lift aircraft (TRI(PL));

(3) CRI certificate: aeroplane (CRI(A));

(4) IRI certificate: aeroplane (IRI(A)), helicopter (IRI(H)) and airship (IRI(As));

(5) SFI certificate: aeroplane (SFI(A)), helicopter (SFI(H)) and powered-lift aircraft (SFI(PL));

(6) MCCI certificate: aeroplanes (MCCI(A)), helicopters (MCCI(H)), powered-lift aircraft(MCCI(PL)) and airships (MCCI(As));

(7) STI certificate: aeroplane (STI(A)) and helicopter (STI(H));

(8) MI certificate: (MI);

(9) FTI certificate: (FTI).

(b) For categories (1) to (4) and for (8) and (9) the applicant needs to hold a pilot licence. For categories (5) to (7) no licence is needed, only an instructor certificate.

(c) A person may hold more than one instructor certificate.

SPECIAL CONDITIONS

(a) When new aircraft are introduced, requirements such as to hold a licence and rating equivalent to the one for which instruction is being given, or to have adequate flight experience, may not be possible to comply with. In this case, to allow for the first instruction courses to be given to applicants for licences or ratings for these aircraft, competent authorities need the possibility to issue a specific certificate that does not have to comply with the requirements established in this Subpart.

(b) The Authority should only give these certificates to holders of other instruction qualifications. As far as possible, preference should be given to persons with at least 100 hours of experience in similar types or classes of aircraft.

(c) When the new aircraft type introduced in an operator's fleet already existed on the San Marino Registry, the Authority should only give the specific certificate to an applicant that is qualified as PIC on that aircraft.

(d) The certificate should ideally be limited in validity to the time needed to qualify the first instructors for the new aircraft in accordance with this Subpart, but in any case it should not exceed the 1 year established in the rule.

AMC1 LIC.920 Instructor competencies and assessment

(a) Training should be both theoretical and practical. Practical elements should include the development of specific instructor skills, particularly in the area of teaching and assessing threat and error management and CRM.

(b) The training and assessment of instructors should be made against the following performance standards:

Competence	Performance	Knowledge
Prepare resources	(a) ensures adequate facilities; (b) prepares briefing material; (c) manages available tools.	(a) understand objectives; (b) available tools; (c) competency-based training methods.
Create a climate conducive to learning	(a) establishes credentials, role models appropriate behaviour; (b) clarifies roles; (c) states objectives; (d) ascertains and supports trainees needs.	(a) barriers to learning; (b) learning styles.
Present knowledge	(a) communicates clearly; (b) creates and sustains realism; (c) looks for training opportunities.	teaching methods.
Integrate TEM or CRM	makes TEM or CRM links with technical training.	HF, TEM or CRM.
Manage time to achieve training objectives	allocates time appropriate to achieving competency objective.	syllabus time allocation.

Facilitate learning	(a) encourages trainee participation; (b) shows motivating, patient, confident and assertive manner; (c) conducts one-to-one coaching; (d) encourages mutual support.	(a) facilitation; (b) how to give constructive feedback; (c) how to encourage trainees to ask questions and seek advice;
Assesses trainee performance	(a) assesses and encourages trainee self-assessment of performance against competency standards; (b) makes assessment decision and provide clear feedback; (c) observes CRM behaviour.	(a) observation techniques; (b) methods for recording observations.
Monitor and review progress	(a) compares individual outcomes to defined objectives; (b) identifies individual differences in learning rates; (c) applies appropriate corrective action.	(a) learning styles; (b) strategies for training adaptation to meet individual needs.
Evaluate training sessions	(a) elicits feedback from trainees; (b) tracks training session processes against competence criteria; (c) keeps appropriate records.	(a) competency unit and associated elements; (b) performance criteria.
Report outcome	reports accurately using only observed actions and events.	(a) phase training objectives; (b) individual versus systemic weaknesses.

AMC1 LIC.925 Additional requirements for instructors for the MPL

MPL INSTRUCTOR COURSE

(a) The objectives of the MPL instructors training course are to train applicants to deliver training in accordance with the features of a competency-based approach to training and assessment.

(b) Training should be both theoretical and practical. Practical elements should include the development of specific instructor skills, particularly in the area of teaching and assessing threat and error management and CRM in the multi-crew environment.

(c) The course is intended to adapt instructors to conduct competency-based MPL training. It should cover the items specified below:

THEORETICAL KNOWLEDGE

(d) Integration of operators and organisations providing MPL training:

(1) reasons for development of the MPL;

(2) MPL training course objective;

(3) adoption of harmonised training and procedures;

(4) feedback process.

(e) The philosophy of a competency-based approach to training: principles of competency-based training.

(f) Regulatory framework, instructor qualifications and competencies:

(1) source documentation;

(2) instructor qualifications;

(3) syllabus structure.

(g) Introduction to Instructional systems design methodologies (see ICAO PANS-TRG Doc):

(1) analysis;

(2) design and production;

(3) evaluation and revision.

(h) Introduction to the MPL training scheme:

(1) training phases and content;

(2) training media;

(3) competency units, elements and performance criteria.

(i) Introduction to human performance limitations, including the principles of threat and error management and appropriate countermeasures developed in CRM:

(1) definitions;

(2) appropriate behaviours categories;

(3) assessment system.

(j) Application of the principles of threat and error management and CRM principles to training:

(1) application and practical uses;

(2) assessment methods;

(3) individual corrective actions;

(4) debriefing techniques.

(k) The purpose and conduct of assessments and evaluations:

(1) basis for continuous assessment against a defined competency standard;

(2) individual assessment;

(3) collection and analysis of data;

(4) training system evaluation.

PRACTICAL TRAINING

(l) Practical training may be conducted by interactive group classroom modules, or by the use of training devices. The objective is to enable instructors to:

(1) identify behaviours based on observable actions in the following areas:

(i) communications;

(ii) team working;

(iii) situation awareness;

(iv) workload management;

(v) problem solving and decision making.

(2) analyse the root causes of undesirable behaviours;

(3) debrief students using appropriate techniques, in particular:

(i) use of facilitative techniques;

(ii) encouragement of student self-analysis.

(4) agree corrective actions with the students;

(5) determine achievement of the required competency.

AMC2 LIC.925(d)(1) Additional requirements for instructors for the MPL

RENEWAL OF PRIVILEGES: REFRESHER TRAINING

(a) Paragraph (d) of LIC.925 determines that if the applicant has not complied with the requirements to maintain his/her privileges to conduct competency-based approach training, he or she shall receive refresher training at an ATO to reach the level of competence necessary to pass the assessment of instructor competencies. The amount of refresher training needed should be determined on a case-by-case basis by the ATO, taking into account the following factors:

(1) the experience of the applicant;

(2) the amount of time lapsed since the last time the applicant has conducted training in an MPL course. The amount of training needed to reach the desired level of competence should increase with the time lapsed. In some cases, after evaluating the instructor, and when the time lapsed is very limited, the ATO may even determine that no further refresher training is necessary.

(b) Once the ATO has determined the needs of the applicant, it should develop an individual training programme, which should be based on the MPL instructor course and focus on the aspects where the applicant has shown the greatest needs.

GM1 LIC.925 Additional requirements for instructors for the MPL

MPL INSTRUCTORS

The following table summarises the instructor qualifications for each phase of MPL integrated training course:

Phase of training	Qualification
Line flying under supervision according to operational requirements	Line training captain or TRI(A)
Phase 4: Advanced base training	TRI(A)
Phase 4: Advanced skill test	TRE(A)
Phase 4: Advanced	SFI(A) or TRI(A)
Phase 3: Intermediate	SFI(A) or TRI(A)
Phase 2: Basic	(a) FI(A) or IRI(A) and IR(A)/ME/MCC and 1500 hours multi-crew environment and IR(A) instructional privileges, or (b) FI(A) and MCCI(A), or (c) FI(A) and SFI(A), or (d) FI(A) and TRI(A)

Phase 1: Core flying skills	FI(A) and 500 hours, including 200 hours of instruction Instructor qualifications and privileges should be in accordance with the training items within the phase. STI for appropriate exercises conducted in an FNPT or BITD.

AMC1 LIC.935 Assessment of competence

GENERAL

(a) The format and application form for the assessment of competence are determined by the Authority.

(b) When an aircraft is used for the assessment, it should meet the requirements for training aircraft.

(c) If an aircraft is used for the test or check, the examiner acts as the PIC, except in circumstances agreed upon by the examiner when another instructor is designated as PIC for the flight.

(d) During the skill test the applicant occupies the seat normally occupied by the instructor (instructors seat if in an FSTD, or pilot seat if in an aircraft), except in the case of balloons. The examiner, another instructor or, for MPA in an FFS, a real crew under instruction, functions as the 'student'. The applicant is required to explain the relevant exercises and to demonstrate their conduct to the 'student', where appropriate. Thereafter, the 'student' executes the same manoeuvres (if the 'student' is the examiner or another instructor, this can include typical mistakes of inexperienced students). The applicant is expected to correct mistakes orally or, if necessary, by intervening physically.

(e) The assessment of competence should also include additional demonstration exercises, as decided by the examiner and agreed upon with the applicant before the assessment. These additional exercises should be related to the training requirements for the applicable instructor certificate.

(f) All relevant exercises should be completed within a period of 6 months. However, all exercises should, where possible, be completed on the same day. In principle, failure in any exercise requires a retest covering all exercises, with the exception of those that may be retaken separately. The examiner may terminate the assessment at any stage if they consider that a retest is required.

AMC2 LIC.935 Assessment of competence

MCCI, STI AND MI

In the case of the MCCI, STI and MI, the instructor competencies are assessed continuously during the training course.

AMC3 LIC.935 Assessment of competence

CONTENT OF THE ASSESSMENT FOR THE FI

(a) In the case of the FI, the content of the assessment of competence should be the following:

SECTION 1 THEORETICAL KNOWLEDGE ORAL	
1.1	Air law
1.2	Aircraft general knowledge
1.3	Flight performance and planning
1.4	Human performance and limitations
1.5	Meteorology
1.6	Navigation
1.7	Operational procedures
1.8	Principles of flight
1.9	Training administration

Sections 2 and 3 selected main exercises:

SECTION 2 PRE-FLIGHT BRIEFING	
2.1	Visual presentation
2.3	Technical accuracy
2.4	Clarity of explanation
2.5	Clarity of speech
2.6	Instructional technique
2.7	Use of models and aids
2.8	Student participation
SECTION 3 FLIGHT	
3.1	Arrangement of demo
3.2	Synchronisation of speech with demo
3.3	Correction of faults

3.4	Aircraft handling
3.5	Instructional technique
3.6	General airmanship and safety
3.7	Positioning and use of airspace
SECTION 4 ME EXERCISES	
4.1	Actions following an engine failure shortly after take-off1
4.2	SE approach and go-around1
4.3	SE approach and landing1

1 These exercises are to be demonstrated at the assessment of competence for FI for ME aircraft.

SECTION 5 POST-FLIGHT DE-BRIEFING	
5.1	Visual presentation
5.2	Technical accuracy
5.3	Clarity of explanation
5.4	Clarity of speech
5.5	Instructional technique
5.6	Use of models and aids
5.7	Student participation

(b) Section 1, the oral theoretical knowledge examination part of the assessment of competence, is for all FI and is subdivided into two parts:

(1) The applicant is required to give a lecture under test conditions to other ‘student(s)’, one of whom will be the examiner. The test lecture is to be selected from items of section 1. The amount of time for preparation of the test lecture is agreed upon beforehand with the examiner. Appropriate literature may be used by the applicant. The test lecture should not exceed 45 minutes;

(2) The applicant is tested orally by an examiner for knowledge of items of section 1 and the ‘core instructor competencies: teaching and learning’ content given in the instructor courses.

(c) Sections 2, 3 and 5 are for all FIs. These sections comprise exercises to demonstrate the ability to be an FI (for example instructor demonstration exercises) chosen by the examiner from the flight syllabus of the FI training courses. The applicant is required to demonstrate FI abilities, including briefing, flight instruction and de-briefing.

(d) Section 4 comprises additional instructor demonstration exercises for an FI for ME aircraft. This section, if applicable, is done in an ME aircraft, or an FFS or FNPT II simulating an ME aircraft. This section is completed in addition to sections 2, 3 and 5.

AMC4 LIC.935 Assessment of competence

CONTENT OF THE ASSESSMENT FOR THE SFI

The assessment should consist of at least 3 hours of flight instruction related to the duties of an SFI on the applicable FFS or FTD 2/3.

AMC5 LIC.935 Assessment of competence

REPORT FORMS FOR THE INSTRUCTOR CERTIFICATES

(a) Assessment of competence form for the FI, IRI and CRI certificates:

<table>
<tr><th colspan="4">APPLICATION AND REPORT FORM FOR THE INSTRUCTOR ASSESSMENT OF COMPETENCE</th></tr>
<tr><td colspan="4">1 Applicants personal particulars:</td></tr>
<tr><td>Applicant’s last name(s):</td><td></td><td>First name(s):</td><td></td></tr>
<tr><td>Date of birth:</td><td></td><td>Tel (home):</td><td>Tel (work):</td></tr>
<tr><td>Address:</td><td></td><td>Country:</td><td></td></tr>
</table>

<table>
<tr><td colspan="5">2 Licence details</td></tr>
<tr><td>Licence type:</td><td></td><td>Number:</td><td colspan="2"></td></tr>
<tr><td>Class ratings included in the licence:</td><td></td><td>Exp. Date:</td><td colspan="2"></td></tr>
<tr><td rowspan="5">Type ratings included in the licence:</td><td colspan="4">1.</td></tr>
<tr><td colspan="4">2.</td></tr>
<tr><td colspan="4">3.</td></tr>
<tr><td colspan="4">4.</td></tr>
<tr><td colspan="4">5.</td></tr>
<tr><td rowspan="3">Other ratings included in the licence:</td><td colspan="4">1.</td></tr>
<tr><td colspan="4">2.</td></tr>
<tr><td colspan="4">3.</td></tr>
</table>

	4.
	5.

3 Pre-course flying experience				
Total flying hours	PIC SEP or TMG hours	SEP preceding 6 months	Instrument flight instruction	Cross-country hours

4 Pre-entry flight test	
I recommend ....for the FI course.	
Name of ATO:	Date of flight test:
Name(s) of FI conducting the test (capital letters):	
Licence number:	
Signature:	

5 Declaration by the applicant					
I have received a course of training in accordance with the syllabus for the: *(tick as applicable)*					
FI certificate FI(A)/(H)/(As)		IRI certificate IRI(A)/(H)/(As)		CRI certificate CRI(A)	
Applicant's name(s): (capital letters)			Signature:		

6 Declaration by the CFI					
I certify that .... has satisfactorily completed an approved course of training for the					
FI certificate FI(A)/(H)/(As)		IRI certificate IRI(A)/(H)/(As)		CRI certificate CRI(A)	
in accordance with the relevant syllabus.					
Flying hours during the course:					
Aircraft or FSTDs used :					
Name(s) of CFI:					
Signature:					
Name of ATO:					

7 Flight instructor examiner's certificate			
I have tested the applicant according to CAR LIC			
A. FLIGHT INSTRUCTOR EXAMINER'S ASSESSMENT (in case of partial pass):			
Theoretical oral examination:		Skill test:	
Passed	***Failed***	***Passed***	***Failed***

	I recommend further flight or ground training with an instructor before re-test
	I do not consider further flight or theoretical instruction necessary before re-test *(tick as applicable)*
B. FLIGHT INSTRUCTOR EXAMINER'S ASSESSMENT:	
	FI certificate
	IRI certificate
	CRI certificate
	(tick as applicable)
Name(s) of FIE (capital letters):	
Signature:	
Licence number:	Date:

(b) Report form for the FI for sailplanes

APPLICATION AND REPORT FORM FOR THE FI(S) ASSESSMENT OF COMPETENCE				
1	**Applicants personal particulars:**			
Applicant's last name(s):		First name(s):		
Date of birth:		Tel (home):	Tel (work):	
Address:		Country:		
2	**Licence Details**			
Licence type:		Number:		
TMG extension:				
3	**Pre-course flying experience**			
Total hours	PIC hours	Sailplane (PIC hours and take-offs)	TMG (PIC hours and take-offs)	
4	**Pre-entry flight test**			
I recommend ....for the FI course.				
Name of ATO:		Date of flight test:		
Name(s) of FI conducting the test (capital letters):				
Licence number:				

Signature:							
5	**Declaration by the applicant**						
I have received a course of training in accordance with the syllabus for the:							
FI certificate FI(S)							
Applicant's name(s):				Signature:			
(capital letters)							
6	**Declaration by the chief flight instructor**						
I certify that .... has satisfactorily completed a course of training for the							
FI certificate FI(S)							
In accordance with the relevant syllabus.							
Flying hours during the course:			Take-offs during the course:				
Sailplanes, powered sailplanes or TMGs used :							
Name(s) of CFI:							
Signature:							
Name of ATO:							
7	**Flight instructor examiner's certificate**						
I have tested the applicant according to CAR LIC							
A. FLIGHT INSTRUCTOR EXAMINER'S ASSESSMENT (in case of partial pass):							
Theoretical oral examination:				Skill test:			
Passed		***Failed***		***Passed***		***Failed***	
	I recommend further flight or ground training with an FI before re-test						
	I do not consider further flight or theoretical instruction necessary before re-test *(tick as applicable)*						
B. FLIGHT INSTRUCTOR EXAMINER'S ASSESSMENT:							
	FI certificate						
	Date:						
Name(s) of FIE (capital letters):							
Signature:							
Licence number:					Date:		

(c) Report form for the FI for balloons:

APPLICATION AND REPORT FORM FOR THE FI(B) ASSESSMENT OF COMPETENCE

1	**Applicants personal particulars:**		
Applicant's last name(s):		First name(s):	
Date of birth:		Tel (home):	Tel (work):
Address:		Country:	
2	**Licence Details**		
Licence type:		Number:	
Class extensions:	1.	Groups:	
	2.	Groups:	
	3.	Groups:	

3	**Pre-course flying experience**			
Total flying hours in different groups	PIC hours	Hot-air balloon	Gas balloon	Hot-air airship

4	**Pre-entry flight test**
I recommend ....for the FI course	
Name of ATO:	Date of flight test:
Name(s) of FI conducting the test (capital letters):	
Licence number:	
Signature:	

5	**Declaration by the applicant**				
I have received a course of training in accordance with the syllabus for the:					
FI certificate FI(B)					
Applicant's name(s): (capital letters)			Signature:		

6	**Declaration by the chief flight instructor**			
I certify that .... has satisfactorily completed a course of training for the				
FI certificate FI(B)				
in accordance with the relevant syllabus.				
Flying hours during the course:	Take-offs during the course:			

Balloons, hot-air airships used:			
Name(s) of CFI:			
Signature:			
Name of ATO:			
7	**Flight Instructor examiner's certificate**		
I have tested the applicant according to CAR LIC			
A – FLIGHT INSTRUCTOR EXAMINER'S ASSESSMENT in case of partial pass:			
Theoretical oral examination:		Skill test:	
Passed	***Failed***	***Passed***	***Failed***
	I recommend further flight or ground training with an FI before re-test		
	I do not consider further flight or theoretical instruction necessary before re-test *(tick as applicable)*		
B – FLIGHT INSTRUCTOR EXAMINER'S ASSESSMENT:			
	FI certificate		
Name(s) of FIE (capital letters):			
Signature:			
Licence number:		Date:	

AMC1 LIC.930.FI FI — Training course

FI(A), FI(H) AND FI(AS) TRAINING COURSE GENERAL

(a) The aim of the FI training course is to train aircraft licence holders to the level of competence defined in LIC.920.

(b) The training course should develop safety awareness throughout by teaching the knowledge, skills and attitudes relevant to the FI task including at least the following:

(1) refresh the technical knowledge of the student instructor;

(2) train the student instructor to teach the ground subjects and air exercises;

(3) ensure that the student instructor's flying is of a sufficiently high standard;

(4) teach the student instructor the principles of basic instruction and to apply them at the PPL level.

FLIGHT INSTRUCTION

(c) The remaining 5 hours in LIC.930.FI (b)(3) may be mutual flying (that is, two applicants flying together to practice flight demonstrations).

(d) The skill test is additional to the course training time.

CONTENT

(e) The training course consists of two parts:

(1) Part 1, theoretical knowledge, including the teaching and learning instruction that should comply with AMC1 LIC.920;

(2) Part 2, flight instruction.

Part 1

TEACHING AND LEARNING

(a) The course should include at least 125 hours of theoretical knowledge instruction, including at least 25 hours teaching and learning instruction.

CONTENT OF THE TEACHING AND LEARNING INSTRUCTIONS (INSTRUCTIONAL TECHNIQUES):

(b) The learning process:

(1) motivation;

(2) perception and understanding;

(3) memory and its application;

(4) habits and transfer;

(5) obstacles to learning;

(6) incentives to learning;

(7) learning methods;

(8) rates of learning.

(c) The teaching process:

(1) elements of effective teaching;

(2) planning of instructional activity;

(3) teaching methods;

(4) teaching from the ‘known’ to the ‘unknown’;

(5) use of ‘lesson plans’.

(d) Training philosophies:

(1) value of a structured (approved) course of training;

(2) importance of a planned syllabus;

(3) integration of theoretical knowledge and flight instruction;

(e) Techniques of applied instruction:

(1) theoretical knowledge: classroom instruction techniques:

(i) use of training aids;

(ii) group lectures;

(iii) individual briefings;

(iv) student participation or discussion.

(2) flight: airborne instruction techniques:

(i) the flight or cockpit environment;

(ii) techniques of applied instruction;

(iii) post-flight and in-flight judgement and decision making.

(f) Student evaluation and testing:

(1) assessment of student performance:

(i) the function of progress tests;

(ii) recall of knowledge;

(iii) translation of knowledge into understanding;

(iv) development of understanding into actions;

(v) the need to evaluate rate of progress.

(2) analysis of student errors:

(i) establish the reason for errors;

(ii) tackle major faults first, minor faults second;

(iii) avoidance of over criticism;

(iv) the need for clear concise communication.

(g) Training programme development:

(1) lesson planning;

(2) preparation;

(3) explanation and demonstration;

(4) student participation and practice;

(5) evaluation.

(h) Human performance and limitations relevant to flight instruction:

(1) physiological factors:

(i) psychological factors;

(ii) human information processing;

(iii) behavioural attitudes;

(iv) development of judgement and decision making.

(2) threat and error management.

(i) Specific hazards involved in simulating systems failures and malfunctions in the aircraft during flight:

(1) importance of 'touch drills';

(2) situational awareness;

(3) adherence to correct procedures.

(j) Training administration:

(1) flight or theoretical knowledge instruction records;

(2) pilot's personal flying logbook;

(3) the flight or ground curriculum;

(4) study material;

(5) official forms;

(6) flight manual or equivalent document (for example owner's manual or pilot's operating handbook);

(7) flight authorisation papers;

(8) aircraft documents;

(9) the private pilot's licence regulations.

A. Aeroplanes

Part 2

AIR EXERCISES

(a) The air exercises are similar to those used for the training of PPL(A) but with additional items designed to cover the needs of an FI.

(b) The numbering of exercises should be used primarily as an exercise reference list and as a broad instructional sequencing guide: therefore the demonstrations and practices need not necessarily be given in the order listed. The actual order and content will depend upon the following interrelated factors:

(1) the applicant's progress and ability;

(2) the weather conditions affecting the flight;

(3) the flight time available;

(4) instructional technique considerations;

(5) the local operating environment.

(c) It follows that student instructors will eventually be faced with similar interrelated factors. They should be shown and taught how to construct flight lesson plans, taking these factors into account, so as to make the best use of each flight lesson, combining parts of the set exercises as necessary.

GENERAL

(d) The briefing normally includes a statement of the aim and a brief allusion to principles of flight only if relevant. An explanation is to be given of exactly what air exercises are to be taught by the instructor and practised by the student during the flight. It should include information on how the flight will be conducted, who is to fly the aeroplane and what airmanship, weather and flight safety aspects currently apply. The nature of the lesson will govern the order in which the constituent parts are to be taught.

(e) The four basic components of the briefing will be:

(1) the aim;

(2) principles of flight (briefest reference only);

(3) the air exercise(s) (what, and how and by whom);

(4) airmanship (weather, flight safety etc.).

PLANNING OF FLIGHT LESSONS

(f) The preparation of lesson plans is an essential prerequisite of good instruction and the student instructor is to be given supervised practice in the planning and practical application of flight lesson plans.

GENERAL CONSIDERATIONS

(g) The student instructor should complete flight training to practise the principles of basic instruction at the PPL(A) level.

(h) During this training, except when acting as a student pilot for mutual flights, the student instructor occupies the seat normally occupied by the FI(A).

(i) It is to be noted that airmanship and look-out is a vital ingredient of all flight operations. Therefore, in the following air exercises the relevant aspects of airmanship are to be stressed at all times.

(j) If the privileges of the FI(A) certificate are to include instruction for night flying, exercises 19 and 20 of the flight instruction syllabus should be undertaken at night in addition to by day either as part of the course or subsequent to certification issue.

(k) The student instructor should learn how to identify common errors and how to correct them properly, which should be emphasised at all times.

SYLLABUS OF FLIGHT INSTRUCTION CONTENTS

LONG BRIEFINGS AND AIR EXERCISES

Note: though exercise 11b is not required for the PPL(A) course, it is a requirement for the FI course.

EXERCISE 1: FAMILIARISATION WITH THE AEROPLANE

(a) Long briefing objectives:

(1) introduction to the aeroplane;

(2) explanation of the cockpit layout;

(3) aeroplane and engine systems;

(4) checklists, drills and controls;

(5) propeller safety;

(i) precautions general;

(ii) precautions before and during hand turning;

(iii) hand swinging technique for starting (if applicable to type).

(6) differences when occupying the instructor's seat;

(7) emergency drills:

(i) action if fire in the air and on the ground: engine, cock cabin and electrical fire; or

(ii) system failure as applicable to type;

(iii) escape drills: location and use of emergency equipment and exits.

(b) Air exercise: all long briefing objectives mentioned above should also be trained on site during the air exercise.

EXERCISE 2: PREPARATION FOR AND ACTION AFTER FLIGHT

(a) Long briefing objectives:

(1) flight authorisation and aeroplane acceptance, including technical log (if applicable) and certificate of maintenance;

(2) equipment required for flight (maps, etc.);

(3) external checks;

(4) internal checks;

(5) student comfort, harness, seat or rudder pedal adjustment;

(6) starting and warming up checks;

(7) power checks;

(8) running down, system checks and switching off the engine;

(9) leaving the aeroplane, parking, security and picketing;

(10) completion of authorisation sheet and aeroplane serviceability documents.

(b) Air exercise: all long briefing objectives mentioned above should also be trained on site during the air exercise.

EXERCISE 3: AIR EXPERIENCE

(a) Long briefing objectives:

Note: there is no requirement for a long briefing for this exercise.

(b) Air exercise:

(1) air experience;

(2) cockpit layout, ergonomics and controls;

(3) cockpit procedures: stability and control.

EXERCISE 4: EFFECTS OF CONTROLS

(a) Long briefing objectives:

(1) function of primary flying controls: when laterally level and banked;

(2) further effect of ailerons and rudder;

(3) effect of inertia;

(4) effect of air speed;

(5) effect of slipstream;

(6) effect of power;

(7) effect of trimming controls;

(8) effect of flaps;

(9) operation of mixture control;

(10) operation of carburettor heat control;

(11) operation of cabin heat or ventilation systems;

(b) Air exercise:

(1) primary effects of flying controls: when laterally level and banked;

(2) further effects of ailerons and rudder;

(3) effect of air speed;

(4) effect of slipstream;

(5) effect of power;

(6) effect of trimming controls;

(7) effect of flaps;

(8) operation of mixture control;

(9) operation of carburettor heat control;

(10) operation of cabin heat or ventilation systems;

(11) effect of other controls as applicable.

EXERCISE 5: TAXIING

(a) Long briefing objectives:

(1) pre-taxiing checks;

(2) starting, control of speed and stopping;

(3) engine handling;

(4) control of direction and turning (including manoeuvring in confined spaces);

(5) parking area procedures and precautions;

(6) effect of wind and use of flying controls;

(7) effect of ground surface;

(8) freedom of Rudder movement;

(9) marshalling signals;

(10) instrument checks;

(11) ATC procedures;

(12) emergencies: steering failure and brake failure.

(b) Air exercise:

(1) pre-taxiing checks;

(2) starting, control of speed and stopping;

(3) engine handling;

(4) control of direction and turning;

(5) turning in confined spaces;

(6) parking area procedures and precautions;

(7) effect of wind and use of flying control;

(8) effect of ground surface;

(9) freedom of Rudder movement;

(10) marshalling signals;

(11) instrument checks;

(12) ATC procedures;

(13) emergencies: steering failure and brake failure.

EXERCISE 6: STRAIGHT AND LEVEL FLIGHT

(a) Long briefing objectives:

(1) the forces;

(2) longitudinal stability and control in pitch;

(3) relationship of CG to control in pitch;

(4) lateral and directional stability (control of balance); lateral level and

(5) attitude and balance control;

(6) trimming;

(7) power settings and air speeds;

(8) drag and power curves;

(9) range and endurance.

(b) Air exercise:

(1) at normal cruising power;

(2) attaining and maintaining straight and level flight;

(3) demonstration of inherent stability;

(4) control in pitch, including use of elevator trim control;

(5) lateral level, direction and balance, use of rudder trim controls as applicable at selected air speeds (use of power):

(i) effect of drag and use of power (two air speeds for one power setting);

(ii) straight and level in different aeroplane configurations (flaps and landing gear);

(iii) use of instruments to achieve precision flight.

EXERCISE 7: CLIMBING

(a) Long briefing objectives:

(1) the forces;

(2) relationship between power or air speed and rate of climb (power) curves maximum rate of climb (v_y));

(3) effect of mass;

(4) effect of flaps;

(5) engine considerations;

(6) effect of density altitude;

(7) the cruise climb;

(8) maximum angle of climb (v_x).

(b) Air exercise:

(1) entry and maintaining the normal maximum rate climb;

(2) levelling off;

(3) levelling off at selected altitudes;

(4) climbing with flaps down;

(5) recovery to normal climb;

(6) en-route climb (cruise climb);

(7) maximum angle of climb;

(8) use of instruments to achieve precision flight.

EXERCISE 8: DESCENDING

(a) Long briefing objectives:

(1) the forces;

(2) glide descent: angle, air speed and rate of descent;

(3) effect of flaps;

(4) effect of wind;

(5) effect of mass;

(6) engine considerations;

(7) power assisted descent: power or air speed and rate of descent;

(8) cruise descent;

(9) sideslip.

(b) Air exercise:

(1) entry and maintaining the glide;

(2) levelling off;

(3) levelling off at selected altitudes;

(4) descending with flaps down;

(5) powered descent: cruise descent (including effect of power and air speed);

(6) side-slipping (on suitable types);

(7) use of instrument to achieve precision flight.

EXERCISE 9: TURNING

(a) Long briefing objectives:

(1) the forces;

(2) use of controls;

(3) use of power;

(4) maintenance of attitude and balance;

(5) medium level turns;

(6) climbing and descending turns;

(7) slipping turns;

(8) turning onto selected headings: use of gyro heading indicator and magnetic compass.

(b) Air exercise:

(1) entry and maintaining medium level turns;

(2) resuming straight flight;

(3) faults in the turn (incorrect pitch, bank and balance);

(4) climbing turns;

(5) descending turns;

(6) slipping turns (on suitable types);

(7) turns to selected headings: use of gyro heading indicator and magnetic compass

(8) use of instruments to achieve precision flight;

Note: stall or spin awareness and avoidance training consists of exercises 10a, 10b and 11a.

EXERCISE 10a: SLOW FLIGHT

(a) Long briefing objectives:

(1) aeroplane handling characteristics during slow flight at:

(i) vs1 & vso + 10 knots;

(ii) vs1 & vso + 5 knots.

(2) slow flight during instructor induced distractions;

(3) effect of overshooting in configurations where application of engine power causes a strong ‘nose-up’ trim change.

(b) Air exercise:

(1) safety checks;

(2) introduction to slow flight;

(3) controlled slow flight in the clean configuration at:

(i) vs1 + 10 knots and with flaps down;

(ii) vso + 10 knots;

(iii) straight and level flight;

(iv) level turns;

(v) climbing and descending;

(vi) climbing and descending turns.

(4) controlled slow flight in the clean configuration at:

(i) vs_1 + 5 knots and with flaps down;

(ii) v_{so} + 5 knots;

(iii) straight and level flight;

(iv) level turns;

(v) climbing and descending;

(vi) climbing and descending turns;

(vii) descending 'unbalanced' turns at low air speed: the need to maintain balanced flight.

(5) 'instructor induced distractions' during flight at low air speed: the need to maintain balanced flight and a safe air speed;

(6) effect of going around in configurations where application of engine power causes a strong 'nose up' trim change.

EXERCISE 10b: STALLING

(a) Long briefing objectives:

(1) characteristics of the stall;

(2) angle of attack;

(3) effectiveness of the controls at the stall;

(4) factors affecting the stalling speed:

(i) effect of flaps, slats and slots;

(ii) effect of power, mass, CG and load factor.

(5) effects of unbalance at the stall;

(6) symptoms of the stall;

(7) stall recognition and recovery;

(8) stalling and recovery:

(i) without power;

(ii) with power on;

(iii) with flaps down;

(iv) maximum power climb (straight and turning flight to the point of stall with uncompensated yaw);

(v) stalling and recovery during manoeuvres involving more than 1 G (accelerated stalls, including secondary stalls and recoveries);

(vi) recovering from incipient stalls in the landing and other configurations and conditions;

(vii) recovering at the incipient stage during change of configuration;

(viii) stalling and recovery at the incipient stage with 'instructor induced' distractions.

Note: consideration is to be given to manoeuvre limitations and references to the flight manual or equivalent document (for example owner's manual or pilot's operating handbook) in relation to mass and balance limitations. The safety checks should take into account the minimum safe altitude for initiating such exercises in order to ensure an adequate margin of safety for the recovery. If specific procedures for stalling or spinning exercises and for the recovery techniques are provided by the flight manual or equivalent document (for example owner's manual or pilot's operating handbook), they have to be taken into consideration. These factors are also covered in the next exercise spinning.

(b) Air exercise:

(1) safety checks;

(2) symptoms of the stall;

(3) stall recognition and recovery:

(i) without power;

(ii) with power on;

(iii) recovery when a wing drops at the stall;

(iv) stalling with power 'on' and recovery;

(v) stalling with flap 'down' and recovery;

(vi) maximum power climb (straight and turning flight) to the point of stall with uncompensated yaw: effect of unbalance at the stall when climbing power is being used;

(vii) stalling and recovery during manoeuvres involving more than 1 G (accelerated stalls, including secondary stalls and recoveries);

(viii) recoveries from incipient stalls in the landing and other configurations and conditions;

(ix) recoveries at the incipient stage during change of configuration;

(x) instructor induced distractions during stalling.

Note: consideration of manoeuvre limitations and the need to refer to the aeroplane manual and weight (mass) and balance calculations. The safety checks should take into account the minimum safe altitude for initiating such exercises in order to ensure an adequate margin of safety for the recovery. If specific procedures for stalling or spinning exercises and for the recovery techniques are provided by the flight manual or equivalent document (for example owner's manual or pilot's operating handbook), they have to be taken into consideration. These factors are to be covered in the next exercise: spinning.

EXERCISE 11a: SPIN RECOVERY AT THE INCIPIENT STAGE

(a) Long briefing objectives:

(1) causes, stages, autorotation and characteristics of the spin;

(2) recognition and recovery at the incipient stage: entered from various flight attitudes;

(3) aeroplane limitations.

(b) Air exercise:

(1) aeroplane limitations;

(2) safety checks;

(3) recognition at the incipient stage of a spin;

(4) recoveries from incipient spins entered from various attitudes with the aeroplane in the clean configuration, including instructor induced distractions.

EXERCISE 11b: SPIN RECOVERY AT THE DEVELOPED STAGE

(a) Long briefing objectives:

(1) spin entry;

(2) recognition and identification of spin direction;

(3) spin recovery;

(4) use of controls;

(5) effects of power or flaps (flap restriction applicable to type);

(6) effect of the CG upon spinning characteristics;

(7) spinning from various flight attitudes;

(8) aeroplane limitation;

(9) safety checks.

(b) Air exercise:

(1) aeroplane limitations;

(2) safety checks;

(3) spin entry;

(4) recognition and identification of the spin direction;

(5) spin recovery (reference to flight manual);

(6) use of controls;

(7) effects of power or flaps (restrictions applicable to aeroplane type);

(8) spinning and recovery from various flight attitudes.

EXERCISE 12: TAKE-OFF AND CLIMB TO DOWNWIND POSITION

(a) Long briefing objectives:

(1) handling: factors affecting the length of take-off run and initial climb;

(2) correct lift off speed, use of elevators (safeguarding the nose wheel), rudder and power;

(3) effect of wind (including crosswind component);

(4) effect of flaps (including the decision to use and the amount permitted);

(5) effect of ground surface and gradient upon the take-off run;

(6) effect of mass, altitude and temperature on take-off and climb performance;

(7) pre take-off checks;

(8) ATC procedure before take-off;

(9) drills, during and after take-off;

(10) noise abatement procedures;

(11) tail wheel considerations (as applicable);

(12) short or soft field take-off considerations or procedures;

(13) emergencies:

(i) aborted take-off;

(ii) engine failure after take-off.

(14) ATC procedures.

(b) Air exercise:

(1) take-off and climb to downwind position;

(2) pre take-off checks;

(3) into wind take-off;

(4) safeguarding the nose wheel;

(5) crosswind take-off;

(6) drills during and after take-off;

(7) short take-off and soft field procedure or techniques (including performance calculations);

(8) noise abatement procedures.

EXERCISE 13: CIRCUIT, APPROACH AND LANDING

(a) Long briefing objectives:

(1) downwind leg, base leg and approach: position and drills;

(2) factors affecting the final approach and the landing run;

(3) effect of mass;

(4) effects of altitude and temperature;

(5) effect of wind;

(6) effect of flap;

(7) landing;

(8) effect of ground surface and gradient upon the landing run;

(9) types of approach and landing:

(i) powered;

(ii) crosswind;

(iii) flapless (at an appropriate stage of the course);

(iv) glide;

(v) short field;

(vi) soft field.

(10) tail wheel aeroplane considerations (as applicable);

(11) missed approach;

(12) engine handling;

(13) wake turbulence awareness;

(14) windshear awareness;

(15) ATC procedures;

(16) mislanding and go-around;

(17) special emphasis on look-out.

(b) Air exercise:

(1) circuit approach and landing;

(2) circuit procedures: downwind and base leg;

(3) powered approach and landing;

(4) safeguarding the nose wheel;

(5) effect of wind on approach and touchdown speeds and use of flaps;

(6) crosswind approach and landing;

(7) glide approach and landing;

(8) flapless approach and landing (short and soft field);

(9) short field and soft field procedures;

(10) wheel landing (tail wheel aircraft);

(11) missed approach and go-around;

(12) mislanding and go-around;

(13) noise abatement procedures.

EXERCISE 14: FIRST SOLO AND CONSOLIDATION

Note: a summary of points to be covered before sending the student on first solo.

(a) Long briefing objectives:

During the flights immediately following the solo circuit consolidation period the following should be covered:

(1) procedures for leaving and rejoining the circuit;

(2) local area (restrictions, controlled airspace, etc.);

(3) compass turns;

(4) QDM meaning and use.

(b) Air exercise: all long briefing objectives mentioned above should also be trained on site during the air exercise.

EXERCISE 15: ADVANCED TURNING

(a) Long briefing objectives:

(1) the forces;

(2) use of power;

(3) effect of load factor:

(i) structural considerations;

(ii) increased stalling speed.

(4) physiological effects;

(5) rate and radius of turn;

(6) steep, level, descending and climbing turns;

(7) stalling in the turn and how to avoid it;

(8) spinning from the turn: recovery at the incipient stage;

(9) spiral dive;

(10) unusual attitudes and recoveries.

Note: considerations are to be given to manoeuvre limitations and reference to the flight manual or equivalent document (for example owner's manual or pilot's operating handbook) in relation to mass and balance, and any other restrictions for practice entries to the spin.

(b) Air exercise:

(1) level, descending and climbing steep turns;

(2) stalling in the turn;

(3) spiral dive;

(4) spinning from the turn;

(5) recovery from unusual attitudes;

(6) maximum rate turns.

EXERCISE 16: FORCED LANDING WITHOUT POWER

(a) Long briefing objectives:

(1) selection of forced landing areas;

(2) provision for change of plan;

(3) gliding distance: consideration;

(4) planning the descent;

(5) key positions;

(6) engine failure checks;

(7) use of radio: R/T 'distress' procedure;

(8) base leg;

(9) final approach;

(10) go-around;

(11) landing considerations;

(12) actions after landing: aeroplane security;

(13) causes of engine failure.

(b) Air exercise:

(1) forced landing procedures;

(2) selection of landing area:

(i) provision for change of plan;

(ii) gliding distance considerations.

(3) planning the descent;

(4) key positions;

(5) engine failure checks;

(6) engine cooling precautions;

(7) use of radio;

(8) base leg;

(9) final approach;

(10) landing;

(11) actions after landing: when the exercise is conducted at an aerodrome;

(12) aeroplane security.

EXERCISE 17: PRECAUTIONARY LANDING

(a) Long briefing objectives:

(1) occasions when necessary (in-flight conditions);

(2) landing area selection and communication (R/T procedure);

(3) overhead inspection;

(4) simulated approach;

(5) climb away;

(6) landing area selection:

(i) normal aerodrome;

(ii) disused aerodrome;

(iii) ordinary field;

(7) circuit and approach;

(8) actions after landing; aeroplane security.

(b) Air exercise:

(1) occasions when necessary (in-flight conditions):

(2) landing area selection

(3) overhead inspection

(4) simulated approach

(5) climb away

(6) landing area selection:

(i) normal aerodrome;

(ii) disused aerodrome;

(iii) ordinary field;

(7) circuit and approach;

(8) actions after landing; aeroplane security;

EXERCISE 18a: NAVIGATION

(a) Long briefing objectives:

(1) flight planning;

(i) weather forecast and actual(s);

(ii) map selection, orientation, preparation and use:

(A) choice of route;

(B) regulated or controlled airspace;

(C) danger, prohibited and restricted areas;

(D) safety altitude.

(iii) calculations:

(A) magnetic heading(s) and time(s) en-route;

(B) fuel consumption;

(C) mass and balance;

(D) mass and performance.

(iv) flight information:

(A) NOTAMs etc.;

(B) noting of required radio frequencies;

(C) selection of alternate aerodrome(s).

(v) aeroplane documentation.

(vi) notification of the flight:

(A) pre-flight administration procedures;

(B) flight plan form (where appropriate).

(2) departure;

(i) organisation of cockpit workload;

(ii) departure procedures:

(A) altimeter settings;

(B) setting heading procedures;

(C) noting of ETA(s).

(iii) en-route map reading: identification of ground features;

(iv) maintenance of altitudes and headings;

(v) revisions to ETA and heading, wind effect, drift angle and groundspeed checks;

(vi) log keeping;

(vii) use of radio (including VDF if applicable);

(viii) minimum weather conditions for continuance of flight;

(ix) ‘in-flight’ decisions;

(x) diversion procedures;

(xi) operations in regulated or controlled airspace;

(xii) procedures for entry, transit and departure;

(xiii) navigation at minimum level;

(xiv) uncertainty of position procedure, including R/T procedure;

(xv) lost procedure;

(xvi) use of radio navaids.

(3) arrival procedures and aerodrome circuit joining procedures:

(i) ATC liaison, R/T procedure, etc.;

(ii) altimeter setting,

(iii) entering the traffic aerodromes); pattern (controlled or uncontrolled

(iv) circuit procedures;

(v) parking procedures;

(vi) security of aircraft;

(vii) refuelling;

(viii) booking in.

(b) Air exercise:

(1) flight planning:

(i) weather forecast and actual(s);

(ii) map selection and preparation:

(A) choice of route;

(B) regulated or controlled airspace;

(C) danger, prohibited and restricted areas;

(D) safety altitude.

(iii) calculations:

(A) magnetic heading(s) and time(s) en-route;

(B) fuel consumption;

(C) mass and balance;

(D) mass and performance.

(iv) flight information:

(A) NOTAMs etc.;

(B) noting of required radio frequencies;

(C) selection of alternate aerodromes.

(v) aircraft documentation;

(vi) notification of the flight:

(A) flight clearance procedures (as applicable);

(B) flight plans.

(2) aerodrome departure;

(i) organisation of cockpit workload;

(ii) departure procedures:

(A) altimeter settings;

(B) en-route:

(C) noting of ETA(s).

(iii) wind effect, drift angle and ground speed checks;

(iv) maintenance of altitudes and headings;

(v) revisions to ETA and heading;

(vi) log keeping;

(vii) use of radio (including VDF if applicable);

(viii) minimum weather conditions for continuance of flight;

(ix) ‘in-flight’ decisions;

(x) diversion procedure;

(xi) operations in regulated or controlled airspace;

(xii) procedures for entry, transit and departure;

(xiii) uncertainty of position procedure;

(xiv) lost procedure;

(xv) use of radio navaids.

(3) arrival procedures and aerodrome joining procedures:

(i) ATC liaison, R/T procedure etc.;

(ii) altimeter setting,

(iii) entering the traffic pattern;

(iv) circuit procedures;

(v) parking procedures

(vi) security of aircraft;

(vii) refuelling;

(viii) booking in.

EXERCISE 18b: NAVIGATION AT LOWER LEVELS AND IN REDUCED VISIBILITY

(a) Long briefing objectives:

(1) general considerations:

(i) planning requirements before flight in entry or exit lanes;

(ii) ATC rules, pilot qualifications and aircraft equipment;

(iii) entry or exit lanes and areas where specific local rules apply.

(2) low level familiarisation:

(i) actions before descending;

(ii) visual impressions and height keeping at low altitude;

(iii) effects of speed and inertia during turns;

(iv) effects of wind and turbulence;

(3) low level operation:

(i) weather considerations;

(ii) low cloud and good visibility;

(iii) low cloud and poor visibility;

(iv) avoidance of moderate to heavy rain showers;

(v) effects of precipitation;

(vi) joining a circuit;

(vii) bad weather circuit, approach and landing.

(b) Air exercise:

(1) general considerations: entry or exit lanes and areas where specific local rules apply;

(2) low level familiarisation:

(i) actions before descending;

(ii) visual impressions and height keeping at low altitude;

(iii) effects of speed and inertia during turns;

(iv) effects of wind and turbulence;

(v) hazards of operating at low levels;

(3) low level operation:

(i) weather considerations;

(ii) low cloud and good visibility;

(iii) low cloud and poor visibility;

(iv) avoidance of moderate to heavy rain showers;

(v) effects of precipitation (forward visibility);

(vi) joining a circuit;

(vii) bad weather circuit, approach and landing.

EXERCISE 18c: USE OF RADIO NAVIGATION AIDS UNDER VFR

(a) Long briefing objectives:

(1) use of VOR:

(i) availability, AIP and frequencies;

(ii) signal reception range;

(iii) selection and identification;

(iv) radials and method of numbering;

(v) use of OBS;

(vi) to or from indication and station passage;

(vii) selection, interception and maintaining a radial;

(viii) use of two stations to determine position.

(2) use of ADF equipment:

(i) availability of NDB stations, AIP and frequencies;

(ii) signal reception range;

(iii) selection and identification;

(iv) orientation in relation to NDP;

(v) homing to an NDP.

(3) use of VHF/DF:

(i) availability. AIP and frequencies;

(ii) R/T procedures;

(iii) obtaining QDMs and QTEs.

(4) use of radar facilities:

(i) availability and provision of service and AIS;

(ii) types of service;

(iii) R/T procedures and use of transponder:

(A) mode selection;

(B) emergency codes.

(5) use of distance DME:

(i) availability and AIP;

(ii) operating modes;

(iii) slant range.

(6) use of GNSS (RNAV – SATNAV):

(i) availability;

(ii) operating modes;

(iii) limitations.

(b) Air exercise:

(1) use of VOR:

(i) availability, AIP and frequencies;

(ii) selection and identification;

(iii) use of OBS;

(iv) to or from indications: orientation;

(v) use of CDI;

(vi) determination of radial;

(vii) intercepting and maintaining a radial;

(viii) VOR passage;

(ix) obtaining a fix from two VORs.

(2) use of ADF equipment;

(i) availability of NDB stations, AIP and frequencies;

(ii) selection and identification;

(iii) orientation relative to the beacon;

(iv) homing.

(3) use of VHF/DF:

(i) availability, AIP and frequencies;

(ii) R/T procedures and ATC liaison;

(iii) obtaining a QDM and homing.

(4) use of en-route or terminal radar:

(i) availability and AIP;

(ii) procedures and ATC liaison;

(iii) pilot’s responsibilities;

(iv) secondary surveillance radar;

(v) transponders;

(vi) code selection;

(vii) interrogation and reply.

(5) use of DME:

(i) station selection and identification;

(ii) modes of operation.

(6) use of GNSS (RNAV – SATNAV):

(i) setting up;

(ii) operation;

(iii) interpretation.

EXERCISE 19: BASIC INSTRUMENT FLIGHT

(a) Long briefing objectives:

(1) flight instruments;

(i) physiological sensations;

(ii) instrument appreciation;

(iii) attitude instrument flight;

(iv) pitch indications;

(v) bank indications;

(vi) different dial presentations;

(vii) introduction to the use of the attitude indicator;

(viii) pitch attitude;

(ix) bank attitude;

(x) maintenance of heading and balanced flight;

(xi) instrument limitations (inclusive system failures).

(2) attitude, power and performance;

(i) attitude instrument flight:

(ii) control instruments;

(iii) performance instruments;

(iv) effect of changing power and configuration;

(v) cross-checking the instrument indications;

(vi) instrument interpretation;

(vii) direct and indirect indications (performance instruments);

(viii) instrument lag;

(ix) selective radial scan;

(3) basic flight manoeuvres (full panel);

(i) straight and level flight at various air speeds and aeroplane configurations;

(ii) climbing;

(iii) descending;

(iv) standard rate turns onto pre-selected headings:

(A) level;

(B) climbing;

(C) descending.

(b) Air exercise:

(1) Introduction to instrument flying

(i) flight instruments;

(ii) physiological sensations;

(iii) instrument appreciation;

(iv) attitude instrument flight;

(v) pitch attitude;

(vi) bank attitude;

(vii) maintenance of heading and balanced flight;

(2) attitude, power and performance;

(i) attitude instrument flight;

(ii) effect of changing power and configuration;

(iii) cross-checking the instruments;

(iv) selective radial scan;

(3) basic flight manoeuvres (full panel);

(i) straight and level flight at various air speeds and aeroplane configurations;

(ii) climbing;

(iii) descending;

(iv) standard rate turns onto pre-selected headings:

(A) level;

(B) climbing;

(C) descending.

EXERCISE 20: NIGHT FLYING (if night instructional qualification required)

(a) Long briefing objectives:

(1) start up procedures;

(2) local procedures: including ATC liaison;

(3) taxiing:

(i) parking area and taxiway lighting;

(ii) judgement of speed and distances;

(iii) use of taxiway lights;

(iv) avoidance of hazards: obstruction lighting;

(v) instrument checks;

(vi) holding point: lighting procedure;

(vii) initial familiarisation at night;

(viii) local area orientation;

(ix) significance of lights on other aircraft;

(x) ground obstruction lights;

(xi) division of piloting effort: external or instrument reference;

(xii) rejoining procedure;

(xiii) aerodrome lighting: approach and runway lighting (including VASI and PAPI):

(A) threshold lights;

(B) approach lighting;

(C) visual approach slope indicator systems.

(4) night circuits;

(i) take-off and climb:

(A) line up;

(B) visual references during the take-off run;

(C) transfer to instruments;

(D) establishing the initial climb;

(E) use of flight instruments;

(F) instrument climb and initial turn.

(ii) circuit:

(A) aeroplane positioning: reference to runway lighting;

(B) the traffic pattern and look-out;

(C) initial approach and runway lighting demonstration;

(D) aeroplane positioning;

(E) changing aspect of runway lights and VASI (or PAPI);

(F) intercepting the correct approach path;

(G) the climb away.

(iii) approach and landing:

(A) positioning, base leg and final approach;

(B) diurnal wind effect;

(C) use of landing lights;

(D) the flare and touchdown;

(E) the roll out;

(F) turning off the runway: control of speed.

(iv) missed approach:

(A) use of instruments;

(B) re-positioning in the circuit pattern;

(5) night navigation:

(i) particular emphasis on flight planning;

(ii) selection of ground features visible at night:

(A) air light beacons;

(B) effect of cockpit lighting on map colours;

(C) use of radio aids;

(D) effect of moonlight upon visibility at night;

(iii) emphasis on maintaining a ‘minimum safe altitude’;

(iv) alternate aerodromes: restricted availability;

(v) restricted recognition of weather deterioration;

(vi) lost procedures;

(6) night emergencies;

(i) radio failure;

(ii) failure of runway lighting;

(iii) failure of aeroplane landing lights;

(iv) failure of aeroplane internal lighting;

(v) failure of aeroplane navigation lights;

(vi) total electrical failure;

(vii) abandoned take-off;

(viii) engine failure;

(ix) obstructed runway procedure.

(b) Air exercise: during the air exercise all long briefing objectives mentioned above should also be trained on site and the student instructor should demonstrate the following items:

(1) how to plan and to perform a flight at night;

(2) how to advise the student pilot to plan and prepare a flight at night;

(3) how to advise the student pilot to perform a flight at night;

(4) how to analyse and correct errors as necessary.

B. Helicopters

GROUND INSTRUCTION

Note: During ground instruction the student instructor should pay specific attention to the teaching of enhanced ground instruction in weather interpretation, planning and route assessment, decision making on encountering DVE including reversing course or conduction a precautionary landing.

Part 2

AIR EXERCISES

(a) The air exercises are similar to those used for the training of PPL(H) but with additional items designed to cover the needs of an FI.

(b) The numbering of exercises should be used primarily as an exercise reference list and as a broad instructional sequencing guide: therefore the demonstrations and practices need not necessarily be given in the order listed. The actual order and content will depend upon the following interrelated factors:

(1) the applicant's progress and ability;

(2) the weather conditions affecting the flight;

(3) the flight time available;

(4) instructional technique considerations;

(5) the local operating environment;

(6) applicability of the exercises to the helicopter type.

(c) It follows that student instructors will eventually be faced with similar interrelated factors. They should be shown and taught how to construct flight lesson plans, taking these factors into account, so as to make the best use of each flight lesson, combining parts of the set exercises as necessary.

GENERAL

(d) The briefing normally includes a statement of the objectives and a brief reference to principles of flight only if relevant. An explanation is to be given of exactly what air exercises are to be taught by the instructor and practised by the student during the flight. It should include how the flight will be conducted about who is to fly the helicopter and what airmanship, weather and flight safety aspects currently apply. The nature of the lesson will govern the order in which the constituent parts are to be taught.

(e) The four basic components of the briefing will be:

(1) the aim;

(2) principles of flight (briefest reference only);

(3) the air exercise(s) (what, and how and by whom);

(4) airmanship (weather, flight safety etc.).

PLANNING OF FLIGHT LESSONS

(f) The preparation of lesson plans is an essential prerequisite of good instruction and the student instructor is to be given supervised practice in the planning and practical application of flight lesson plans.

GENERAL CONSIDERATIONS

(g) The student instructor should complete flight training to practise the principles of basic instruction at the PPL(H) level.

(h) During this training, except when acting as a student pilot for mutual flights, the student instructor occupies the seat normally occupied by the FI(H).

(i) It is to be noted that airmanship and look-out is a vital ingredient of all flight operations. Therefore, in the following air exercises the relevant aspects of airmanship are to be stressed at all times.

(j) If the privileges of the FI(H) certificate are to include instruction for night flying, exercise 28 should be undertaken either as part of the course or subsequent to certificate issue.

(k) The student instructor should learn how to identify common errors and how to correct them properly, which should be emphasised at all times.

(l) The student instructor should be trained to keep in mind that wherever possible, flight simulation should be used to demonstrate to student pilots the effects of flight into DVE and to enhance their understanding and need for avoidance of this potentially fatal flight regime.

SYLLABUS OF FLIGHT INSTRUCTION CONTENTS

LONG BRIEFINGS AND AIR EXERCISES

EXERCISE 1: FAMILIARISATION WITH THE HELICOPTER

(a) Long briefing objectives:

(1) introduction to the helicopter;

(2) explanation of the cockpit layout;

(3) helicopter and engine systems;

(4) checklist(s) and procedures;

(5) familiarisation with the helicopter controls;

(6) differences when occupying the instructor's seat;

(7) emergency drills:

(i) action if fire in the air and on the ground: engine, cockpit or cabin and electrical fire;

(ii) system failure drills as applicable to type;

(iii) escape drills: location and use of emergency equipment and exits.

(b) Air exercise: all long briefing objectives mentioned above should also be trained on site during the air exercise.

EXERCISE 2: PREPARATION FOR AND ACTION AFTER FLIGHT

(a) Long briefing objectives:

(1) flight authorisation and helicopter acceptance, including technical log (if applicable) and certificate of maintenance:

(2) equipment required for flight (maps, etc.);

(3) external checks;

(4) internal checks;

(5) student comfort, harness, seat and rudder pedal adjustment;

(6) starting and after starting checks;

(7) system, power or serviceability checks (as applicable);

(8) closing down or shutting down the helicopter (including system checks).

(9) parking and leaving the helicopter (including safety or security as applicable);

(10) completion of authorisation sheet and helicopter serviceability documents.

(b) Air exercise: all long briefing objectives mentioned above should also be trained on site during the air exercise.

EXERCISE 3: AIR EXPERIENCE

(a) Long briefing objectives:

Note: there is no requirement for a long briefing for this exercise.

(b) Air exercise:

(1) air experience;

(2) cockpit layout, ergonomics and controls;

(3) cockpit procedures: stability and control.

EXERCISE 4: EFFECTS OF CONTROLS

(a) Long briefing objectives:

(1) function of the flying controls (primary and secondary effect);

(2) effect of air speed;

(3) effect of power changes (torque);

(4) effect of yaw (sideslip);

(5) effect of disc loading (bank and flare);

(6) effect on controls of selecting hydraulics on/off;

(7) effect of control friction;

(8) use of instruments;

(9) operation of carburettor heat or anti-icing control.

(b) Air exercise: all long briefing objectives mentioned above should also be trained on site during the air exercise.

EXERCISE 5: POWER AND ATTITUDE CHANGES

(a) Long briefing objectives:

(1) relationship between cyclic control position, disc attitude, fuselage attitude and air speed flap back;

(2) power required diagram in relation to air speed;

(3) power and air speed changes in level flight;

(4) use of the instruments for precision;

(5) engine and air speed limitations;

(b) Air exercise:

(1) relationship between cyclic control position, disc attitude, fuselage attitude and air speed flap back;

(2) power and air speed changes in level flight;

(3) use of instruments for precision (including instrument scan and look-out).

EXERCISE 6: LEVEL FLIGHT, CLIMBING, DESCENDING AND TURNING

Note: for ease of training this exercise is divided into four separate parts in the PPL(H) syllabus but may be taught complete or in convenient parts.

(a) Long briefing objectives:

(1) basic factors involved in level flight;

(2) normal power settings;

(3) use of control friction or trim;

(4) importance of maintaining direction and balance;

(5) power required or power available diagram;

(6) optimum climb and descent speeds, angles or rates;

(7) importance of balance, attitude and co-ordination in the turn;

(8) effects of turning on rate of climb or descent;

(9) use of the gyro direction or heading indicator and compass;

(10) use of instruments for precision.

(b) Air exercises:

(1) maintaining straight and level flight at normal cruise power;

(2) control in pitch, including use of control friction or trim;

(3) use of the ball or yaw string to maintain direction and balance;

(4) setting and use of power for selected air speeds and speed changes;

(5) entry to climb;

(6) normal and maximum rate of climb;

(7) levelling off from climb at selected altitudes or heights;

(8) entry to descent;

(9) effect of power and air speed on rate of descent;

(10) levelling off from descent at selected altitudes or heights;

(11) entry to medium rate turns;

(12) importance of balance, attitude and co-ordination to maintain level turn;

(13) resuming straight and level flight;

(14) turns onto selected headings, use of direction indicator and compass;

(15) turns whilst climbing and descending;

(16) effect of turn on rate of climb or descent;

(17) use of instruments for precision (including instrument scan and look-out).

EXERCISE 7: AUTOROTATION

(a) Long briefing objectives:

(1) characteristics of autorotation;

(2) safety checks (including look-out and verbal warning);

(3) entry and development of autorotation;

(4) effect of AUM, IAS, disc loading, G forces and density altitude on RRPM and rate of descent;

(5) rotor and engine limitations;

(6) control of air speed and RRPM;

(7) recovery to powered flight;

(8) throttle override and control of ERPM or RRPM during re- engagement (as applicable);

(9) danger of vortex condition during recovery.

(b) Air exercise:

(1) safety checks (including verbal warning and look-out);

(2) entry to and establishing in autorotation;

(3) effect of IAS and disc loading on RRPM and rate of descent;

(4) control of air speed and RRPM;

(5) recovery to powered flight;

(6) medium turns in autorotation;

(7) simulated engine off landing (as appropriate).

EXERCISE 8: HOVERING AND HOVER TAXIING

(a) Long briefing objectives:

(1) ground effect and power required;

(2) effect of wind, attitude and surface;

(3) stability in hover and effects of over controlling;

(4) effect of control in hover;

(5) control and co-ordination during spot turns;

(6) requirement for slow hover speed to maintain ground effect;

(7) effect of hydraulic failure in hover;

(8) specific hazards, for example snow, dust, etc.

(b) Air exercise:

(1) ground effect and power or height relationship;

(2) effect of wind, attitude and surface;

(3) stability in hover and effects of over controlling;

(4) effect of control and hover technique;

(5) gentle forward running touchdown;

(6) control and co-ordination during spot (90 ° clearing) turns;

(7) control and co-ordination during hover taxi;

(8) dangers of mishandling and over pitching;

(9) (where applicable) effect of hydraulics failure in hover;

(10) simulated engine failure in the hover and hover taxi.

EXERCISE 9: TAKE-OFF AND LANDING

(a) Long briefing objectives:

(1) pre take-off checks or drills;

(2) importance of good look-out;

(3) technique for lifting to hover;

(4) after take-off checks;

(5) danger of horizontal movement near ground;

(6) dangers of mishandling and over pitching;

(7) technique for landing;

(8) after landing checks;

(9) take-off and landing crosswind and downwind.

(b) Air exercise:

(1) pre take-off checks or drills:

(2) pre take-off look-out technique;

(3) lifting to hover;

(4) after take-off checks;

(5) landing;

(6) after landing checks or drills;

(7) take-off and landing crosswind and downwind.

EXERCISE 10: TRANSITIONS FROM HOVER TO CLIMB AND APPROACH TO HOVER

(a) Long briefing objectives:

(1) revision of ground effect;

(2) translational lift and its effects;

(3) inflow roll and its effects;

(4) revision of flap back and its effects;

(5) avoidance of curve diagram and associated dangers;

(6) effect or dangers of wind speed and direction during transitions;

(7) transition to climb technique;

(8) constant angle approach;

(9) transition to hover technique.

(b) Air exercise:

(1) revision of take-off and landing;

(2) transition from hover to climb;

(3) effect of translational lift, inflow roll and flap back;

(4) constant angle approach;

(5) technique for transition from descent to hover;

(6) a variable flare simulated engine off landing.

EXERCISE 11: CIRCUIT, APPROACH AND LANDING

(a) Long briefing objectives:

(1) circuit and associated procedures;

(2) take-off and climb (including checks or speeds);

(3) crosswind leg (including checks, speeds or angles of bank in turns);

(4) downwind leg (including pre-landing checks);

(5) base leg (including checks, speeds or angles of bank in turns);

(6) final approach (including checks or speeds);

(7) effect of wind on approach and hover IGE;

(8) crosswind approach and landing technique;

(9) missed approach and go-around technique (as applicable);

(10) steep approach technique (including danger of high sink rate);

(11) limited power approach technique (including danger of high speed at touchdown);

(12) use of the ground effect;

(13) abandoned take-off technique;

(14) hydraulic failure drills and hydraulics off landing technique (where applicable);

(15) drills or technique for tail rotor control or tail rotor drive failure;

(16) engine failure drills in the circuit to include;

(17) engine failure

(18) on take-off:

(i) crosswind;

(ii) downwind;

(iii) base leg;

(iv) on final approach.

(19) noise abatement procedures (as applicable).

(b) Air exercise:

(1) revision of transitions and constant angle approach;

(2) basic training circuit, including checks;

(3) crosswind approach and landing technique;

(4) missed approach and go-around technique (as applicable);

(5) steep approach technique;

(6) basic limited power approach or run on technique;

(7) use of ground effect;

(8) hydraulic failure and approach to touchdown with hydraulics off and to recover at safe height (as applicable);

(9) simulated engine failure on take-off, crosswind, downwind, base leg and finals;

(10) variable flare simulated engine off landing.

EXERCISE 12: FIRST SOLO

(a) Long briefing objectives:

(1) warning of change of attitude due to reduced and laterally displaced weight;

(2) low tail, low skid or wheel during hover or landing;

(3) dangers of loss of RRPM and over pitching;

(4) pre take-off checks;

(5) into wind take-off;

(6) drills during and after take-off;

(7) normal circuit, approach and landing;

(8) action if an emergency.

(b) Air exercise: all long briefing objectives mentioned above should also be trained on site during the air exercise.

EXERCISE 13: SIDEWAYS AND BACKWARDS HOVER MANOEUVRING

(a) Long briefing objectives:

(1) revision of hovering;

(2) directional stability and weather cocking effect;

(3) danger of pitching nose down on recovery from backwards manoeuvring;

(4) helicopter limitations for sideways and backwards manoeuvring;

(5) effect of CG position.

(b) Air exercise:

(1) revision of hovering and 90 ° clearing turns;

(2) manoeuvring sideways heading into wind;

(3) manoeuvring backwards heading into wind;

(4) manoeuvring sideways and backwards heading out of wind;

(5) manoeuvring backwards too fast and recovery action.

EXERCISE 14: SPOT TURNS

(a) Long briefing objectives:

(1) revision of ground effect and effect of wind;

(2) weather cocking and control actions;

(3) control of RRPM;

(4) torque effect;

(5) cyclic limiting stops due to CG position (where applicable);

(6) rate of turn limitations;

(7) spot turn about pilot position;

(8) spot turn about tail rotor position;

(9) spot turn about helicopter geometric centre;

(10) square (safe visibility) and clearing turn.

(b) Air exercise:

(1) weather cocking, torque effect and control actions;

(2) rate of turn;

(3) spot turn about pilot position;

(4) spot turn about tail rotor position;

(5) spot turn about helicopter geometric centre;

(6) square and clearing turn.

EXERCISE 15: HOVER OUT OF GROUND EFFECT AND VORTEX RING

(a) Long briefing objectives:

(1) revision of ground effect and power required diagram;

(2) drift, height and power control, look-out or scan;

(3) vortex ring, (including dangers, recognition and recovery actions);

(4) loss of tail rotor effectiveness.

(b) Air exercise:

(1) to demonstrate hover OGE;

(2) drift, height, power control and look-out, and instrument scan technique;

(3) recognition of incipient stage of vortex ring and settling with power;

(4) recovery action from incipient stage of vortex ring;

(5) recognition of loss of tail rotor effectiveness and recovery actions.

EXERCISE 16: SIMULATED ENGINE OFF LANDINGS

(a) Long briefing objectives:

(1) revision of basic autorotation;

(2) effect of AUM, disc loading, density altitude and RRPM decay;

(3) use of cyclic and collective to control speed or RRPM;

(4) torque effect;

(5) use of flare or turn to restore RRPM;

(6) technique for variable flare simulated EOL;

(7) technique for constant attitude simulated EOL;

(8) revision of technique for hover or hover taxi simulated EOL;

(9) emergency technique for engine failure during transition;

(10) technique for low level simulated EOL.

(b) Air exercise

(1) revision of entry to and control in autorotation;

(2) variable flare simulated EOL

(3) constant attitude simulated EOL;

(4) hover simulated EOL;

(5) hover taxi simulated EOL;

(6) low level simulated EOL.

EXERCISE 17: ADVANCED AUTOROTATIONS

(a) Long briefing objectives:

(1) effect of air speed or AUM on angles or rates of descent

(2) effect of RRPM setting on angle or rate of descent;

(3) reason and technique for range autorotation;

(4) reason and technique for constant attitude autorotation;

(5) reason and technique for low speed and ‘S’ turns in autorotation;

(6) speed or bank limitations in turns in autorotation;

(7) revision of re-engagement or go-around procedures.

(b) Air exercise:

(1) selection of ground marker and standard datum height to determine distance covered during various autorotation techniques;

(2) revision of basic autorotation;

(3) technique for range autorotation;

(4) technique for constant attitude autorotation;

(5) technique for low speed autorotation, including need for timely speed recovery;

(6) technique for ‘S’ turn in autorotation;

(7) 180 and 360 ° turns in autorotation;

(8) revision of re-engagement and go-around technique.

EXERCISE 18: PRACTICE FORCED LANDINGS

(a) Long briefing objectives:

(1) types of terrain or surface options for choice of best landing area;

(2) practice forced landing procedure;

(3) forced landing checks and crash actions;

(4) rules or height for recovery and go-around.

(b) Air exercise:

(1) recognition of types of terrain from normal cruise height or altitude;

(2) practice forced landing technique;

(3) revision of recovery or go-around technique.

EXERCISE 19: STEEP TURNS

(a) Long briefing objectives:

(1) air speed or angle of bank limitations;

(2) technique for co-ordination to hold bank or attitude;

(3) revision of speed or bank limitations in autorotation including RRPM control;

(4) significance of disc loading, vibration and control feedback;

(5) effect of wind in turns at low level.

(b) Air exercise:

(1) technique for turning at 30 ° of bank;

(2) technique for turning at 45 ° of bank (where possible);

(3) steep autorotative turns;

(4) explanation of faults in the turn: balance, attitude, bank and co- ordination;

(5) effect of wind at low level.

EXERCISE 20: TRANSITIONS

(a) Long briefing objectives:

(1) revision of effect of ground cushion, translational lift and flap back;

(2) training requirement for precision exercise;

(3) technique for transition to forward flight and back to hover as precision exercise;

(4) effect of wind.

(b) Air exercise:

(1) transition from hover to minimum 50 knots IAS and back to hover;

Note: select constant height (20 - 30 ft) and maintain.

(2) effect of wind.

EXERCISE 21: QUICK STOPS

(a) Long briefing objectives:

(1) power control co-ordination;

(2) revision of effect of wind;

(3) technique for quick stop into wind;

(4) technique for quick stop from crosswind;

(5) revision of air speed and angles of bank limitations;

(6) technique for emergency turn from downwind;

(7) technique for quick stop from downwind from high speed: flare and turn;

(8) technique for quick stop from downwind from low speed: turn and flare;

Note: use reasonable datum speed for example high speed, low speed.

(9) danger of holding flare when downwind, (vortex ring) - (minimum speed 70 knots);

(10) to revise danger of high disc loading.

(b) Air exercise:

(1) technique for quick stop into wind;

(2) technique for quick stop from crosswind;

(3) danger of vortex ring and disc loading;

(4) technique for quick stop from downwind with low speed;

(5) technique for quick stop from downwind with high speed;

(6) emergency turns from downwind.

EXERCISE 22: NAVIGATION

(a) Long briefing objectives:

Note: to be broken down into manageable parts at discretion of instructor.

(1) flight planning:

(i) weather forecasts and actuals;

(ii) map selection, orientation, preparation and use:

(A) choice of route;

(B) regulated or controlled airspace;

(C) danger, prohibited and restricted areas;

(D) safety altitude.

(iii) calculations:

(A) magnetic heading(s), time(s) en route;

(B) fuel consumption;

(C) mass and balance.

(iv) flight information:

(A) NOTAMs etc.;

(B) noting of required radio frequencies;

(C) selection of alternate landing sites.

(v) helicopter documentation;

(vi) notification of the flight:

(A) pre-flight administration procedures;

(B) flight plan form (where appropriate).

(2) departure:

(i) organisation of cockpit workload;

(ii) departure procedures:

(A) altimeter settings;

(B) ATC liaison in controlled or regulated airspace;

(C) setting heading procedure;

(D) noting of ETA(s);

(E) maintenance of height or altitude and heading.

(iii) procedure for revisions of ETA and headings to include:

(A) 10 ° line, double track, track error and closing angle;

(B) 1 in 60 rule;

(iv) amending an ETA;

(v) log keeping;

(vi) use of radio;

(vii) use of navaids;

(viii) weather monitoring and minimum weather conditions for continuation of flight;

(ix) significance of in-flight decision making;

(x) technique for transiting controlled or regulated airspace;

(xi) uncertainty of position procedure;

(xii) lost procedure.

(3) arrival:

(i) aerodrome joining procedure, in particular ATC liaison in controlled or regulated airspace:

(A) altimeter setting;

(B) entering traffic pattern; (

(C) circuit procedures.

(ii) parking procedures, in particular:

(A) security of helicopter;

(B) refuelling;

(C) closing of flight plan, (if appropriate);

(D) post flight administrative procedures.

(4) navigation problems at low heights and reduced visibility:

(i) actions before descending;

(ii) significance of hazards, (for example obstacles and other traffic);

(iii) difficulties of map reading;

(iv) effects of wind and turbulence;

(v) significance of avoiding noise sensitive areas;

(vi) procedures for joining a circuit from low level;

(vii) procedures for a bad weather circuit and landing;

(viii) actions in the event of encountering DVE;

(ix) appropriate procedures and choice of landing area for precautionary landings;

(x) decision to divert or conduct precautionary landing;

(xi) precautionary landing.

(5) radio navigation:

(i) use of VOR:

(A) availability, AIP and frequencies;

(B) selection and identification;

(C) use of OBS;

(D) to or from indications: orientation;

(E) use of CDI;

(F) determination of radial;

(G) intercepting and maintaining a radial;

(H) VOR passage;

(I) obtaining a fix from two VORs.

(ii) use of ADF equipment:

(A) availability of NDB stations, AIP and frequencies;

(B) selection and identification;

(C) orientation relative to beacon;

(D) homing.

(iii) use of VHF/DF

(A) availability, AIP and frequencies;

(B) R/T procedures and ATC liaison;

(C) obtaining a QDM and homing.

(iv) use of en-route or terminal radar:

(A) availability and AIP;

(B) procedures and ATC liaison;

(C) pilots responsibilities;

(D) secondary surveillance radar:

(a) transponders;

(b) code selection;

(E) interrogation and reply.

(iv) use of DME:

(A) station selection and identification;

(B) modes of operation: distance, groundspeed and time to run.

(v) use of GNSS:

(A) selection of waypoints;

(B) to or from indications and orientation;

(C) error messages;

(D) hazards of over-reliance in the continuation of flight in DVE.

(b) Air exercise:

(1) navigation procedures as necessary;

(2) to advise student and correct errors as necessary;

(3) map reading techniques;

(4) the significance of calculations;

(5) revision of headings and ETA’s;

(6) use of radio;

(7) use of navaids: ADF/NDB, VOR, VHF/DF, DME and transponder;

(8) cross-country flying by using visual reference, DR, GNNS and, where available, radio navigation aids; simulation of deteriorating weather conditions and actions to divert or conduct precautionary landing;

(9) log keeping;

(10) importance of decision making;

(11) procedure to deal with uncertainty of position;

(12) lost procedure;

(13) appropriate procedures and choice of landing area for precautionary landings;

(14) aerodrome joining procedure;

(15) parking and shut-down procedures;

(16) post-flight administration procedures.

EXERCISE 23: ADVANCED TAKE-OFF, LANDINGS AND TRANSITIONS

(a) Long briefing objectives:

(1) Revision of landing and take-off out of wind (performance reduction);

(2) revision of wind limitations;

(3) revision of directional stability variation when out of wind;

(4) revision of power required diagram;

(5) technique for downwind transitions;

(6) technique for vertical take-off over obstacles;

(7) reconnaissance technique for landing site;

(8) power checks;

(9) technique for running landing;

(10) technique for zero speed landing;

(11) technique for crosswind and downwind landings;

(12) steep approach, including dangers;

(13) revision of go-around procedures.

(b) Air exercise

(1) technique for downwind transition;

(2) technique for vertical take-off over obstacles;

(3) reconnaissance technique for landing site;

(4) power check and assessment;

(5) technique for running landing;

(6) technique for zero speed landing;

(7) technique for crosswind and downwind landings;

(8) technique for steep approach;

(9) go-around procedures.

EXERCISE 24: SLOPING GROUND

(a) Long briefing objectives:

(1) limitations;

(2) wind and slope relationship, including blade and control stops;

(3) effect of CG when on slope;

(4) ground effect and power required when on slope;

(5) landing technique when on slope, left, right and nose-up;

(6) avoidance of dynamic rollover, dangers of soft ground and sideways movement;

(7) dangers of over controlling near ground on slope;

(8) danger of striking main or tail rotor on up slope.

(b) Air exercise

(1) technique for assessing slope angle;

(2) technique for landing and take-off left skid up slope;

(3) technique for landing and take-off right skid up slope;

(4) technique for landing nose up slope;

(5) dangers of over controlling near ground.

EXERCISE 25: LIMITED POWER

(a) Long briefing objectives:

(1) use of appropriate helicopter performance graphs;

(2) selection of technique according to available power;

(3) effect of wind on available power.

(b) Air exercise: to revise and refine techniques demonstrated in exercise 23.

EXERCISE 26: CONFINED AREAS

(a) Long briefing objectives:

(1) revision of use of helicopter performance graphs;

(2) procedure for locating landing site and selecting site marker;

(3) procedures for assessing wind speed and direction;

(4) landing site reconnaissance techniques;

(5) reason for selecting landing markers;

(6) procedure for selecting direction and type of approach;

(7) dangers of out of wind approach;

(8) circuit procedures;

(9) reason for approach to committal point and go-around, (practice approach);

(10) approach technique;

(11) revision of clearing turn and landing (sloping ground technique);

(12) hover power check or performance assessment IGE and OGE (if necessary);

(13) take-off procedures.

(b) Air exercise

(1) procedures for locating landing site and selecting site marker;

(2) procedures for assessing wind speed and direction;

(3) landing site reconnaissance techniques;

(4) selecting landing markers, direction and type of approach;

(5) circuit procedure;

(6) practice approach, go-around and approach technique;

(7) revision of clearing turn and landing (sloping ground technique);

(8) hover power check or performance assessment IGE and OGE (if necessary);

(9) take-off procedures.

EXERCISE 27: BASIC INSTRUMENT FLIGHT

(a) Long briefing objectives:

(1) physiological sensations;

(2) instrument appreciation;

(3) attitude instrument flight;

(4) instrument scan;

(5) instrument limitations;

(6) basic manoeuvres by sole reference to instruments:

(i) straight and level flight at various air speeds and configurations;

(ii) climbing and descending;

(iii) standard rate turns, climbing and descending, onto selected headings;

(iv) recoveries from climbing and descending turns (unusual attitudes).

(b) Air exercise:

(1) attitude instrument flight and instrument scan;

(2) basic manoeuvres by sole reference to instruments:

(i) straight and level flight at various air speeds and configurations;

(ii) climbing and descending;

(iii) standard rate turns, climbing and descending, onto selected headings;

(iv) recoveries from climbing and descending turns (unusual attitudes).

EXERCISE 28: NIGHT FLYING (if night instructional qualification required)

(a) Long briefing objectives:

(1) medical or physiological aspects of night vision;

(2) requirement for torch to be carried (pre-flight inspection, etc.);

(3) use of the landing light;

(4) take-off and hover taxi procedures at night;

(5) night take-off procedure;

(6) cockpit procedures at night;

(7) approach techniques;

(8) night landing techniques;

(9) night autorotation techniques (power recovery at safe height);

(10) technique for practice forced landing at night (using appropriate illumination);

(11) emergency procedures at night;

(12) navigation principles at night;

(13) map marking for night use (highlighting built up or lit areas with thicker lines, etc.).

(b) Air exercise:

(1) use of torch for pre-flight inspection;

(2) use of landing light;

(3) night take-off to hover (no sideways or backwards movement);

(4) night hover taxi (higher and slower than by day);

(5) night transition procedure;

(6) night circuit;

(7) night approach and landing (including use of landing light);

(8) night autorotation (power recovery at safe height);

(9) practice forced landing at night (using appropriate illumination);

(10) night emergency procedures;

(11) night cross country techniques, as appropriate.

C. Airships

Part 2

AIR EXERCISES

(a) The air exercises are similar to those used for the training of PPL(As) but with additional items designed to cover the needs of an FI.

(b) The numbering of exercises should be used primarily as an exercise reference list and as a broad instructional sequencing guide: therefore the demonstrations and practices need not necessarily be given in the order listed. The actual order and content will depend upon the following interrelated factors:

(1) the applicant's progress and ability;

(2) the weather conditions affecting the flight;

(3) the flight time available;

(4) instructional technique considerations;

(5) the local operating environment.

(c) It follows that student instructors will eventually be faced with similar interrelated factors. They should be shown and taught how to construct flight lesson plans, taking these factors into account, so as to make the best use of each flight lesson, combining parts of the set exercises as necessary.

GENERAL

(d) The briefing normally includes a statement of the aim and a brief allusion to principles of flight only if relevant. An explanation is to be given of exactly what air exercises are to be taught by the instructor and practised by the student during the flight. It should include how the flight will be conducted about who is to fly the airship and what airmanship, weather and flight safety aspects currently apply. The nature of the lesson will govern the order in which the constituent parts are to be taught.

(e) The four basic components of the briefing will be:

(1) the aim;

(2) principles of flight (briefest reference only);

(3) the air exercise(s) (what, and how and by whom);

(4) airmanship (weather, flight safety etc.).

PLANNING OF FLIGHT LESSONS

(f) The preparation of lesson plans is an essential prerequisite of good instruction and the student instructor is to be given supervised practice in the planning and practical application of flight lesson plans.

GENERAL CONSIDERATIONS

(g) The student instructor should complete flight training to practise the principles of basic instruction at the PPL(As) level.

(h) During this training, except when acting as a student pilot for mutual flights, the student instructor occupies the seat normally occupied by the FI(As).

(i) It is to be noted that airmanship and look-out is a vital ingredient of all flight operations. Therefore, in the following air exercises the relevant aspects of airmanship are to be stressed at all times.

(j) The exercises 15 and 16 of the flight instruction syllabus should be undertaken at night in addition to by day as part of the course.

(k) The student instructor should learn how to identify common errors and how to correct them properly, which should be emphasised at all times.

SYLLABUS OF FLIGHT INSTRUCTION CONTENTS

LONG BRIEFINGS AND AIR EXERCISES

Note: although exercise 16 is not required for the PPL(As) course it is a requirement for the FI(As) course.

EXERCISE 1: FAMILIARISATION WITH THE AIRSHIP

(a) Long briefing objectives:

(1) introduction to the airship;

(2) characteristics of the airship;

(3) cockpit layout;

(4) airship and engine systems;

(5) use of the checklist(s) and procedures;

(6) to familiarise the student with the airship controls;

(7) differences when occupying the instructor's seat;

(8) emergency drills:

(i) action if fire in the air or on the ground: engine, cockpit or cabin and electrical fire;

(ii) system failure drills as applicable to type;

(iii) escape drills: location and use of emergency equipment and exits.

(b) Air exercise: all long briefing objectives mentioned above should also be trained on site during the air exercise.

EXERCISE 2: PREPARATION FOR AND ACTION AFTER FLIGHT

(a) Long briefing objectives:

(1) flight authorisation and airship acceptance including tech log (if applicable) and certificate of maintenance;

(2) equipment required for flight (maps, etc.);

(3) external checks;

(4) internal checks;

(5) student comfort, harness, seat and rudder pedal adjustment;

(6) starting and after starting checks;

(7) system, power or serviceability checks (as applicable);

(8) closing down or shutting down the airship (including system checks);

(9) parking, masting and unmasting, leaving the airship (including safety or security as applicable);

(10) completion of the authorisation sheet and airship serviceability documents;

(b) Air exercise: all long briefing objectives mentioned above should also be trained on site during the air exercise.

EXERCISE 3: AIR EXPERIENCE

(a) Long briefing objectives:

Note: there is no requirement for a long briefing for this exercise.

(b) Air exercise:

(1) air experience;

(2) cockpit layout, ergonomics and controls;

(3) cockpit procedures: stability and control.

EXERCISE 4: EFFECTS OF CONTROLS

(a) Long briefing objectives:

(1) function of the flying controls (primary and secondary effect);

(2) effect of air speed;

(3) effect of power changes;

(4) effect of trimming and other controls;

(5) use of instruments;

(6) use of carburettor heat.

(b) Air exercise:

(1) function of the flying controls;

(2) effect of air speed;

(3) effect of power changes;

(4) effect of trimming and other controls;

(5) use of instruments (including instrument scan);

(6) use of carburettor heat.

EXERCISE 5: GROUND MANOEUVERING

(a) Long briefing objectives:

(1) pre-taxi checks;

(2) starting, control of speed and stopping;

(3) engine handling;

(4) masting procedures;

(5) control of direction and turning;

(6) effects of wind;

(7) effects of ground surface;

(8) marshalling signals;

(9) instrument checks;

(10) ATC procedures;

(11) emergencies.

(b) Air exercise:

(1) starting, control of speed and stopping;

(2) engine handling;

(3) masting procedures;

(4) control of direction and turning;

(5) effect of wind.

EXERCISE 6: TAKE-OFF PROCEDURES

(a) Long briefing objectives:

(1) pre take-off checks;

(2) take-off with different static heaviness;

(3) drills during and after take-off;

(4) noise abatement procedures.

(b) Air exercise:

(1) take-off with different static heaviness;

(2) drills during and after take-off.

EXERCISE 6e: EMERGENCIES

(a) Long briefing objectives:

(1) abandoned take-off;

(2) engine failures and actions after take-off;

(3) malfunctions of thrust vector control;

(4) aerodynamic control failures;

(5) electrical and system failures.

(b) Air exercise:

(1) how to abandon a take-off;

(2) engine failure and suitable action;

(3) malfunctions of thrust vector control;

(4) aerodynamic control failures.

EXERCISE 7: CLIMBING

(a) Long briefing objectives:

(1) entry and how to maintain the normal and max rate of climb;

(2) levelling off procedure;

(3) how to level off at selected altitudes;

(4) maximum angle of climb;

(5) maximum rate of climb.

(b) Air exercise:

(1) how to level off at selected altitudes;

(2) maximum angle of climb.

EXERCISE 8: STRAIGHT AND LEVEL FLIGHT

(a) Long briefing objectives:

(1) how to attain and maintain straight and level flight;

(2) flight at or close to pressure height;

(3) control in pitch, including use of trim;

(4) at selected air speeds (use of power);

(5) during speed changes;

(6) use of instruments for precision.

(b) Air exercise:

(1) how to attain and maintain straight and level flight;

(2) flight at or close to pressure height;

(3) control in pitch, including use of trim;

(4) at selected air speeds (use of power);

(5) during speed changes.

EXERCISE 9: DESCENDING

(a) Long briefing objectives:

(1) entry, maintaining and levelling off techniques;

(2) levelling off at selected altitudes;

(3) maximum rate of descent;

(4) maximum angle of descent;

(5) use of instruments for precision flight.

(b) Air exercise:

(1) levelling off at selected altitudes;

(2) maximum rate of descent;

(3) maximum angle of descent.

EXERCISE 10: TURNING

(a) Long briefing objectives:

(1) entry and maintaining level turns;

(2) resuming straight flight;

(3) faults in the turn;

(4) climbing turns;

(5) descending turns;

(6) turns to selected headings: use of gyro heading indicator and compass;

(7) use of instruments for precision.

(b) Air exercise

(1) faults in the turn and correction techniques;

(2) climbing turns;

(3) descending turns.

EXERCISE 11: HOVERING

(a) Long briefing objectives: hovering manoeuvres (as applicable).

(b) Air exercise: hovering manoeuvres (as applicable).

EXERCISE 12: APPROACH AND LANDING

(a) Long briefing objectives:

(1) effect of wind on approach and touchdown speeds;

(2) landing with different static heaviness;

(3) missed approach and go-around procedures;

(4) noise abatement procedures.

(b) Air exercise

(1) a landing with different static heaviness;

(2) missed approach and go-around procedures.

EXERCISE 12e: EMERGENCIES

(a) Long briefing objectives:

(1) aborted approach or go-around;

(2) malfunction of thrust vector control;

(3) envelope emergencies;

(4) fire emergencies;

(5) aerodynamic control failures;

(6) electrical and system failures.

(b) Air exercise: emergency drills and actions.

EXERCISE 13: PRECAUTIONARY LANDING

(a) Long briefing objectives:

(1) occasions necessitating a precautionary landing;

(2) in-flight conditions;

(3) landing area selection;

(4) circuit and approach.

(b) Air exercise:

(1) how to perform the landing area selection;

(2) circuit and approach.

EXERCISE 14a: NAVIGATION

(a) Long briefing objectives:

(1) how to do the flight planning;

(2) departure for a navigation flight;

(3) in-flight navigational techniques;

(4) arrival and aerodrome joining procedures;

(b) Air exercise:

(1) complete flight planning of a navigation flight;

(2) departure for a navigation flight;

(3) in-flight navigational techniques;

(4) arrival and aerodrome joining procedures.

EXERCISE 14b: NAVIGATION AT LOWER LEVELS AND IN REDUCED VISIBILITY

(a) Long briefing objectives:

(1) actions before descending;

(2) possible hazards (for example obstacles and terrain) and actions;

(3) student difficulties of map reading;

(4) effects of winds, turbulence and precipitation;

(5) vertical situational awareness;

(6) avoidance of noise sensitive areas;

(7) joining the circuit;

(8) bad weather circuit and landing.

(b) Air exercise:

(1) actions before descending;

(2) map reading techniques;

(3) vertical situational awareness;

(4) avoidance of noise sensitive areas;

(5) joining the circuit;

(6) bad weather circuit and landing.

EXERCISE 14c: RADIO NAVIGATION

(a) Long briefing objectives:

(1) use of VOR;

(2) use of ADF equipment;

(3) use of NDB stations;

(4) use of VHF/DF;

(5) use of en-route or terminal radar;

(6) use of DME equipment.

(b) Air exercise

(1) use of navaids;

(2) procedure to deal with uncertainty of position.

EXERCISE 15: BASIC INSTRUMENT FLIGHT

(a) Long briefing objectives:

(1) physiological sensations;

(2) instrument appreciation;

(3) attitude instrument flight;

(4) instrument scan;

(5) instrument limitations;

(6) basic manoeuvres by sole reference to the instruments:

(i) straight and level;

(ii) climbing and descending;

(iii) turns, climbing and descending, onto selected headings;

(iv) recoveries from climbing and descending turns.

(b) Air exercise:

(1) attitude instrument flight and instrument scan;

(2) the basic manoeuvres:

(i) straight and level;

(ii) climbing and descending;

(iii) turns, climbing and descending, onto selected headings;

(iv) recoveries from climbing and descending turns.

EXERCISE 16: NIGHT FLYING (if night instructional qualification required)

(a) Long briefing objectives:

(1) medical and physiological aspects of night vision;

(2) requirement for torch to be carried (pre-flight inspection, etc.);

(3) use of the landing light;

(4) ground manoeuvring procedures at night;

(5) night take-off procedure;

(6) cockpit procedures at night;

(7) approach techniques;

(8) night landing techniques

(9) emergency procedures at night;

(10) navigation principles at night.

(b) Air exercise:

(1) use of landing light;

(2) night ground manoeuvring;

(3) night take-off, circuit or approach and landing (including use of landing light).

AMC2 LIC.930.FI FI — Training course

FI(S) AND FI(B) TRAINING COURSE GENERAL

(a) The aim of the FI(S) and FI(B) training course is to train SPL and BPL holders to the level of competence defined in LIC.920 as instructor competencies.

(b) The training course should develop safety awareness throughout by teaching the knowledge, skills and attitudes relevant to the FI task including at least the following:

(1) refresh the technical knowledge of the student instructor;

(2) train the student instructor to teach the ground subjects and air exercises;

(3) ensure that the student instructor’s flying is of a sufficiently high standard; and

(4) teach the student instructor the principles of basic instruction and to apply them at all training levels.

(c) With the exception of the section on teaching and learning, all the subject detail contained in the ground and flight training syllabus is complementary to the SPL and BPL course syllabus.

(d) The FI training course should give particular stress to the role of the individual in relation to the importance of human factors in the man- machine and theoretical knowledge environment interaction. Special attention should be paid to the applicant’s maturity and judgement including an understanding of adults, their behavioural attitudes and variable levels of education.

(e) During the training course, the applicants should be made aware of their own attitudes to the importance of flight safety. Improving safety awareness should be a fundamental objective throughout the training course. It will be of major importance for the training course to aim at giving applicants the knowledge, skills and attitudes relevant to a flight instructor’s task.

(f) On successful completion of the training course and final test the applicant may be issued with an FI certificate.

CONTENT

(g) The training course consists of two parts:

(1) Part 1, theoretical knowledge including the teaching and learning instruction that should comply with AMC1 LIC.920;

(2) Part 2, flight instruction.

Part 1

The content of the teaching and learning part of the FI course, as established in AMC1 LIC.930.FI, should be used as guidance to develop the course syllabus.

The course should include at least 55 hours of theoretical knowledge including at least 25 hours teaching and learning instructions for the FI (S) and FI(B) certificate.

Part 2

FLIGHT INSTRUCTION SYLLABUS

An approved FI training course should comprise at least the minimum hours of flight instruction as defined in LIC.930.FI.

AIR EXERCISES

(a) The air exercises are similar to those used for the training of SPL or BPL but with additional items designed to cover the needs of a flight instructor.

(b) The numbering of exercises should be used primarily as an exercise reference list and as a broad instructional sequencing guide: therefore the demonstrations and practices need not necessarily be given in the order listed. The actual order and content will depend upon the following interrelated factors:

(1) the applicant's progress and ability;

(2) the weather conditions affecting the flight;

(3) the flight time available;

(4) instructional technique considerations;

(5) the local operating environment;

(6) Applicability of the exercises to the aircraft type.

(c) At the discretion of the instructors some of the exercises may be combined whereas some other exercises may be done in several flights.

(d) Student instructors will eventually be faced with similar inter-related factors. They should be shown and taught how to construct flight lesson plans, taking these factors into account, so as to make the best use of each flight lesson, combining parts of the set exercises as necessary.

GENERAL

(e) The briefing normally includes a statement of the aim and a brief allusion to principles of flight only if relevant. An explanation is to be given of exactly what air exercises are to be taught by the instructor and practised by the student during the flight. It should include how the flight will be conducted with regard to who is to fly the aircraft and what airmanship, weather and flight safety aspects currently apply. The nature of the lesson will govern the order in which the constituent parts are to be taught.

(f) The five basic components of the briefing will be:

(1) the aim;

(2) the air exercise(s) (what, and how and by whom);

(3) flight briefing;

(4) check of understanding;

(5) airmanship.

PLANNING OF FLIGHT LESSONS

(g) The preparation of lesson plans is an essential prerequisite of good instruction and the student instructor is to be given supervised practice in the planning and practical application of flight lesson plans.

GENERAL CONSIDERATIONS

(h) The student instructor should complete flight training in order to practise the principles of basic instruction at the SPL or BPL level. During this training the student instructor occupies the seat normally occupied by the FI.

(i) The instructor providing this instructor training is normally taking over the role of the student pilot. [In the case of the course for the FI(B) an additional person holding a BPL or a student pilot for these licences may be on board in order to function as a student pilot under the supervision of the instructor.]

(j) It is to be noted that airmanship is a vital ingredient of all flight operations. Therefore, in the following air exercises the relevant aspects of airmanship are to be stressed at the appropriate times during each flight.

(k) The student instructor should learn how to identify common errors and how to correct them properly, which should be emphasised at all times.

SYLLABUS OF FLIGHT INSTRUCTION CONTENTS

A. SAILPLANES

LONG BRIEFINGS AND AIR EXERCISES

EXERCISE 1: FAMILIARISATION WITH THE SAILPLANE

(a) Objective:

To advise the student instructor on how to familiarise the student with the sailplane which will be used for the training and to test his/her position in the sailplane for comfort, visibility, and ability to use all controls and equipment.

(b) Briefing and exercise:

The student Instructor has to:

(1) present the type of sailplane which will be used;

(2) explain the cockpit layout: instruments and equipment;

(3) explain the flight controls: stick, pedals, airbrakes, flaps, cable release, undercarriage;

(4) check the position of the student on the seat for comfort, visibility, ability to use all controls;

(5) explain the use of the harness;

(6) demonstrate how to adjust the rudder pedal;

(7) explain the differences when occupying the instructor's position;

(8) explain all checklists, drills, controls.

EXERCISE 2: PROCEDURE IN THE EVENT OF EMERGENCIES

(a) Objective:

To advise the student instructor on how to familiarise the student with the use of the parachute and how to explain the bailout procedure in case of emergency.

(b) Briefing and exercise:

The student instructor has to:

(1) explain how to handle the parachute with care (transport, storage and drying after use);

(2) demonstrate the adjustment of the parachute harness;

(3) explain the bailout procedure (especially from a sailplane in unusual attitude);

(4) explain the procedure for landing with a parachute in normal conditions and with a strong wind.

EXERCISE 3: PREPARATION FOR FLIGHT

(a) Objective:

To advise the student instructor on how to explain all the operations to be completed prior to flight. Furthermore, the student instructor should learn how to identify student errors and how to correct them properly.

(b) Briefing:

The student instructor has to explain:

(1) the need for a pre-flight briefing;

(2) the structure and the content of this briefing;

(3) which documents are required on board;

(4) which equipment are required for a flight;

(5) how to handle the sailplane on the ground, how to move it, how to tow it out and how to park it;

(6) how to do the pre-flight external and internal checks;

(7) the procedure for verifying in-limits mass and balance;

(8) the pre-launch checks (checklist).

(c) Air exercise:

The student instructor has to demonstrate:

(1) the need for a pre-flight briefing;

(2) that the required documents are on board;

(3) that the equipment required for the intended flight is on board;

(4) how to handle the sailplane on the ground, move it to the start position, tow it out and park it;

(5) how to perform a pre-flight external and internal check;

(6) how to verify in-limits mass and balance;

(7) how to adjust harness as well as seat or rudder pedals;

(8) the pre-launch checks;

(9) how to advise the student pilot in performing the pre-flight preparation;

(10) how to analyse and correct pre-flight preparation errors as necessary.

EXERCISE 4: INITIAL AIR EXPERIENCE

(a) Objective:

To advise the student instructor on how to familiarise the student with being in the air, with the area around the airfield, to note his/her reactions in this situation, and to draw his/her attention to safety and look-out procedures.

(b) Briefing:

The student instructor has to explain:

(1) the area around the airfield;

(2) the need for looking out;

(3) the change of aircraft control.

(c) Air exercise:

The student instructor has to:

(1) show the noteworthy references on the ground;

(2) analyse the reactions of the student;

(3) check that the student looks out (safety).

EXERCISE 5: **PRIMARY EFECTS OF CONTROLS**

(a) Objective:

To advise the student instructor on how to:

(1) demonstrate the primary effects of each control with the help of visual references;

(2) train the student pilot to recognise when the sailplane is no longer in a normal attitude along one of the axes and to return to the normal attitude;

(3) train continuous and efficient look-out during these exercises;

(4) analyse and correct errors and student pilot mistakes as necessary.

(b) Briefing:

The student instructor has to explain:

(1) define the axes of a sailplane;

(2) the look-out procedures;

(3) the visual references along each axis;

(4) the primary effects of controls when laterally level;

(5) the relationship between attitude and speed;

(6) the use of flaps;

(7) the use of airbrakes.

(c) Air exercise:

The student instructor has to demonstrate:

(1) the visual references in flight;

(2) the primary effect of the elevator;

(3) the relationship between attitude and speed (inertia);

(4) the primary effect of rudder on the rotation of the sailplane around the vertical axis;

(5) the primary effect of ailerons on banking;

(6) the effect of airbrakes (including changes in pitch when airbrakes are extended or retracted);

(7) the effects of flaps (provided the sailplane has flaps);

(8) the look-out procedures during all the exercises;

(9) how to advise the student pilot to recognise the primary effects of each control;

(10) how to analyse and correct errors as necessary.

EXERCISE 6: CO-ORDINATED ROLLING TO AND FROM MODERATE ANGLES OF BANK

(a) Objective:

To advise the student instructor on secondary effects of controls and on how to teach the student to coordinate ailerons and rudder in order to compensate for the adverse yaw effect. Furthermore the student instructor should learn how to identify student errors and how to correct them properly.

(b) Briefing:

The student instructor has to explain:

(1) the secondary effects of controls;

(2) the adverse yaw effect;

(3) how to compensate for the adverse yaw;

(4) the further effect of the rudder (roll).

(c) Air exercise:

The student instructor has to demonstrate:

(1) the adverse yaw effect with a reference on ground;

(2) the further effect of the rudder (roll);

(3) the coordination of ruder and aileron controls to compensate for the adverse yaw effects;

(4) rolling to and from moderate angles of bank (20 to 30 °) and returning to the straight flight;

(5) how to advise the student pilot to coordinate ailerons and rudder;

(6) how to analyse and correct errors as necessary.

EXERCISE 7: STRAIGHT FLYING

(a) Objective:

To advise the student instructor on how to train the student to maintain straight flight with a constant heading without slipping and skidding. Furthermore, the student instructor should learn how to identify student errors and how to correct them properly.

(b) Briefing:

The student instructor has to:

(1) explain how to maintain straight flight;

(2) explain different air speed limitations;

(3) explain the pitch stability of the sailplane;

(4) explain the effect of trimming.

(c) Air exercise:

The instructor student has to demonstrate:

(1) maintaining straight flight;

(2) inherent pitch stability;

(3) the control of the sailplane in pitch, including use of trim with visual references and speed;

(4) how to perform the instrument monitoring;

(5) the control of level attitude with visual references;

(6) the control of the heading with a visual reference on the ground;

(7) the look-out procedures during all the exercises;

(8) how to advise the student pilot to maintain straight flight;

(9) how to analyse and correct errors as necessary.

EXERCISE 8: TURNING

(a) Objective:

To advise the student instructor on how to teach students to fly turns and circles with a moderate constant bank of about 30 ° with constant attitude (speed) and coordinated flight. The student instructor should learn how to identify student errors and how to correct them properly.

(b) Briefing:

The student instructor has to explain:

(1) the forces on the sailplane during a turn;

(2) the need to look out before turning;

(3) the sequences of a turn (entry, stabilizing and exiting);

(4) the common faults during a turn;

(5) how to turn on to selected headings, use of compass;

(6) the use of instruments (ball indicator or slip string) for precision.

(c) Air exercise:

The student instructor has to demonstrate:

(1) the look-out procedure before turning;

(2) entering a turn (correction of adverse yaw);

(3) the stabilisation of a turn (keeping the attitude and compensating the induced roll);

(4) the exit from a turn;

(5) the most common faults in a turn;

(6) turns on to selected headings (use landmarks as reference);

(7) use of instruments (ball indicator or slip string) for precision:

(8) how to advise the student pilot to fly a turn or circle with a moderate bank;

(9) how to analyse and correct errors as necessary.

EXERCISE 9a: SLOW FLIGHT

(a) Objective:

To advise the student instructor on how to improve the student's ability to recognise inadvertent flight at critically low speeds (high angle of attack) and to provide practice in maintaining the sailplane in balance while returning to normal attitude (speed). Furthermore the student instructor should learn how to identify student errors and how to correct them properly.

(b) Briefing:

The student instructor has to explain:

(1) the characteristics of slow flight;

(2) the risks of stalling.

(c) Air Exercise:

The student instructor has to check that the airspace below the sailplane is free of other aircraft before starting the exercise. The student instructor has to demonstrate:

(1) a controlled flight down to critically high angle of attack (slow air speed), and draw the attention of the student to the nose up attitude, reduction of noise, reduction of speed;

(2) a return to the normal attitude (speed);

(3) how to advise the student pilot to recognise inadvertent flight at critically low speeds;

(4) how to provide practice in maintaining the sailplane in balance while returning to normal attitude;

(5) how to analyse and correct errors as necessary.

EXERCISE 9b: STALLING

(a) Objective:

To advise the student Instructor on how to improve the student's ability to recognise a stall and to recover from it. This includes stall from a level flight and stalls when a wing drops. Furthermore the student instructor should learn how to identify student errors and how to correct them properly.

(b) Briefing:

The student instructor has to explain:

(1) the mechanism of a stall;

(2) the effectiveness of the controls at the stall;

(3) pre-stall symptoms, recognition and recovery;

(4) factors affecting the stall (importance of the angle of attack and high speed stall);

(5) effect of flaps if any on the sailplane;

(6) the effects of unbalance at the stall safety checks;

(7) stall symptoms, recognition and recovery;

(8) recovery when a wing drops;

(9) approach to stall in the approach and in the landing configurations: recognition and recovery from accelerated stalls.

(c) Air Exercise:

The student instructor has to check that the airspace below the sailplane is free of other aircraft or traffic before starting the exercise. The student instructor has to demonstrate:

(1) stall from a level flight;

(2) pre-stall symptoms, recognition and recovery;

(3) stall symptoms, recognition and recovery;

(4) recovery when a wing drops;

(5) approach to stall in the approach and in the landing configurations;

(6) recognition and recovery from accelerated stalls;

(7) stalling and recovery at the incipient stage with 'instructor induced' distractions;

(8) how to improve the student pilot's ability to recognise a stall and to recover from it;

(9) how to analyse and correct errors as necessary.

Note: consideration is to be given to manoeuvre limitations and references to the flight manual or equivalent document (for example owner's manual or pilot's operating handbook) in relation to mass and balance limitations. The safety checks should take into account the minimum safe altitude for initiating such exercises in order to ensure an adequate margin of safety for the recovery. If specific procedures for stalling or spinning exercises and for the recovery techniques are provided by the flight manual or equivalent document (for example owner's manual or pilot's operating handbook), they have to be taken into consideration. These factors are also covered in the next exercise.

EXERCISE 10a: SPIN RECOGNITION AND AVOIDANCE

(a) Objective:

To advise the student Instructor on how to improve the student's ability to recognise a spin at the incipient stage and to recover from it. Furthermore, the student instructor should learn how to identify student errors and how to correct them properly.

(b) Briefing:

The student instructor has to explain:

(1) why a sailplane spins;

(2) how to recognise the symptoms of a spin (not to be confused with spiral dive);

(3) what are the parameters influencing the spin;

(4) how to recover from a spin.

(c) Air exercise:

The student instructor has to check that the airspace below the sailplane is free of other aircraft or traffic before starting the exercise. The student instructor has to:

(1) demonstrate stalling and recovery at the incipient spin stage (stall with excessive wing drop, about 45 °);

(2) make sure that the student recognises the spin entry;

(3) make sure that the student pilot is able to recover from the spin;

(4) check if the student still reacts properly if the instructor induces distractions during the spin entry;

(5) demonstrate how to analyse and correct errors as necessary.

Note: consideration of manoeuvre limitations and the need to refer to the sailplane manual and mass and balance calculations.

EXERCISE 10b: DEVELOPED SPINS: ENTRY AND RECOVERY

(a) Objective:

To advise the student instructor on how to recognise a developed spin and to recover from it. Furthermore, the student instructor should learn how to identify student errors and how to correct them properly.

(b) Briefing:

The student instructor has to explain:

(1) the spin entry;

(2) the symptoms of a real spin and the recognition and identification of spin direction;

(3) the spin recovery;

(4) use of controls;

(5) effects of flaps (flap restriction applicable to type);

(6) the effect of the CG upon spinning characteristics;

(7) the spinning from various flight attitudes;

(8) the sailplane limitations;

(9) safety checks;

(10) common errors during recovery.

(c) Air exercise:

The student instructor has to check that the airspace below the sailplane is free of other aircraft or traffic before starting the exercise. The student instructor has to demonstrate:

(1) safety checks;

(2) the spin entry;

(3) the recognition and identification of the spin direction;

(4) the spin recovery (reference to flight manual);

(5) the use of controls;

(6) the effects of flaps (restrictions applicable to sailplane type);

(7) spinning and recovery from various flight attitudes;

(8) how to improve the student pilot's ability to recognise a spin and how to recover from it;

(9) how to analyse and correct errors as necessary.

EXERCISE 11: TAKE OFF OR LAUNCH METHODS

Note: the student instructor has to teach at least one of the following; winch launch, aero tow, self-launch. At least three launch failure exercises should be completed. Furthermore, the student instructor should learn how to identify student errors and how to correct them properly.

EXERCISE 11a: WINCH LAUNCH

(a) Objective:

To advise the student instructor on how to teach winch launches and on how to make sure that their student will manage an aborted launch. Furthermore, the student instructor should learn how to identify student errors and how to correct them properly.

(b) Briefing:

The student instructor has to explain:

(1) the signals or communication before and during launch;

(2) the use of the launching equipment;

(3) the pre-take-off checks;

(4) the procedure for into wind take-off;

(5) the procedure for crosswind take-off;

(6) the optimum profile of winch launch and limitations;

(7) the launch failure procedures.

(c) Air exercise:

The student instructor has to demonstrate:

(1) the use of the launching equipment;

(2) the pre-take-off checks;

(3) the into wind take-off;

(4) the crosswind take-off;

(5) the optimum profile of winch launch and limitations;

(6) the procedure in case of cable break or aborted launch, launch failure procedures;

(7) how to teach the student pilot to perform safe winch launches;

(8) how to teach the student pilot to manage an aborted launch (different altitudes);

(9) how to analyse and correct errors as necessary.

EXERCISE 11b: AERO TOW

(a) Objective:

To advise the student instructor on how to teach aero towing and on how to make sure that their student will manage an aborted launch. Furthermore, the student instructor should learn how to identify student errors and how to correct them properly.

(b) Briefing:

The student instructor has to explain:

(1) the signals or communication before and during launch;

(2) the use of the launch equipment;

(3) the pre-take-off checks;

(4) the procedure for into wind take-off;

(5) the procedure for crosswind take-off;

(6) the procedure on tow: straight flight, turning and slip stream;

(7) the recovery from out-of-position on tow;

(8) the procedures in case of launch failure and abandonment;

(9) the descending procedure on tow (towing aircraft and sailplane);

(10) the reasons for launch failures and abandonment or procedures.

(c) Air exercise:

The student instructor has to demonstrate:

(1) the signals before and during launch;

(2) the use of the launch equipment;

(3) the pre-take-off checks;

(4) the procedure for into wind take-off;

(5) the procedure for a crosswind take-off;

(6) the procedures on tow: straight flight, turning and slip stream;

(7) the recovery from out-of-position on tow;

(8) the procedure in case of launch failure and abandonment;

(9) the descending procedure on tow;

(10) how to teach the student pilot to perform safe aero tow launches;

(11) how to teach the student pilot to manage an aborted launch;

(12) how to analyse and correct errors as necessary.

EXERCISE 11c: SELF LAUNCH

(a) Objective:

To advise the student instructor on how to teach launching with a self-launching sailplane and on how to make sure that his/her student will manage an aborted launch. Furthermore, the student instructor should learn how to identify student errors and how to correct them properly.

(b) Briefing:

The student instructor has to explain:

(1) the engine extending and retraction procedures;

(2) the engine starting and safety precautions;

(3) the pre-take-off checks;

(4) the noise abatement procedures;

(5) the checks during and after take-off;

(6) the into wind take-off;

(7) the crosswind take-off;

(8) the procedure in case of power failure;

(9) the procedure in case of abandoned take-off;

(10) the maximum performance (short field and obstacle clearance) take- off;

(11) the short take-off and soft field procedure or techniques and performance calculations.

(c) Air exercise:

The student instructor has to demonstrate:

(1) the engine extending and retraction procedures;

(2) the engine starting and safety precautions;

(3) the pre-take-off checks;

(4) the noise abatement procedures;

(5) the checks during and after take-off;

(6) the into wind take-off;

(7) the crosswind take-off;

(8) the power failures and procedures;

(9) the procedure in case of abandoned take-off;

(10) the maximum performance (short field and obstacle clearance) take- off;

(11) the short take-off and soft field procedure or techniques and performance calculations;

(12) how to teach the student pilot to perform safe self-launches;

(13) how to teach the student pilot to manage an aborted launch (different altitudes);

(14) how to analyse and correct errors as necessary.

EXERCISE 12: CIRCUIT APPROACH AND LANDING

(a) Objective:

To advise the student instructor on how to teach their students to fly a safe circuit approach and to land the sailplane. Furthermore, the student instructor should learn how to identify student errors and how to correct them properly.

(b) Briefing:

The student instructor has to explain:

(1) the procedures for rejoining the circuit;

(2) the procedures for collision avoidance and the lookout techniques;

(3) the pre-landing check;

(4) the normal circuit procedures, downwind, base leg;

(5) the effect of wind on approach and touchdown speeds ;

(6) the visualisation of a reference point;

(7) the approach control and use of airbrakes;

(8) the use of flaps (if applicable);

(9) the procedures for normal and crosswind approach and landing.

(c) Air exercise:

The student instructor has to demonstrate:

(1) the procedures for rejoining the circuit;

(2) the procedures for collision avoidance and the look-out techniques;

(3) the pre-landing check;

(4) the standard circuit and contingency planning (for example running out of height);

(5) the effect of wind on approach and touchdown speeds;

(6) the visualisation of an aiming point;

(7) the approach control and use of airbrakes;

(8) the use of flaps (if applicable);

(9) the procedures for normal and crosswind approaches and landings;

(10) how to teach the student pilot to fly a safe circuit approach;

(11) how to improve the student pilot’s ability to perform a safe landing;

(12) how to analyse and correct errors as necessary.

EXERCISE 13: FIRST SOLO

(a) Objective:

To advise the student instructor on how to prepare their students for the first solo flight.

(b) Briefing:

The student instructor has to explain:

(1) the limitations of the flight (awareness of local area and restrictions);

(2) the use of required equipment.

(c) Air exercise:

The student instructor has to;

(1) check with another or more senior instructor if the student can fly solo;

(2) monitor the flight;

(3) debrief the flight with the student.

EXERCISE 14 : ADVANCED TURNING

(a) Objective:

To advise the student instructor on how to fly steep turns or circles (45 ° banking) at constant attitude (speed) and with the yaw string centred. Furthermore, the student instructor should learn how to identify student errors and how to correct them properly.

(b) Briefing:

The student instructor has to explain;

(1) the relationship between banking and speed;

(2) how to master steep turns or circles;

(3) the unusual attitudes which can occur (stalling or spinning and spiral dive);

(4) how to recover from these unusual attitudes.

(c) Air exercise:

The student has to demonstrate:

(1) steep turns (45 °) at constant speed and with the yaw string centred;

(2) common errors (slipping and skidding);

(3) unusual attitudes and how to recover from them;

(4) how to teach the student pilot to fly steep turns or circles;

(5) how to analyse and correct errors as necessary.

EXERCISE 15: SOARING TECHNIQUES

Note: if the weather conditions during the instructor training do not allow the practical training of soaring techniques, all items of the air exercises have to be discussed and explained during a long briefing exercise only.

EXERCISE 15a: THERMALLING

(a) Objective:

To advise the student instructor on how to teach their students to recognise and detect thermals, on how to join a thermal and on how to look out, in order to avoid mid-air collisions. Furthermore, the student instructor should learn how to identify student errors and how to correct them properly.

(b) Briefing:

The student instructor has to explain;

(1) the look-out procedures;

(2) the detection and recognition of thermals;

(3) the use of audio soaring instruments;

(4) the procedure for joining a thermal and giving way;

(5) how to fly in close proximity to other sailplanes;

(6) how to centre in thermals;

(7) how to leave thermals.

(c) Air exercise:

The student instructor has to demonstrate;

(1) the look-out procedures;

(2) the detection and recognition of thermals;

(3) the use of audio soaring instruments;

(4) the procedure for joining a thermal and giving way;

(5) the procedure for flying in close proximity to other sailplanes;

(6) the cantering in thermals;

(7) the procedure for leaving thermals;

(8) how to improve the student pilot's ability to recognise and detect thermals;

(9) how to improve the student pilot's ability to join a thermal and how to look out;

(10) how to analyse and correct errors as necessary.

EXERCISE 15b: RIDGE FLYING

(a) Objective:

To advise the student instructor on how to teach his/her students to fly safely on ridges, to control their speed, and to apply the rules in order to avoid mid-air collisions. Furthermore, the student instructor should learn how to identify student errors and how to correct them properly.

(b) Briefing:

The student instructor has to explain:

(1) the look-out procedures;

(2) the ridge flying rules;

(3) the recognition of optimum flight path;

(4) speed control.

(c) Air exercise: (if applicable during training and, if possible, at training site) The student instructor has to demonstrate:

(1) the look-out procedures;

(2) the practical application of ridge flying rules;

(3) the recognition of optimum flight path;

(4) speed control;

(5) how to teach the student pilot to fly safely on ridges;

(6) how to analyse and correct errors as necessary.

EXERCISE 15c: WAVE FLYING

(a) Objective:

To advise the student instructor on how to introduce students to wave flying and to teach them to fly safely at high altitude. Furthermore, the student instructor should learn how to identify student errors and how to correct them properly.

(b) Briefing:

The student instructor has to explain:

(1) the look-out procedures;

(2) the techniques to be used to accede to a wave;

(3) the speed limitations with increasing height;

(4) the risks of hypoxia and the use of oxygen.

(c) Air exercise: (if applicable during training and if possible at training site) The student instructor has to demonstrate:

(1) the look-out procedures;

(2) the wave access techniques;

(3) the speed limitations with increasing height;

(4) the use of oxygen (if available);

(5) how to improve the student pilot's ability to recognise and detect waves;

(6) how to teach the student pilot to fly safely in a wave;

(7) how to analyse and correct errors as necessary.

EXERCISE 16: OUT-LANDINGS

Note: if the weather conditions during the instructor training do not allow the practical training of out-landing procedures (a touring motor glider may be used) all items of the air exercise have to be discussed and explained during a long briefing exercise only. Instructors may only teach the safe out-landing exercise after they have demonstrated the practical ability to do so.

(a) Objective:

To advise the student instructor on how to teach students to select an out- landing field, to fly the circuit and how to master the unusual landing situation. Furthermore, the student instructor should learn how to identify student errors and how to correct them properly.

(b) Briefing:

The student instructor has to explain:

(1) the gliding range at max L/D;

(2) the engine re-start procedures (only for self-launching and self- sustaining sailplanes);

(3) the selection of a landing area;

(4) the circuit judgement and key positions;

(5) the circuit and approach procedures;

(6) the actions to be done after landing.

(c) Air exercise:

The student instructor has to demonstrate:

(1) precision landings on the airfield;

(2) the gliding range;

(3) the procedures for joining, arrival and circuit at a remote aerodrome;

(4) the selection of an out-landing area;

(5) the procedures for circuit and approach on an out-landing field;

(6) the actions to be done after landing;

The student instructor also has to be trained:

(7) how to advise the student pilot to do perform a safe out-landing;

(8) how to master an unusual landing situation;

(9) how to analyse and correct errors as necessary.

EXERCISE 17: CROSS COUNTRY FLYING

Note: if the weather conditions during the instructor training do not allow a cross country training flight the items of the air exercise have to be discussed and explained during a long briefing exercise only.

EXERCISE 17a: FLIGHT PLANNING

(a) Objective:

To advise the student instructor on how plan and prepare a cross-country flight.

(b) Briefing:

The student instructor has to explain:

(1) the weather forecast and current situation;

(2) the selection of the amount of water to be carried as a function of the weather forecast;

(3) the method for selecting a task, taking into account the average speed to be expected;

(4) the map selection and preparation;

(5) the NOTAMs and airspace considerations;

(6) the radio frequencies (if applicable);

(7) the pre-flight administrative procedures;

(8) the procedure for filing a flight plan where required;

(9) alternate aerodromes and landing areas.

EXERCISE 17b: IN-FLIGHT NAVIGATION

(a) Objective:

To advise the student instructor on how to teach performing a cross-country flight.

(b) Briefing:

The student instructor has to explain:

(1) how to maintain track and re-route if necessary;

(2) the altimeter settings;

(3) the use of radio and phraseology;

(4) the in-flight planning;

(5) the procedures for transiting regulated airspace or ATC liaison where required;

(6) the procedure in case of uncertainty of position;

(7) the procedure in case of becoming lost;

(c) Air exercise:

The student instructor has to demonstrate:

(1) maintaining track and re-routing if necessary;

(2) altimeter settings;

(3) the use of radio and phraseology;

(4) in-flight planning;

(5) procedures for transiting regulated airspace or ATC liaison where required;

(6) uncertainty of position procedure;

(7) lost procedure;

(8) use of additional equipment where required;

(9) joining, arrival and circuit procedures at remote aerodrome;

(10) how to teach the student pilot to perform a cross-country flight;

(11) how to analyse and correct errors as necessary.

EXERCISE 17c: CROSS-COUNTRY SOARING TECHNIQUES

(a) Objective:

To advise the student instructor on the techniques for an efficient cross country flight.

(b) Briefing:

The student instructor has to explain:

(1) the speed to fly at maximal L/D ratio;

(2) the speed to fly to maximise the cruise speed (Mc Cready theory);

(3) how to select the optimal track (efficient use of cloud streets etc.);

(4) how to calculate the final glide;

(5) how to perform a safe out-landing.

(c) Air exercise:

The student instructor has to demonstrate:

(1) a cross-country flight;

(2) the selection of the optimal track (efficient use of cloud streets, etc) ;

(3) the use of the Mc Cready ring;

(4) use of final glide computers;

(5) how to reduce risk and to react to potential dangers;

(6) how to plan and perform an out-landing;

(7) how to teach the student pilot techniques for an efficient cross- country flight;

(8) how to analyse and correct errors as necessary.

B. BALLOONS

LONG BRIEFINGS AND AIR EXERCISES

EXERCISE 1: FAMILIARISATION WITH THE BALLOON

(a) Objective:

To advise the student Instructor on how to familiarise the student with the balloon which will be used for the training and to test his position in the basket for comfort, visibility, and ability to use all controls and equipment. Furthermore, the student instructor should learn how to identify student errors and how to correct them properly.

(b) Briefing and exercise:

The student instructor has to:

(1) present the type of balloon which will be used;

(2) explain the characteristics of the balloon;

(3) explain the components, instruments and equipment;

(4) explain the re-fuelling procedures (in the case of hot air balloons);

(5) to familiarise the student with the balloon controls;

(6) explain the differences when occupying the instructor's position;

(7) explain all checklists, drills and controls.

EXERCISE 2: PREPARATION FOR FLIGHT

(a) Objective:

To advise the student instructor on how to explain all the operations and necessary preparation to be completed before the flight. Furthermore, the student instructor should learn how to identify student errors and how to correct them properly.

(b) Briefing

The student instructor has to explain:

(1) the need for a pre-flight briefing;

(2) the structure and the content of this briefing;

(3) which documents are required on board;

(4) which equipment are required for a flight;

(5) the use of weather forecasts or actuals;

(6) the flight planning with particular regard to NOTAMs, airspace structure, sensitive areas, expected track and distance, pre-flight picture and possible landing fields;

(7) the use of load calculation chart;

(8) the selection of launch field with particular regard to permission, behaviour and adjacent fields.

(c) Air exercise:

The student instructor has to prepare and give a pre-flight briefing. The student instructor has to demonstrate:

(1) that the required documents are on board;

(2) that the equipment required for the intended flight is on board;

(3) how to advice the student to do the pre-planning procedures for each flight;

(4) how to perform a pre-launch check;

(5) how to select a launch field with particular regard to permission, behaviour and adjacent fields;

(6) how to teach the student pilot to perform the preparation to be completed prior to flight;

(7) how to analyse and correct errors of the student pilot as necessary.

EXERCISE 3: CREW AND PASSENGER BRIEFING

(a) Objective:

To advise the student instructor on how to explain all the importance of correct clothing for pilot, passengers and crew and how to perform the briefing of ground- and retrieve crew and the briefing of passengers. Furthermore, the student instructor should learn how to identify student errors and how to correct them properly.

(b) Briefing:

The student instructor has to explain:

(1) the correct clothing for passengers and crew;

(2) the briefings for ground- and retrieve crew and passengers.

(c) Air exercise:

The student instructor has to demonstrate:

(1) how to advise the passengers and crew about the correct clothing;

(2) the briefing of ground- and retrieve crew;

(3) the briefing of passengers;

(4) how to familiarise the student pilot with the different type of briefings;

(5) how to analyse and correct errors of the student pilot.

EXERCISE 4: ASSEMBLY AND LAYOUT

(a) Objective:

To advise the student instructor on how to familiarise the student pilot with the control of the crowd and how to perform the securing of launch site. Furthermore the student instructor has to demonstrate how to familiarise the student pilot with the correct rigging of envelope and basket, the burner test procedure (hot air balloons) and the pre-inflation checks. Furthermore, the student instructor should learn how to identify student errors and how to correct them properly.

(b) Briefing:

The student instructor has to explain:

(1) the control of the crowd;

(2) the securing of the launch site;

(3) the correct rigging procedure;

(4) the use of the restraint line;

(5) the pre-inflation checks.

(c) Air exercise:

The student instructor has to demonstrate:

(1) how to control the crowd and securing of launch site;

(2) the correct rigging of envelope and basket;

(3) the correct use of the restraint line;

(4) the burner test procedure (hot air balloons);

(5) the pre-inflation checks;

(6) how to teach the student pilot to perform the correct rigging;

(7) how to analyse and correct assembly errors of the student pilot as necessary.

EXERCISE 5: INFLATION

(a) Objective:

To advise the student instructor on how to familiarise the student pilot with the different phases of the inflation procedure, the use of restraint line and inflation fan (hot air balloons) and the avoidance of electrostatic discharge (gas balloons). Furthermore**,** the student instructor should learn how to identify student errors and how to correct them properly.

(b) Briefing:

The student instructor has to explain:

(1) the different phases of the inflation procedure;

(2) the crowd control and securing procedures during inflation;

(3) the use of the inflation fan (hot air balloons);

(4) how to avoid electronic discharge (gas balloons).

(c) Air exercise:

The student instructor has to demonstrate:

(1) how to control of crowd and securing of launch site during inflation procedure;

(2) the cold inflation procedure and use of restraint line and inflation fan (hot air balloons);

(3) the hot inflation procedure (hot air balloons);

(4) the avoidance of electrostatic discharge (gas balloons);

(5) the inflation procedure (gas balloons);

(6) how to teach the student pilot to perform the inflation procedures;

(7) how to analyse and correct errors of the student pilot during the inflation procedure as necessary.

EXERCISE 6: TAKE OFF IN DIFFERENT WIND CONDITIONS

(a) Objective:

To advise the student instructor how to explain the pre take-off checks and briefings, the preparation for controlled climb and the use of restraint equipment. Furthermore the student instructor should be able to demonstrate the assessment of wind and obstacles, the preparation for false lift and the take-off techniques in different wind conditions. In addition to this the student instructor should learn how to identify student errors and how to correct them properly.

(b) Briefing:

The student instructor has to explain:

(1) the pre take-off checks and briefings;

(2) the preparation for controlled climb;

(3) the ‘hands off and hands on’ procedure for ground crew;

(4) the assessment of lift;

(5) the use of the restraint equipment ;

(6) the assessment of wind and obstacles;

(7) the preparation for false lift;

(8) the take-off techniques from sheltered and non-sheltered launch fields.

(c) Air exercise:

The student instructor has to demonstrate:

(1) how to perform the pre take-off checks and briefings;

(2) how to prepare for controlled climb;

(3) how to perform the ‘hands off and hands on’ procedure for ground crew;

(4) how to perform the assessment of lift without endangering the ground crew;

(5) how to use the restraint equipment;

(6) how to perform the assessment of wind and obstacles;

(7) how to prepare for false lift;

(8) how to teach the student pilot the correct take off techniques from sheltered and non-sheltered launch fields;

(9) how to analyse and correct errors of the student pilot as necessary.

EXERCISE 7: CLIMB TO LEVEL FLIGHT

(a) Objective:

To advise the student instructor on how to explain and demonstrate the climb to flight level. Furthermore the student instructor should learn how to identify student errors and how to correct them properly.

(b) Briefing:

The student instructor has to explain:

(1) the climbing with a predetermined rate of climb;

(2) the effect on envelope temperature (hot air balloons);

(3) the maximum rate of climb according to manufacturer’s flight manual;

(4) how to level off at selected altitude.

(c) Air exercise:

The student instructor has to demonstrate:

(1) how to climb with a predetermined rate of climb;

(2) how to perform look out techniques;

(3) the effect on envelope temperature (hot air balloons);

(4) the maximum rate of climb according to manufacturer's flight manual;

(5) the levelling off techniques at selected altitude;

(6) how to advise the student pilot to perform the climb to level flight;

(7) how to analyse and correct faults or errors of the student pilot during the climb.

EXERCISE 8: LEVEL FLIGHT

(a) Objective:

To advise the student instructor on how to explain and demonstrate level flight. Furthermore the student instructor should learn how to identify student errors and how to correct them properly.

(b) Briefing:

The student instructor has to explain:

(1) how to maintain level flight by use of instruments;

(2) how to maintain level flight by use of visual references;

(3) how to maintain level flight by use of all available means;

(4) the use of parachute;

(5) the use of turning vents if installed (hot air balloons).

(c) Air exercise:

The student instructor has to demonstrate:

(1) how to maintain level flight by use of instruments;

(2) how to maintain level flight by use of visual references;

(3) how to maintain level flight by use of all available means;

(4) the use of parachute;

(5) the use of turning vents if installed (hot air balloons);

(6) how to advise the student pilot to perform the level flight;

(7) how to analyse and correct faults or errors of the student pilot during the level flight.

EXERCISE 9: DESCENT TO LEVEL FLIGHT

(a) Objective:

To advise the student instructor on how to explain and demonstrate the descent to a certain flight level. Furthermore the student instructor should learn how to identify student errors and how to correct them properly.

(b) Briefing:

The student instructor has to explain:

(1) how to descent with a predetermined rate of descent;

(2) a fast descent;

(3) the maximum rate of descent according to manufacturer’s flight manual;

(4) the use of parachute;

(5) a parachute stall and cold descent (hot air balloons);

(6) the levelling off technique at selected altitude.

(c) Air exercise:

The student instructor has to demonstrate:

(1) a descent with a predetermined rate of descent;

(2) how to perform look out techniques;

(3) a fast descent;

(4) the maximum rate of descent according to manufacturer’s flight manual;

(5) the use of parachute;

(6) how to level off at selected altitudes;

(7) how to advise the student pilot to perform a descent to a certain flight level;

(8) how to analyse and correct faults or errors of the student pilot during the descent.

EXERCISE 10: EMERGENCIES

(a) Objective:

To advise the student instructor on how to explain and demonstrate the different emergency situations and how to react. Furthermore the student instructor should learn how to identify student errors during the simulated emergency exercises and how to correct them properly.

(b) Briefing:

The student instructor has to explain:

(1) the pilot light failure (hot air balloons);

(2) burner failures, valve leaks, flame out and re-light (hot air balloons);

(3) gas leaks;

(4) closed appendix during take-off and climb (gas balloons);

(5) the envelope over temperature (hot air balloons);

(6) envelope damage in flight;

(7) the parachute or rapid deflation system failure;

(8) fire on ground and in the air;

(9) how to avoid an obstacle contact including contact with electrical power lines;

(10) escape drills, location and use of emergency equipment.

(c) Air exercise:

The student instructor has to demonstrate:

(1) a pilot light failure (hot air balloons);

(2) a burner failure, valve leaks, flame out and re-light (hot air balloons);

(3) gas leaks;

(4) a closed appendix during take-off and climb (gas balloons);

(5) envelope over temperature (hot air balloons);

(6) envelope damage in flight;

(7) parachute or rapid deflation system failure;

(8) a fire on ground and in the air;

(9) the escape drills, location and use of emergency equipment;

(10) how to advise the student pilot in performing the different emergency drills;

(11) how to analyse and correct faults or errors of the student pilot.

EXERCISE 11: NAVIGATION

(a) Objective:

To advise the student instructor on how to explain and demonstrate the advanced navigational flight preparation. Furthermore the student instructor should learn how to identify student errors and how to correct them properly.

(b) Briefing:

The student instructor has to explain:

(1) the maps selection;

(2) the plotting of the expected track;

(3) the marking of positions and time;

(4) the calculation of distance and speed;

(5) the calculation of fuel consumption (hot air balloons);

(6) the calculation of ballast consumption (gas balloons);

(7) the ceiling limitations (ATC or weather);

(8) how to plan ahead;

(9) the monitoring of weather development;

(10) the monitoring of fuel or ballast consumption;

(11) ATC liaison (if applicable);

(12) the communication with retrieve crew;

(13) the use of GNSS.

(c) Air exercise:

The student instructor has to demonstrate:

(1) the use of selected maps;

(2) the plotting of the expected track;

(3) the marking of positions and time;

(4) how to monitor of distance and speed;

(5) how to monitor the fuel or ballast consumption;

(6) the observance of ceiling limitations (ATC or weather);

(7) the planning ahead;

(8) the monitoring of weather development;

(9) the monitoring of envelope temperature (hot air balloons);

(10) ATC liaison (if applicable);

(11) communication with retrieve crew;

(12) use of GNSS;

(13) how to advise the student pilot in performing the navigational preparation;

(14) how to advise the student pilot in performing the different navigational in-flight tasks;

(15) how to analyse and correct faults or errors of the student pilot.

EXERCISE 12a: FUEL MANAGEMENT HOT AIR BALLOONS

(a) Objective:

To advise the student instructor on how to explain and demonstrate the fuel management techniques. Furthermore, the student instructor should learn how to identify student errors and how to correct them properly.

(b) Briefing:

The student instructor has to explain:

(1) the cylinder arrangement and the burner systems;

(2) the function of the pilot light supply (vapour or liquid);

(3) the use of master cylinders (if applicable);

(4) the fuel requirement and expected fuel consumption;

(5) the fuel state and pressure;

(6) the minimum fuel reserves;

(7) cylinder contents gauge and change procedure;

(8) the use of cylinder manifolds.

(c) Air exercise:

The student instructor has to demonstrate:

(1) the cylinder arrangement and burner systems;

(2) the pilot light supply (vapour or liquid);

(3) the use of master cylinders (if applicable);

(4) how to monitor of fuel requirement and expected fuel consumption;

(5) the monitoring of fuel state and pressure;

(6) the monitoring of fuel reserves;

(7) the use of cylinder contents gauge and change procedure;

(8) the use of cylinder manifolds;

(9) how to advise the student pilot to perform the fuel management;

(10) how to analyse and correct faults or errors of the student pilot.

EXERCISE 12b: BALLAST MANAGEMENT GAS BALLOONS

(a) Objective:

To advise the student instructor on how to explain and demonstrate the ballast management. Furthermore, the student instructor should learn how to identify student errors and how to correct them properly.

(b) Briefing:

The student instructor has to explain:

(1) the minimum ballast;

(2) the arrangement and securing of ballast;

(3) the ballast requirement and expected ballast consumption;

(4) the ballast reserves.

(c) Air exercise:

The student instructor also has to demonstrate:

(1) the arrangement of minimum ballast;

(2) the arrangement and securing of ballast;

(3) the ballast requirement calculation and expected ballast consumption;

(4) how to secure ballast reserves;

(5) how to advise the student pilot to perform the ballast management;

(6) how to analyse and correct faults or errors of the student pilot.

EXERCISE 13: APPROACH FROM LOW LEVEL

(a) Objective:

To advise the student instructor on how to explain and demonstrate the approach from level. Furthermore, the student instructor should learn how to identify student errors and how to correct them properly.

(b) Briefing:

The student instructor has to explain:

(1) the pre landing checks;

(2) passenger pre-landing briefing;

(3) the selection of field;

(4) the use of burner and parachute (hot air balloons);

(5) the use of ballast or parachute and valve (gas balloons);

(6) the use of trail rope (if applicable) (gas balloons);

(7) the look-out;

(8) missed approach and fly on procedures.

(c) Air exercise:

The student instructor has to demonstrate:

(1) the use of the pre landing checks;

(2) the selection of fields;

(3) the use of burner and parachute (hot air balloons);

(4) the use of ballast or parachute and valve (gas balloons);

(5) the use of trail rope (if applicable) (gas balloons);

(6) the lookout procedures and how to avoid possible distractions;

(7) the missed approach and fly on techniques;

(8) how to advise the student pilot to perform an approach from low level;

(9) how to analyse and correct faults or errors of the student pilot.

EXERCISE 14: APPROACH FROM HIGH LEVEL

(a) Objective:

To advise the student instructor on how to explain and demonstrate the approach from high level. Furthermore, the student instructor should learn how to identify student errors and how to correct them properly.

(b) Briefing:

The student instructor has to explain:

(1) the pre-landing checks;

(2) passenger pre-landing briefing;

(3) the selection of field;

(4) the rate of descent;

(5) the use of burner and parachute (hot air balloons);

(6) the use of ballast and parachute (gas balloons);

(7) the use of trail rope (if applicable) (gas balloons);

(8) the look-out;

(9) the missed approach and fly on procedures.

(c) Air exercise:

The student instructor has to demonstrate:

(1) the pre-landing checks;

(2) the selection of field;

(3) the rate of descent;

(4) the use of burner and parachute (hot air balloons);

(5) the use of ballast and parachute (gas balloons);

(6) the use of trail rope (if applicable) (gas balloons);

(7) the lookout procedures and how to avoid potential distraction;

(8) the missed approach and fly on techniques;

(9) how to advise the student pilot to perform an approach from a higher level;

(10) how to analyse and correct faults or errors of the student pilot.

EXERCISE 15: OPERATING AT LOW LEVEL

(a) Objective:

To advise the student instructor on how to explain and demonstrate the operation at a low height. Furthermore, the student instructor should learn how to identify student errors and how to correct them properly.

(b) Briefing:

The student instructor has to explain:

(1) the use of burner and parachute (hot air balloons);

(2) the use of ballast and parachute (gas balloons);

(3) the look out;

(4) how to avoid a contact with low level obstacles;

(5) how to avoid sensitive areas (for example nature protection areas);

(6) landowner relations.

(c) Air exercise:

The student instructor has to demonstrate:

(1) the use of burner and parachute (hot air balloons);

(2) the use of ballast and parachute (gas balloons);

(3) the lookout procedures and how to avoid potential distraction;

(4) how to avoid low level obstacles;

(5) good landowner relations;

(6) how to advise the student pilot to operate the balloon at a low level;

(7) how to analyse and correct faults or errors of the student pilot.

EXERCISE 16: LANDING IN DIFFERENT WIND CONDITIONS

(a) Objective:

To advise the student instructor on how to explain and demonstrate landings in different wind conditions. Furthermore, the student instructor should learn how to identify student errors and how to correct them properly.

(b) Briefing:

The student instructor has to explain:

(1) the correct actions for turbulences during the approach or landing;

(2) the passenger pre-landing briefing;

(3) the use of burner and pilot lights (hot air balloons);

(4) the use of ballast, parachute, valve and rip panel (gas balloons);

(5) the use of parachute and turning vents (if applicable);

(6) the look out;

(7) the landing, dragging and deflation;

(8) landowner relations.

(c) Air exercise:

The student instructor has to demonstrate:

(1) the pre-landing checks;

(2) the passenger briefing;

(3) the selection of field;

(4) the effect of turbulence;

(5) the use of burner and pilot lights (hot air balloons);

(6) the use of ballast, parachute, valve and rip panel (gas balloons);

(7) the use of parachute and turning vents (if applicable);

(8) the lookout procedures and how to avoid potential distraction;

(9) the landing, dragging and deflation procedures;

(10) how to advise the student pilot to perform a safe landing in different wind conditions;

(11) how to analyse and correct faults or errors of the student pilot.

EXERCISE 17: FIRST SOLO

(a) Objective:

To advise the student instructor on how to prepare their students for the first solo flight.

(b) Briefing:

The student instructor has to explain:

(1) the limitations of the flight;

(2) the use of required equipment.

(c) Air exercise:

The student instructor has to:

(1) check with another or more senior instructor if the student can fly solo;

(2) monitor the pre-flight preparation;

(3) brief the student (expected flight time or emergency actions);

(4) monitor the flight as far as possible;

(5) debrief the flight with the student.

EXERCISE 18: TETHERED FLIGHT HOT AIR BALLOONS (if tethered flight instructional qualification is required)

(a) Objective:

To advise the student instructor on how to explain and demonstrate the tethering techniques. Furthermore, the student instructor should learn how to identify student errors and how to correct them properly.

(b) Briefing:

The student instructor has to explain:

(1) the ground preparations;

(2) the weather suitability;

(3) the tethering techniques and equipment;

(4) the maximum all-up-weight limitation;

(5) the crowd control;

(6) the pre take-off checks and briefings;

(7) the heating for controlled lift off;

(8) the 'hands off and hands on' procedure for ground crew;

(9) the assessment of wind and obstacles;

(10) the controlled climb to a pre-defined altitude (at least 60 ft).

(c) Air exercise:

The student instructor has to demonstrate:

(1) the ground preparations;

(2) the tethering techniques;

(3) the reason for maximum all-up-weight limitation;

(4) how to perform the crowd control;

(5) the pre take-off checks and briefings;

(6) the heating for controlled lift off;

(7) the 'hands off and hands on' procedure for ground crew;

(8) the assessment of wind and obstacles;

(9) the controlled climb;

(10) the landing techniques;

(11) how to advise the student pilot to perform a tethered flight;

(12) how to analyse and correct faults or errors of the student pilot.

EXERCISE 19: NIGHT FLYING (if night instructional qualification required)

(a) Objective:

To advise the student instructor on how to explain and demonstrate the night flying techniques. Furthermore, the student instructor should learn how to identify student errors and how to correct them properly.

(b) Briefing:

The student instructor has to explain:

(1) the medical or physiological aspects of night vision;

(2) the use of lights for assembly, layout and inflation;

(3) the requirement for torch to be carried, (pre-flight inspection, etc.);

(4) the use of the external- and instrument lights;

(5) the night take-off procedure;

(6) the checklist procedures at night;

(7) the emergency procedures at night;

(8) the navigation principles at night;

(9) map marking for night use (highlighting built up or lit areas with thicker lines, etc.).

(c) Air exercise:

The student instructor has to demonstrate:

(1) the use of lights for assembly, layout and inflation;

(2) the use of torch for pre-flight inspection;

(3) the use of external- and instrument lights;

(4) the night take-off procedure;

(5) how to perform the checklist procedures at night;

(6) simulated night emergency procedures;

(7) night cross country techniques, as appropriate;

(8) how to advise the student pilot to perform a flight at night;

(9) how to analyse and correct faults or errors of the student pilot.

AMC1 LIC.940.FI(a)(2)FI — Revalidation and renewal

FI OR IRI REFRESHER SEMINAR

(a) FI or IRI refresher seminars made available should have due regard to geographical location, numbers attending, and periodicity.

(b) Such seminars should run for at least 2 days, and attendance from participants will be required for the whole duration of the seminar including breakout groups and workshops. Different aspects, such as inclusion of participants holding certificates in other categories of aircraft should be considered.

(c) Some experienced FIs or IRIs currently involved with flying training and with a practical understanding of the revalidation requirements and current instructional techniques should be included as speakers at these seminars.

(d) The attendance form will be completed and signed by the organiser of the seminar as approved by the Authority, following attendance and satisfactory participation by the FI or IRI.

(e) The content of the FI or IRI refresher seminar should be selected from the following:

(1) new or current rules or regulations, with emphasis on knowledge of CAR LIC and operational requirements;

(2) teaching and learning;

(3) instructional techniques;

(4) the role of the instructor;

(5) national regulations (as applicable);

(6) human factors;

(7) flight safety, incident and accident prevention;

(8) airmanship;

(9) legal aspects and enforcement procedures;

(10) navigational skills including new or current radio navigation aids;

(11) teaching instrument flying;

(12) weather related topics including methods of distribution.

(13) any additional topic selected by the Authority.

(f) Formal sessions should allow for a presentation time of 45 minutes, with 15 minutes for questions. The use of visual aids is recommended, with interactive video and other teaching aids (where available) for breakout groups and workshops.

GM1 LIC.940.FI(a)(2) FI — Revalidation and renewal

FI CERTIFICATE: REVALIDATION AND RENEWAL FORM

A. AEROPLANES

<table>
<tr><th colspan="5">INSTRUCTIONAL FLYING EXPERIENCE</th></tr>
<tr><td colspan="5">Instructors applying for revalidation of the FI certificate should enter the instructional hours flown during the preceding 36 months.</td></tr>
<tr><td colspan="2">SINGLE-ENGINE</td><td colspan="2">MULTI-ENGINE</td><td>INSTRUMENT</td></tr>
<tr><td>DAY</td><td>NIGHT</td><td>DAY</td><td>NIGHT</td><td></td></tr>
<tr><td colspan="5">Total instructional hours (preceding 36 months):</td></tr>
<tr><td colspan="5">Total instructional hours (preceding 12 months):</td></tr>
<tr><th colspan="5">FI REFRESHER SEMINAR</th></tr>
<tr><td>1</td><td colspan="4">This is to certify that the undersigned attended an FI seminar</td></tr>
<tr><td>2</td><td colspan="4">Attendee’s personal particulars:</td></tr>
<tr><td colspan="3">Name(s):</td><td colspan="2">Address:</td></tr>
<tr><td colspan="3">Licence number:</td><td colspan="2">Expiration date of FI(A) certificate</td></tr>
<tr><td>3</td><td colspan="4">Seminar particulars:</td></tr>
<tr><td colspan="3">Date(s) of seminar:</td><td colspan="2">Place:</td></tr>
<tr><td>4</td><td colspan="4">Declaration by the responsible organiser:</td></tr>
<tr><td colspan="5">I certify that the above data are correct and that the FI seminar was carried out.</td></tr>
<tr><td colspan="3">Date of approval:</td><td colspan="2">Name(s) of organiser: (capital letters)</td></tr>
<tr><td colspan="3">Date and place:</td><td colspan="2">Signature:</td></tr>
<tr><td>5</td><td colspan="4">Declaration by the attendee:</td></tr>
</table>

I confirm the data under 1 through 3
Attendee's signature:
PROFICIENCY CHECK
(Name(s) of applicant) has given proof of flying instructional ability during a proficiency check flight. This was done to the required standard.

Flying time:	Aeroplane or FFS used:
Main exercise:	
Name(s) of FIE:	Licence number:
Date and place:	Signature:

B. HELICOPTERS

INSTRUCTIONAL FLYING EXPERIENCE		
Instructors applying for revalidation of the FI certificate should enter the instructional hours flown during the preceding 36 months.		
Instrument:		
Total instructional hours (preceding 36 months):		
Total instructional hours (preceding 12 months):		
FI REFRESHER SEMINAR		
1	**This is to certify that the undersigned attended an FI seminar**	
2	**Attendees personal particulars:**	
Name(s):	Address:	
Licence number:	Expiration date of FI(H) certificate:	
3	**Seminar particulars:**	

Date(s) of seminar:		Place:	
4	**Declaration by the responsible organiser:**		
I certify that the above data are correct and that the FI seminar was carried out.			
Date of approval:		Name(s) of organiser: (capital letters)	
Date and place:		Signature:	
5	**Declaration by the attendee:**		
I confirm the data under 1 through 3			
Attendee's signature:			

PROFICIENCY CHECK
(Name(s) of applicant) has given proof of flying instructional ability during a proficiency check flight. This was done to the required standard.

Flying time:	Helicopter or FFS used:	
Main exercise:		
Name(s) of FIE:	Licence number:	
Date and place:		
	Signature:	

C. AIRSHIPS

INSTRUCTIONAL FLYING EXPERIENCE				
Instructors applying for revalidation of the FI certificate should enter the instructional hours flown during the preceding 36 months.				
SINGLE-ENGINE		MULTI-ENGINE		INSTRUMENT
DAY	NIGHT	DAY	NIGHT	

Total instructional hours (preceding 36 months):		
Total instructional hours (preceding 12 months):		
FLIGHT INSTRUCTOR REFRESHER SEMINAR		
1	**This is to certify that the undersigned attended an FI seminar**	
2	**Attendee's personal particulars:**	
Name(s):		Address:
Licence number:		Expiration date of FI(As) certificate:
3	**Seminar particulars:**	
Date(s) of seminar:		Place:
4	**Declaration by the responsible organiser:**	
I certify that the above data are correct and that the FI seminar was carried out.		
Date of approval:		Name(s) of organiser: (capital letters)
Date and place:		Signature:
5	**Declaration by the attendee:**	
I confirm the data under 1 through 3		
Attendee's signature:		
PROFICIENCY CHECK		
(Name(s) of applicant) has given proof of flying instructional ability during a proficiency check flight. This was done to the required standard.		
Flying time:		Airship or FFS used:
Main exercise:		
Name(s) of FIE:		Licence number:

Date and place:	Signature:

D. SAILPLANES INSTRUCTIONAL FLYING EXPERIENCE

INSTRUCTIONAL FLYING EXPERIENCE			
Instructors applying for revalidation of the FI certificate should enter the instructional hours and take-offs flown during the preceding 36 months.			
SAILPLANE (hours and take-offs)		TMG (hours and take-offs)	
DAY	NIGHT	DAY	NIGHT
Total instructional hours (preceding 36 months):			
Total instructional hours (preceding 12 months):			
Total amount of take-offs (preceding 36 months):			
Total amount of take-offs (preceding 12 months):			

FI REFRESHER SEMINAR		
1	**This is to certify that the undersigned attended an FI seminar**	
2	**Attendee's personal particulars:**	
Name(s):		Address:
Licence number:		Expiration date of FI(S) certificate:
3	**Seminar particulars:**	
Date(s) of seminar:		Place:
4	**Declaration by the responsible organiser:**	
I certify that the above data are correct and that the FI seminar was carried out.		
Date of approval:		Name(s) of organiser: (capital letters)
Date and place:		Signature:
5	**Declaration by the attendee:**	
I confirm the data under 1 through 3		

Attendee's signature:

PROFICIENCY CHECK	
(Name(s) of applicant) has given proof of flying instructional ability during a proficiency check flight. This was done to the required standard.	
Flying time:	Sailplane or TMG used:
Main exercise:	
Name(s) of FIE:	Licence number:
Date and place:	Signature:

E. BALLOONS

INSTRUCTIONAL FLYING EXPERIENCE					
Instructors applying for revalidation of the FI certificate should enter the instructional hours flown during the preceding 36 months.					
Balloons (gas)		Balloons (hot-air)		Hot-air airships	
DAY	NIGHT	DAY	NIGHT	DAY	NIGHT
Total instructional hours (preceding 36 months):					
Total instructional hours (preceding 12 months):					

FI REFRESHER SEMINAR		
1	**This is to certify that the undersigned attended an FI seminar**	
2	**Attendee's personal particulars:**	
Name(s):		Address:
Licence number:		Expiration date of FI(B) certificate:
3	**Seminar particulars:**	
Date(s) of seminar:		Place:
4	**Declaration by the responsible organiser:**	
I certify that the above data are correct and that the FI seminar was carried out.		

Date of approval:		Name(s) of organiser: (capital letters)
Date and place:		Signature:
5	**Declaration by the attendee:**	
I confirm the data under 1 through 3		
Attendee's signature:		
PROFICIENCY CHECK		
(Name(s) of applicant) has given proof of flying instructional ability during a proficiency check flight. This was done to the required standard.		
Flying time:		Balloon or hot-air airship used:
Main exercise:		
Name(s) of FIE:		Licence number:
Date and place:		Signature:

AMC1 LIC.930.TRI TRI — Training course

TRI TRAINING COURSE: AEROPLANES GENERAL

(a) The aim of the TRI(A) training course is to train aeroplane licence holders to the level of competence defined in LIC.920 and adequate for a TRI.

(b) The training course should develop safety awareness throughout by teaching the knowledge, skills and attitudes relevant to the TRI task, and should be designed to give adequate training to the applicant in theoretical knowledge instruction, flight instruction and FSTD instruction to instruct for an aeroplane type rating for which the applicant is qualified.

(c) The TRI(A) training course should give particular emphasis to the role of the individual in relation to the importance of human factors in the man- machine environment and the role of CRM.

(d) Special attention should be given to the applicant's maturity and judgment including an understanding of adults, their behavioural attitudes and variable levels of learning ability. During the training course the applicants should be made aware of their own attitudes to the importance of flight safety. It will be important during the training course to aim at giving the applicant the knowledge, skills and attitudes relevant to the role of the TRI.

(e) For a TRI(A) the amount of flight training will vary depending on the complexity of the aeroplane type. A similar number of hours should be used for the instruction and practice of pre-flight and post flight briefing for each exercise. The flight instruction should aim to ensure that the applicant is able to teach the air exercises safely and efficiently and should be related to the type of aeroplane on which the applicant wishes to instruct. The content of the training programme should cover training exercises applicable to the aeroplane type as set out in the applicable type rating courses.

(f) A TRI(A) may instruct in a TRI(A) course once he or she has conducted a minimum of four type rating instruction courses.

(g) It is to be noted that airmanship is a vital ingredient of all flight operations. Therefore, in the following air exercises the relevant aspects of airmanship are to be stressed at the appropriate times during each flight.

(h) The student instructor should learn how to identify common errors and how to correct them properly, which should be emphasised at all times.

CONTENT

(i) The training course consists of three parts:

(1) Part 1: teaching and learning instruction that should comply with AMC1 LIC.920;

(2) Part 2: technical theoretical knowledge instruction (technical training);

(3) Part 3: flight instruction.

Part 1

The content of the teaching and learning part of the FI training course, as established in AMC1 LIC.930.FI, should be used as guidance to develop the course syllabus.

Part 2

TECHNICAL THEORETICAL KNOWLEDGE INSTRUCTION SYLLABUS

(a) The technical theoretical knowledge instruction should comprise of not less than 10 hours training to include the revision of technical knowledge, the preparation of lesson plans and the development of classroom instructional skills to enable the TRI(A) to instruct the technical theoretical knowledge syllabus.

(b) If a TRI(A) certificate for MP aeroplanes is sought, particular attention should be given to multi-crew cooperation. If a TRI(A) certificate for SP aeroplanes is sought, particular attention should be given to the duty in SP operations.

(c) The type rating theoretical syllabus should be used to develop the TRI(A)'s teaching skills in relation to the type technical course syllabus. The course instructor should deliver example lectures from the applicable type technical syllabus and the candidate instructor should prepare and deliver lectures on topics selected by the course instructor from the type rating course.

Part 3

FLIGHT INSTRUCTION SYLLABUS

(a) The course should be related to the type of aeroplane on which the applicant wishes to instruct.

(b) TEM, CRM and the appropriate use of behavioural markers should be integrated throughout.

(c) The content of the training programme should cover all the significant exercises applicable to the aeroplane type.

(d) The applicant for a TRI(A) certificate should be taught and made familiar with the device, its limitations, capabilities and safety features, and the instructor station, including emergency evacuation.

FSTD TRAINING

(e) The applicant for a TRI(A) certificate should be taught and made familiar with giving instruction from the instructor station. In addition, before being checked for base training instruction, the applicant for a TRI(A) should be taught and made familiar with giving instruction from all operating positions, including demonstrations of appropriate handling exercises.

(f) Training courses should be developed to give the applicant experience in training a variety of exercises, covering both normal and abnormal operations. The syllabus should be tailored appropriate to the aeroplane type, using exercises considered more demanding for the student. This should include engine-out handling and engine-out operations in addition to representative exercises from the type transition course.

(g) The applicant should be required to plan, brief, train and debrief sessions using all relevant training techniques.

AEROPLANE TRAINING

(h) The applicant for a TRI(A) certificate should receive instruction in an FFS to a satisfactory level in:

(1) right hand seat familiarisation, which should include at least the following as pilot flying:

(i) re-flight preparation and use of checklists;

(ii) taxiing;

(iv) take-off;

(iv) rejected take-off;

(v) engine failure during take-off, after v1;

(vi) engine inoperative approach and go-around;

(vii) one engine (critical) simulated inoperative landing;

(viii) other emergency and abnormal operating procedures (as necessary).

(2) aeroplane training techniques:

(i) methods for giving appropriate commentary;

(ii) particularities of handling the aeroplane in touch and go manoeuvres;

(iii) intervention strategies developed from situations role-played by a TRI course instructor, taken from but not limited to:

(A) take-off configuration warning;

(B) over controlling;

(C) high flare: long float;

(D) long flare;

(E) baulked landing;

(F) immediate go-around from touch;

(G) too high on approach: no flare;

(H) incorrect configuration;

(I) TAWS warning;

(J) misuse of rudder;

(K) over control in roll axis during flare;

(L) incapacitation;

(M) actual abnormal or emergencies.

(i) Additionally, if the applicant is required to train emergency or abnormal procedures in an aeroplane, synthetic device training as follows:

(1) appropriate methods and minimum altitudes for simulating failures;

(2) incorrect rudder inputs;

(3) failure of a critical engine;

(4) approach and full-stop landing with simulated engine-out.

(j) In this case, the abnormal manoeuvres refer to engine-out handling as necessary for completion of type rating training. If the applicant is required to train other abnormal items in the transition course, additional training will be required.

(k) Upon successful completion of the training above, the applicant should receive training in an aeroplane in-flight under the supervision of a TRI(A). At the completion of training the applicant instructor should be required to conduct a training flight under the supervision and to the satisfaction of a TRI(A) nominated for this purpose by the training organisation.

TRAINING FOR ASYMMETRIC POWER FLIGHT ON SP MET AEROPLANES

(l) During these regulations of the training, special emphasis is to be placed on the:

(1) circumstances in which actual feathering and un-feathering practice will be done, for example safe altitude; compliance with regulations about minimum altitude or height for feathering practice, weather conditions, distance from nearest available aerodrome.

(2) procedure to use for instructor and student co-operation, for example the correct use of touch drills and the prevention of misunderstandings, especially during feathering and unfeathering practice and when zero thrust is being used for asymmetric circuits. This procedure is to include positive agreement as to which engine is being shut down or re-started or set at zero thrust and identifying each control and naming the engine it is going to affect.

(3) consideration to be given to avoid over-working the operating engine, and the degraded performance when operating the aeroplane during asymmetric flight.

(4) need to use the specific checklist for the aeroplane type.

LONG BRIEFINGS:

(m) Flight on asymmetric power

(1) introduction to asymmetric flight;

(2) feathering the propeller: method of operation;

(3) effects on aeroplane handling at cruising speed;

(4) introduction to effects upon aeroplane performance;

(5) note foot load to maintain a constant heading (no rudder trim);

(6) un-feathering the propeller: regain normal flight;

(7) finding the zero thrust setting: comparison of foot load when feathered and with zero thrust set.

(8) effects and recognition of engine failure in level flight;

(9) the forces and the effects of yaw;

(10) types of failure:

(i) sudden or gradual;

(ii) complete or partial.

(11) yaw, direction and further effects of yaw;

(12) flight instrument indications;

(13) identification of failed engine;

(14) the couples and residual out of balance forces: resultant flight attitude;

(15) use of rudder to counteract yaw;

(16) use of aileron: dangers of misuse;

(17) use of elevator to maintain level flight;

(18) use of power to maintain a safe air speed and altitude;

(19) supplementary recovery to straight and level flight: simultaneous increase of speed and reduction in power;

(20) identification of failed engine:= idle engine;

(21) use of engine instruments for identification:

(i) fuel pressure or flow;

(ii) RPM gauge response effect of CSU action at lower and higher air speed;

(iii) engine temperature gauges.

(22) confirmation of identification: close the throttle of identified failed engine;

(23) effects and recognition of engine failure in turns;

(24) identification and control;

(25) side forces and effects of yaw.

(n) During turning flight:

(1) effect of 'inside' engine failure: effect sudden and pronounced;

(2) effect of 'outside' engine failure: effect less sudden and pronounced;

(3) the possibility of confusion in identification (particularly at low power):

(i) correct use of rudder;

(ii) possible need to return to lateral level flight to confirm correct identification;

(4) visual and flight instrument indications;

(5) effect of varying speed and power;

(6) speed and thrust relationship;

(7) at normal cruising speed and cruising power: engine failure clearly recognised;
(8) at low safe speed and climb power: engine failure most positively recognised;

(9) high speed descent and low power: possible failure to notice asymmetry (engine failure);

(o) Minimum control speeds:

(1) ASI colour coding: red radial line

Note: this exercise is concerned with the ultimate boundaries of controllability in various conditions that a student can reach in a steady asymmetric power state, approached by a gradual speed reduction. Sudden and complete failure should not be given at the flight manual Vmca. The purpose of the exercise is to continue the gradual introduction of a student to control an aeroplane in asymmetric power flight during extreme or critical situations. It is not a demonstration of Vmca.

(2) techniques for assessing critical speeds with wings level and recovery – dangers involved when minimum control speed and the stalling speed are very close: use of Vsse;

(3) establish a minimum control speed for each asymmetrically disposed engine: to establish critical engine (if applicable);

(4) effects on minimum control speeds of:

(i) bank;

(ii) zero thrust setting;

(iii) take-off configuration:

(A) landing gear down and take-off flap set; (B) landing gear up and take-off flap set.

Note: it is important to appreciate that the use of 5° of bank towards the operating engine produces a lower vmca and also a better performance than that obtained with the wings held level. It is now normal for manufacturers to use 5° of bank in this manner when determining the vmca for the specific type. Thus the vmca quoted in the aeroplane manual will have been obtained using the technique.

(p) Feathering and un-feathering:

(1) minimum heights for practising feathering or un-feathering drills;

(2) engine handling: precautions (overheating, icing conditions, priming, warm up and method of simulating engine failure: reference to aircraft engine manual and service instructions and bulletins).

(q) Engine failure procedure:

(1) once the maintenance of control has been achieved, the order in which the procedures are carried out will be determined by the phase of operation and the aircraft type;

(2) flight phase:

(i) in cruising flight;

(ii) critical phase such as immediately after take-off or during the approach to landing or during a go-around.

(r) Aircraft type

Variations will inevitably occur in the order of certain drills and checks due to differences between aeroplane types and perhaps between models of the same type. The flight manual or equivalent document (for example owner's manual or pilot's operating handbook) is to be consulted to establish the exact order of these procedures.

For example, one flight manual or equivalent document (for example owner's manual or pilot's operating handbook) may call for the raising of flaps and landing gear before feathering, whilst another may recommend feathering as a first step. The reason for this latter procedure could be due to the fact that some engines cannot be feathered if the rpm drops below a certain figure.

Again, in some aeroplanes, the raising of the landing gear may create more drag during retraction due to the transient position of the landing gear doors and as a result of this retraction would best be left until feathering has been accomplished and propeller drag reduced.

Therefore, the order in which the drills and checks are shown in this syllabus under immediate and subsequent actions are to be used as a general guide only and the exact order of precedence is determined by reference to the flight manual or equivalent document (for example owner's manual or pilot's operating handbook) for the specific aeroplane type being used on the course.

(s) In-flight engine failure in cruise or other flight phase not including take- off or landing:

(1) immediate actions:

(i) recognition of asymmetric condition;

(ii) identification and confirmation of failed engine:

(A) idle leg = idle engine;

(B) closing of throttle for confirmation.

(iii) cause and fire check:

(A) typical reasons for failure;

(B) methods of rectification.

(iv) feathering decision and procedure:

(A) reduction of other drag;

(B) need for speed but not haste;

(C) use of rudder trim.

(2) subsequent actions:

(i) live engine:

(A) temperature, pressures and power;

(B) remaining services;

(C) electrical load: assess and reduce as necessary;

(D) effect on power source for air driven instruments;

(E) landing gear;

(F) flaps and other services.

(ii) re-plan flight:

(A) ATC and weather;

(B) terrain clearance, SE cruise speed;

(C) decision to divert or continue.

(iii) fuel management: best use of remaining fuel;

(iv) dangers of re-starting damaged engine;

(v) action if unable to maintain altitude: effect of altitude on power available;

(vi) effects on performance;

(vii) effects on power available and power required;

(viii) effects on various airframe configuration and propeller settings;

(ix) use of flight or owner's manual:

(A) cruising;

(B) climbing: ASI colour coding (blue line);

(C) descending;

(D) turning.

(x) 'live' engine limitations and handling;

(xi) take-off and approach: control and performance;

(t) Significant factors:

(1) significance of take-off safety speed:

(i) effect of landing gear, flap, feathering, take-off, trim setting and systems for operating landing gear and flaps;

(ii) effect on mass, altitude and temperature (performance).

(2) significance of best SE climb speed (vyse):

(i) acceleration to best engine climb speed and establishing a positive climb;

(ii) relationship of SE climb speed to normal climb speed;

(iii) action if unable to climb.

(3) significance of asymmetric committal height and speed: action if baulked below asymmetric committal height;

(u) Engine failure during take-off:

(1) below vmca or unstick speed:

(i) accelerate or stop distance considerations;

(ii) prior use of flight manual data if available.

(2) above vmca or unstick speed and below safety speed;

(3) immediate re-landing or use of remaining power to achieve forced landing;

(4) considerations:

(i) degree of engine failure;

(ii) speed at the time;

(iii) mass, altitude, temperature (performance);

(iv) configuration;

(v) length of runway remaining;

(vi) position of any obstacles ahead;

(v) Engine failure after take-off:

(1) simulated at a safe height and at or above take-off safety speed;

(2) considerations:

(i) need to maintain control;

(ii) use of bank towards operating engine;

(iii) use of available power achieving best SE climb speed;

(iv) mass, altitude, temperature (performance);

(v) effect of prevailing conditions and circumstances.

(3) Immediate actions:

(i) maintenance of control, including air speed and use of power;

(ii) recognition of asymmetric condition;

(iii) identification and confirmation of failed engine;

(iv) feathering and removal of drag (procedure for type);

(v) establishing best SE climb speed.

(4) Subsequent actions: whilst carrying out an asymmetric power climb to the downwind position at SE best rate of climb speed:

(i) cause and fire check;

(ii) live engine, handling considerations;

(iii) remaining services;

(iv) ATC liaison;

(v) fuel management.

Note: these procedures are applicable to aeroplane type and flight situation.

(w) Asymmetric committal height:

(1) Asymmetric committal height is the minimum height needed to establish a positive climb whilst maintaining adequate speed for control and removal of drag during an approach to a landing.

Because of the significantly reduced performance of many CS-23 aeroplanes when operating on one engine, consideration is to be given to a minimum height from which it would be safely possible to attempt a go-around procedure, during an approach when the flight path will have to be changed from a descent to a climb with the aeroplane in a high drag configuration.

Due to the height loss which will occur during the time that the operating engine is brought up to full power, landing gear and flap retracted, and the aeroplane established in a climb at vyse a minimum height (often referred to as ‘asymmetric committal height’) is to be selected, below which the pilot should not attempt to take the aeroplane round again for another circuit. This height will be compatible with the aeroplane type, all up weight, altitude of the aerodrome being used, air temperature, wind, the height of obstructions along the climb out path, and pilot competence.

(2) Circuit approach and landing on asymmetric power:

(i) definition and use of asymmetric committal height;

(ii) use of standard pattern and normal procedures;

(iii) action if unable to maintain circuit height;

(iv) speed and power settings required;

(v) decision to land or go-around at asymmetric committal height: factors to be considered;

(3) Undershooting: importance of maintaining correct air speed, (not below vyse).

(x) Speed and heading control:

(1) height, speed and power relationship: need for minimum possible drag;

(2) establishing positive climb at best SE rate of climb speed:

(i) effect of availability of systems, power for flap and landing gear;

(ii) operation and rapid clean up.

Note 1: The air speed at which the decision is made to commit the aeroplane to a landing or to go-around should normally be the best SE rate of climb speed and in any case not less than the safety speed.

Note 2: On no account should instrument approach 'decision height' and its associated procedures be confused with the selection of minimum height for initiating a go-around in asymmetric power flight.

(y) Engine failure during an all engines approach or missed approach:

(1) use of asymmetric committal height and speed considerations;

(2) speed and heading control: decision to attempt a landing, go-around or force land as circumstances dictate.

Note: at least one demonstration and practice of engine failure in this situation should be performed during the course.

(z) Instrument flying on asymmetric power:

(1) considerations relating to aircraft performance during:

(i) straight and level flight;

(ii) climbing and descending;

(iii) standard rate turns;

(iv) level, climbing and descending turns including turns onto pre- selected headings.

(2) vacuum operated instruments: availability;

(3) electrical power source.

ADDITIONAL TRAINING FOR PRIVILEGES TO CONDUCT LINE FLYING UNDER SUPERVISION

(aa) In order to be able to conduct line flying under supervision, as provided in LIC.910.TRI(a), the TRI should have received the additional training described in paragraph (k) of this AMC.

TRAINING WHERE NO FSTD EXISTS

(ab) Where no FSTD exists for the type for which the certificate is sought, a similar course of training should be conducted in the applicable aeroplane type. This includes all elements listed under this sub paragraph, the synthetic device elements being replaced with appropriate exercises in an aeroplane of the applicable type.

AMC2 LIC.930.TRI TRI — training course

HELICOPTERS GENERAL

(a) The aim of the TRI(H) course is to train helicopter licence holders to the level of competence defined in LIC.920 and adequate for a TRI.

(b) The training course should develop safety awareness throughout by teaching the knowledge, skills and attitudes relevant to the TRI(H) task, and should be designed to give adequate training to the applicant in theoretical knowledge instruction, flight instruction and FSTD instruction to instruct for a helicopter type rating for which the applicant is qualified.

(c) The TRI(H) training course should give particular emphasis to the role of the individual in relation to the importance of human factors in the man- machine environment and the role of CRM.

(d) Special attention should be given to the applicant's maturity and judgment including an understanding of adults, their behavioural attitudes and variable levels of learning ability. During the training course the applicants should be made aware of their own attitudes to the importance of flight safety. It will be important during the course of training to aim at giving the applicant the knowledge, skills and attitudes relevant to the role of the TRI.

(e) For a TRI(H) certificate the amount of flight training will vary depending on the complexity of the helicopter type.

(f) A similar number of hours should be used for the instruction and practice of pre-flight and post flight briefing for each exercise. The flight instruction should aim to ensure that the applicant is able to teach the air exercises safely and efficiently and should be related to the type of helicopter on which the applicant wishes to instruct. The content of the training program should cover training exercises applicable to the helicopter type as set out in the applicable type rating course syllabus.

(g) A TRI(H) may instruct in a TRI(H) course once he or she has conducted a minimum of four type rating instruction courses.

CONTENT

(h) The training course consists of three parts:

(1) Part 1: teaching and learning, that should comply with AMC1 LIC.920;

(2) Part 2: technical theoretical knowledge instruction (technical training); (3) Part 3: flight instruction.

Part 1

The content of the teaching and learning part of the FI training course, as established in AMC1 LIC.930.FI, should be used as guidance to develop the course syllabus.

Part 2

TECHNICAL THEORETICAL KNOWLEDGE INSTRUCTION SYLLABUS

(a) The technical theoretical knowledge instruction should comprise of not less than 10 hours training to include the revision of technical knowledge, the preparation of lesson plans and the development of classroom instructional skills to enable the TRI(H) to instruct the technical theoretical knowledge syllabus.

(b) If a TRI(H) certificate for MP helicopters is sought, particular attention should be given to multi-crew cooperation.

(c) The type rating theoretical syllabus should be used to develop the TRI(H)'s teaching skills in relation to the type technical course syllabus. The course instructor should deliver example lectures from the applicable type technical syllabus and the candidate instructor should prepare and deliver lectures on topics selected by the course instructor from the subject list below:

(1) helicopter structure, transmissions, rotor and equipment, normal and abnormal operation of systems:

(i) dimensions;

(ii) engine including aux. power unit, rotors and transmissions;

(iii) fuel system;

(iv) air-conditioning;

(v) ice protection, windshield wipers and rain repellent;

(vi) hydraulic system;

(vii) landing gear;

(viii) flight controls, stability augmentation and autopilot systems;

(ix) electrical power supply;

(x) flight instruments, communication, radar and navigation

(xi) equipment; cockpit, cabin and cargo compartment;

(xii) emergency equipment.

(2) limitations:

(i) general limitations, according to the helicopter flight manual;

(ii) minimum equipment list.

(3) performance, flight planning and monitoring:

(i) performance;

(ii) flight planning.

(4) load and balance and servicing:

(i) load and balance;

(ii) servicing on ground;

(5) emergency procedures;

(6) special requirements for helicopters with EFIS;

(7) optional equipment.

Part 3

FLIGHT INSTRUCTION SYLLABUS

(a) The amount of flight training will vary depending on the complexity of the helicopter type. At least 5 hours flight instruction for a SP helicopter and at least 10 hours for a MP ME helicopter should be counted. A similar number of hours should be used for the instruction and practice of pre-flight and post flight briefing for each exercise. The flight instruction should aim to ensure that the applicant is able to teach the air exercises safely and efficiently and related to the type of helicopter on which the applicant wishes to instruct. The content of the training programme should only cover training exercises applicable to the helicopter type as set out in Appendix 9 to CAR LIC.

(b) If a TRI(H) certificate for MP helicopters is sought, particular attention should be given to MCC.

(c) If a TRI(H) certificate for revalidation of instrument ratings is sought, then the applicant should hold a valid instrument rating.

FLIGHT OR FSTD TRAINING

(d) The training course should be related to the type of helicopter on which the applicant wishes to instruct.

(e) For MP helicopter type ratings MCC, CRM and the appropriate use of behavioural markers should be integrated throughout.

(f) The content of the training programme should cover identified and significant exercises applicable to the helicopter type.

FSTD TRAINING

(g) The applicant for a TRI(H) certificate should be taught and made familiar with the device, its limitations, capabilities and safety features, and the instructor station.

(h) The applicant for a TRI(H) certificate should be taught and made familiar with giving instruction from the instructor station seat as well as the pilot's seats, including demonstrations of appropriate handling exercises.

(i) Training courses should be developed to give the applicant experience in training a variety of exercises, covering both normal and abnormal operations. The syllabus should be tailored appropriate to the helicopter type, using exercises considered more demanding for the student. This should include engine-out handling and engine-out operations in addition to representative exercises from the type transition course.

(j) The applicant should be required to plan, brief, train and debrief sessions using all relevant training techniques.

HELICOPTER TRAINING

(k) The applicant for a TRI(H) certificate should receive instruction in an FSTD to a satisfactory level in:

(1) left hand seat familiarisation, and in addition right hand seat familiarisation where instruction is to be given to co-pilots operating in the left hand seat, which should include at least the following as pilot flying:

(i) pre-flight preparation and use of checklists;

(ii) taxiing: ground and air;

(iii) take-off and landings;

(iv) engine failure during take-off, before DPATO;

(v) engine failure during take-off, after DPATO;

(vi) engine inoperative approach and go-around;

(vii) one engine simulated inoperative landing;

(viii) autorotation to landing or power recovery;

(ix) other emergency and abnormal operating procedures (as necessary);

(x) instrument departure, approach and go-around with one engine simulated inoperative should be covered where TRI(H) privileges include giving instrument instruction for the extension of an IR(H) to additional types.

(2) helicopter training techniques:

(i) methods for giving appropriate commentary;

(ii) instructor demonstrations of critical manoeuvres with commentary;

(iii) particularities and safety considerations associated with handling the helicopter in critical manoeuvres such as one-engine- inoperative and autorotation exercises;

(iv) where relevant, the conduct of instrument training with particular emphasis on weather restrictions, dangers of icing and limitations on the conduct of critical manoeuvres in instrument meteorological conditions;

(v) intervention strategies developed from situations role-played by a TRI(H) course instructor, taken from but not limited to:

(A) incorrect helicopter configuration;

(B) over controlling;
(C) incorrect control inputs;

(D) excessive flare close to the ground;

(E) one-engine-inoperative take-off and landings;

(F) incorrect handling of autorotation;

(G) static or dynamic rollover on take-off or landing;

(H) too high on approach with associated danger of vortex ring or settling with power;

(I) incapacitation;

(J) abnormal and emergency procedures and appropriate methods and minimum altitudes for simulating failures in the helicopter;

(K) failure of the driving engine during OEI manoeuvres.

(l) Upon successful completion of the training above, the applicant should receive sufficient training in an helicopter in-flight under the supervision of a TRI(H) to a level where the applicant is able to conduct the critical items of the type rating course to a safe standard. Of the minimum course requirements of 5 hours flight training for a SP helicopter or 10 hours for a MP helicopter, up to 3 hours of this may be conducted in an FSTD.

TRAINING WHERE NO FSTD EXISTS

(m) Where no FSTD exists for the type for which the TRI(H) certificate is sought, a similar course of training should be conducted in the applicable helicopter type. This includes all elements listed under sub paragraphs (k)(1) and (2) of this AMC, the FSTD elements being replaced with appropriate exercises in a helicopter of the applicable type, subject to any restrictions placed on the conduct of critical exercises associated with helicopter flight manual limitations and safety considerations.

AMC1 LIC.930.CRI CRI — Training course

GENERAL

(a) The aim of the CRI training course is to train aircraft licence holders to the level of competence defined in LIC.920 and adequate to a CRI.

(b) The training course should be designed to give adequate training to the applicant in theoretical knowledge instruction, flight instruction and FSTD instruction to instruct for any class or type rating for non-complex non-high performance SP aeroplanes for which the applicant is qualified.

(c) The flight training should be aimed at ensuring that the applicant is able to teach the air exercises safely and efficiently to students undergoing a course of training for the issue of a class or type rating for non-complex non-high performance SP aeroplanes. The flight training may take place on the aeroplane or an FFS.

(d) It is to be noted that airmanship is a vital ingredient of all flight operations. Therefore, in the following air exercises the relevant aspects of airmanship are to be stressed at the appropriate times during each flight.

(e) The student instructor should learn how to identify common errors and how to correct them properly, which should be emphasised at all times.

CONTENT

(f) The training course consists of three parts:

(1) Part 1: teaching and learning that should follow the content of AMC1 LIC.920;

(2) Part 2: technical theoretical knowledge instruction (technical training);

(3) Part 3: flight instruction.

Part 1

The content of the teaching and learning part of the FI training course, as established in AMC1 LIC.930.FI, should be used as guidance to develop the course syllabus.

Part 2

This syllabus is concerned only with the training on ME aeroplanes. Therefore, other knowledge areas, common to both SE and ME aeroplanes, should be revised as necessary to cover the handling and operating of the aeroplane with all engines operative, using the applicable sections of the ground subjects syllabus for the FI course. Additionally, the ground training should include 25 hours of classroom work to develop the applicant’s ability to teach a student the knowledge and understanding required for the air exercise section of the ME training course.

These regulations will include the long briefings for the air exercises.

THEORETICAL KNOWLEDGE INSTRUCTION SYLLABUS

Suggested breakdown of course classroom hours:

Tuition hours	Practice in class	Topic	Internal progress test
1.00		Aviation legislation	1.00
2.00		Performance, all engines operating, including mass and balance	
2.00		Asymmetric flight Principles of flight	
2.00	2.00	Control in asymmetric flight Minimum control and safety speeds Feathering and un-feathering	
2.00		Performance in asymmetric flight	1.00
2.00		Specific type of aeroplane – operation of systems.	1.00
		Airframe and engine limitations	
4.00	5.00	Briefings for air exercises progress	
15.00	7.00		3.00
Course total	25.00 (including progress test)		

GENERAL SUBJECTS

(a) Air legislation:

(1) aeroplane performance group definitions;

(2) methods of factoring gross performance.

(b) Asymmetric power flight;

(c) Principles of flight;

(d) The problems:

(1) asymmetry;

(2) control;

(3) performance;

(e) The forces and couples:

(1) offset thrust line;

(2) asymmetric blade effect;

(3) offset drag line;

(4) failed engine propeller drag;

(5) total drag increase;

(6) asymmetry of lift;

(7) uneven propeller slipstream effect;

(8) effect of yaw in level and turning flight;

(9) thrust and rudder side force couples;

(10) effect on moment arms.

(f) Control in asymmetric power flight:

(1) use, misuse and limits of:

(i) rudder;

(ii) aileron;

(iii) elevators.

(2) effect of bank or sideslip and balance;

(3) decrease of aileron and rudder effectiveness;

(4) fin stall possibility;

(5) effect of IAS and thrust relationship;

(6) effect of residual unbalanced forces;

(7) foot loads and trimming.

(g) Minimum control and safety speeds:

(1) minimum control speed (vmc);

(2) definition;

(3) origin;

(4) factors affecting (vmc):

(i) thrust;

(ii) mass and centre of gravity position;

(iii) altitude;

(iv) landing gear;

(v) flaps;

(vi) cowl flaps or cooling gills;

(vii) turbulence or gusts;

(viii) pilot reaction or competence;

(ix) banking towards the operating engine;

(x) drag;

(xi) feathering;

(xii) critical engine.

(5) take-off safety speed;

(6) definition or origin of v2;

(7) other relevant v codes;

(h) Aeroplane performance: one engine inoperative:

(1) effect on excess power available;

(2) SE ceiling;

(3) cruising, range and endurance;

(4) acceleration and deceleration;

(5) zero thrust, definition and purpose;

(i) Propellers:

(1) variable pitch: general principles;

(2) feathering and un-feathering mechanism and limitations (for example minimum RPM);

(j) Specific aeroplane type;

(k) Aeroplane and engine systems:

(1) operation normal;

(2) operation abnormal;

(3) emergency procedures.

(l) Limitations: airframe:

(1) load factors;

(2) landing gear and flap limiting speeds (vlo and vfe);

(3) rough air speed (vra);

(4) maximum speeds (vno and vne).

(m) Limitations: engine:

(1) RPM and manifold pressure;

(2) oil temperature and pressure;

(3) emergency procedures.

(n) Mass and balance:

(to be covered in conjunction with the flight manual or equivalent document (for example owner's manual or pilot's operating handbook))

(1) mass and balance documentation for aeroplane type;

(2) revision of basic principles;

(3) calculations for specific aeroplane type.

(o) Mass and performance:

(to be covered in conjunction with the flight manual or equivalent document (for example owner's manual or pilot's operating handbook))

(1) calculations for specific aeroplane type (all engines operating);

(2) take-off run;

(3) take-off distance;

(4) accelerate and stop distance;

(5) landing distance;

(6) landing run;

(7) take-off or climb out flight path;

(8) calculations for specific aeroplane type (one engine operating);

(9) climb out flight path;

(10) landing distance;

(11) landing run.

Part 3

FLIGHT INSTRUCTION SYLLABUS: NORMAL FLIGHT

(a) These regulations is similar to the air exercise sections of the SE FI course, including 'Introduction to instrument flying' except that the objectives, airmanship considerations and common errors are related to the operation of an ME aeroplane.

(b) The purpose of these regulations is to acquaint the applicant with the teaching aspects of the operational procedures and handling of an ME aeroplane with all engines functioning.

(c) The following items should be covered:

(1) aeroplane familiarisation;

(2) pre-flight preparation and aeroplane inspection;

(3) engine starting procedures;

(4) taxiing;

(5) pre take-off procedures;

(6) the take-off and initial climb:

(i) into wind;

(ii) crosswind;

(iii) short field.

(7) climbing;

(8) straight and level flight;

(9) descending (including emergency descent procedures);

(10) turning;

(11) slow flight;

(12) stalling and recoveries;

(13) instrument flight: basic;

(14) emergency drills (not including engine failure);

(15) circuit, approach and landing:

(i) into wind;

(ii) crosswind;

(iii) short field;

(16) mislanding and going round again;

(17) actions after flight.

AIR EXERCISES

(d) The following air exercises are developments of the basic SE syllabus which are to be related to the handling of ME types to ensure that the student learns the significance and use of controls and techniques which may be strange to the student in all normal, abnormal and emergency situations, except that engine failure and flight on asymmetric power are dealt with separately in the air exercises in Part 2.

EXERCISE 1: FAMILIARISATION WITH THE AEROPLANE

(a) Long briefing objectives:

(1) introduction to the aeroplane;

(2) explanation of the cockpit layout;

(3) systems and controls;

(4) aeroplane power plant;

(5) checklists and drills;

(6) differences when occupying the instructor's seat;

(7) emergency drills:

(i) action in event of fire in the air and on the ground;

(ii) escape drills: location of exits and use of emergency equipment (for example fire extinguishers, etc.).

(8) pre-flight preparation and aeroplane inspection:

(i) aeroplane documentation;

(ii) external checks;

(iii) internal checks;

(iv) harness, seat or rudder pedal adjustment;

(9) engine starting procedures:

(i) use of checklists;

(ii) checks before starting;

(iii) checks after starting.

(b) Air exercise:

(1) external features;

(2) cockpit layout;

(3) aeroplane systems;

(4) checklists and drills;

(5) action if fire in the air and on the ground;

(i) engine;

(ii) cabin;

(iii) electrical.

(6) systems failure (as applicable to type);

(7) escape drills (location and use of emergency equipment and exits);

(8) preparation for and action after flight:

(i) flight authorisation and aeroplane acceptance;

(ii) technical log or certificate of maintenance release;

(iii) mass and balance and performance considerations;

(iv) external checks;

(v) internal checks, adjustment of harness or rudder pedals;

(vi) starting and warming up engines;

(vii) checks after starting;

(viii) radio navigation and communication checks;

(ix) altimeter checks and setting procedures;

(x) power checks;

(xi) running down and switching off engines;

(xii) completion of authorisation sheet and aeroplane serviceability documents.

EXERCISE 2: TAXIING

(a) Long briefing objectives:

(1) pre-taxiing area precautions (greater mass: greater inertia);

(2) effect of differential power;

(3) precautions on narrow taxiways;

(4) pre take-off procedures:

(i) use of checklist;

(ii) engine power checks;

(iii) pre take-off checks;

(iv) instructor's briefing to cover the procedure to be followed should an emergency occur during take-off, for example engine failure.

(5) the take-off and initial climb:

(i) ATC considerations;

(ii) factors affecting the length of the take-off run or distance;

(iii) correct lift-off speed;

(iv) importance of safety speed;

(v) crosswind take-off, considerations and procedures;

(vi) short field take-off, considerations and procedures;

(vii) engine handling after take-off: throttle, pitch and engine synchronisation.

(6) climbing:

(i) pre-climbing checks;

(ii) engine considerations (use of throttle or pitch controls);

(iii) maximum rate of climb speed;

(iv) maximum angle of climb speed;

(v) synchronising the engines.

(b) Air exercise

(1) pre-taxing checks;

(2) starting, control of speed and stopping;

(3) control of direction and turning;

(4) turning in confined spaces;

(5) leaving the parking area;

(6) freedom of rudder movement (importance of pilot ability to use full rudder travel);

(7) instrument checks;

(8) emergencies (brake or steering failure);

(9) pre take-off procedures:

(i) use of checklist;

(ii) engine power and system checks;

(iii) pre take-off checks;

(iv) instructor’s briefing if emergencies during take-off.

(10) the take-off and initial climb:

(i) ATC considerations;

(ii) directional control and use of power;

(iii) lift-off speed;

(iv) crosswind effects and procedure;

(v) short field take-off and procedure.

(vi) procedures after take-off (at an appropriate stage of the course):

(A) landing gear retraction;

(B) flap retraction (as applicable);

(C) selection of manifold pressure and RPM;

(D) engine synchronisation;

(E) other procedures (as applicable).

(11) climbing:

(i) pre-climbing checks;

(ii) power selection for normal and maximum rate climb;

(iii) engine and RPM limitations;

(iv) effect of altitude on manifold pressure, full throttle;

(v) levelling off: power selection;

(vi) climbing with flaps down;

(vii) recovery to normal climb;

(viii) en-route climb (cruise climb);

(ix) maximum angle of climb;

(x) altimeter setting procedures;

(xi) prolonged climb and use of cowl flaps or cooling gills;

(xii) instrument appreciation.

EXERCISE 3: STRAIGHT AND LEVEL FLIGHT

(a) Long briefing objectives:

(1) selection of power: throttle or pitch controls;

(2) engine synchronisation;

(3) fuel consumption aspects;

(4) use of trimming controls: elevator and rudder (aileron as applicable);

(5) operation of flaps:

(i) effect on pitch attitude;

(ii) effect on air speed.

(6) operation of landing gear:

(i) effect on pitch attitude;

(ii) effect on air speed.

(7) use of mixture controls;

(8) use of alternate air or carburettor heat controls;

(9) operation of cowl flaps or cooling gills;

(10) use of cabin ventilation and heating systems;

(11) operation and use of the other systems (as applicable to type);

(12) descending:

(i) pre-descent checks;

(ii) normal descent;

(iii) selection of throttle or pitch controls;

(iv) engine cooling considerations;

(v) emergency descent procedure.

(13) turning:

(i) medium turns;

(ii) climbing and descending turns;

(iii) steep turns (45 ° of bank or more).

(b) Air exercise:

(1) at normal cruising power:

(i) selection of cruise power;

(ii) manifold pressure or RPM;

(iii) engine synchronisation;

(iv) use of trimming controls;

(v) performance considerations: range or endurance.

(2) instrument appreciation;

(3) operation of flaps (in stages):

(i) air speed below vfe;

(ii) effect on pitch attitude;

(iii) effect on air speed.

(4) operation of landing gear:

(i) air speed below vlo / vle;

(ii) effect on pitch attitude;

(iii) effect on air speed.

(5) use of mixture controls;

(6) use of alternate air or carburettor control;

(7) operation of cowl flaps or cooling gills;

(8) operation of cabin ventilation or heating systems;

(9) operation and use of other systems (as applicable to type);

(10) descending;

(i) pre-descent checks;

(ii) power selection: manifold pressure or RPM;

(iii) powered descent (cruise descent);

(iv) engine cooling considerations: use of cowl flaps or cooling gills;

(v) levelling off;

(vi) descending with flaps down;

(vii) descending with landing gear down;

(viii) altimeter setting procedure;

(ix) instrument appreciation;

(x) emergency descent:

(A) as applicable to type;

(B) limitations in turbulence vno.

(11) turning:

(i) medium turns;

(ii) climbing and descending turns;

(iii) steep turns: 45 ° of ban;

(iv) instrument appreciation.

EXERCISE 4: SLOW FLIGHT

(a) Long briefing objectives:

(1) aeroplane handling characteristics during slow flight: flight at vs1 and vso +5 knots;

(2) simulated go-around from slow flight:

(i) at Vsse with flaps down;

(ii) note pitch trim change.

(3) stalling:

(i) power selection;

(ii) symptoms approaching the stall;

(iii) full stall characteristics;

(iv) recovery from the full stall;

(v) recovery at the incipient stall;

(vi) stalling and recovery in the landing configuration;

(vii) recovery at the incipient stage in the landing configuration.

(4) instrument flight (basic):

(i) straight and level;

(ii) climbing;

(iii) turning;

(iv) descending.

(5) emergency drills (not including engine failure), as applicable to type;

(6) circuit approach and landing:

(i) downwind leg:

(A) air speed below vfe;

(B) use of flaps (as applicable);

(C) pre-landing checks;

(D) position to turn onto base leg.

(ii) base leg:

(A) selection of power (throttle or pitch), flaps and trimming controls;

(B) maintenance of correct air speed.

(iii) final approach:

(A) power adjustments (early reaction to undershooting);

(B) use of additional flaps (as required);

(C) confirmation of landing gear down;

(D) selection 'touch down' point;

(E) air speed reduction to Vat;

(F) maintenance of approach path.

(iv) landing:

(A) greater sink rate;

(B) longer landing distance and run;

(C) crosswind approach and landing;

(D) crosswind considerations;

(E) short field approach and landing;

(F) short field procedure: considerations.

(b) Air exercise

(1) safety checks;

(2) setting up and maintaining (flaps up);

(i) vs1 + 5 knots;

(ii) note aeroplane handling characteristics.

(3) setting up and maintaining (flaps down):

(i) vso + 5 knots;

(ii) note aeroplane handling characteristics.

(4) simulated go-around from a slow flight with flaps:

(i) down and air speed not below Vsse, for example air speed at Vsse or vmca + 10 knots;

(ii) increase to full power and enter a climb;

(iii) note pitch change.

(5) resume normal flight.

(6) stalling;

(i) selection of RPM;

(ii) stall symptoms;

(iii) full stall characteristics;

(iv) recovery from the full stall: care in application of power;

(v) recovery at the incipient stage;

(vi) stalling and recovery in landing configuration;

(vii) stall recovery at the incipient stage in the landing configuration.

(7) instrument flight (basic):

(i) straight and level;

(ii) climbing;

(iii) turning;

(iv) descending.

(8) emergency drills (not including engine failure), as applicable to type;

(9) circuit, approach and landing:

(i) downwind leg:

(A) control of speed (below vfe);

(B) flaps as applicable;

(C) pre-landing checks;

(D) control of speed and height;

(E) base leg turn.

(ii) base leg:

(A) power selection;

(B) use of flap and trimming controls;

(C) maintenance of correct air speed.

(iii) final approach:

(A) use of additional flap (as required);

(B) confirmation of landing gear down;

(C) selection of touchdown point;

(D) air speed reduction to Vat;

(E) maintaining correct approach path: use of power.

(iv) landing:

(A) control of sink rate during flare;

(B) crosswind considerations;

(C) longer landing roll;

(D) short or soft field approach and landing;

(E) considerations and precautions.

(10) Asymmetric power flight.

During these regulations, special emphasis is to be placed on the:

(i) circumstances in which actual feathering and un-feathering practice will be done, for example safe altitude; compliance with regulations about minimum altitude or height for feathering practice, weather conditions, distance from nearest available aerodrome;

(ii) procedure to use for instructor and student co-operation, for example the correct use of touch drills and the prevention of misunderstandings, especially during feathering and un- feathering practice and when zero thrust is being used for asymmetric circuits. This procedure is to include positive agreement as to which engine is being shut down or re-started or set at zero thrust and identifying each control and naming the engine it is going to affect;

(iii) consideration to be given to avoid over-working the operating engine, and the degraded performance when operating the aeroplane during asymmetric flight;

(iv) need to use the specific checklist for the aeroplane type.

EXERCISE 5: FLIGHT ON ASYMMETRIC POWER

(a) Long briefing objectives:

(1) introduction to asymmetric flight:

(2) feathering the propeller: method of operation;

(3) effects on aeroplane handling at cruising speed;

(4) introduction to effects upon aeroplane performance;

(5) note foot load to maintain a constant heading (no rudder trim);

(6) un-feathering the propeller;

(7) return to normal flight finding the zero thrust setting;

(8) comparison of foot load when feathered and with zero thrust set.

(9) effects and recognition of engine failure in level flight;

(10) forces and the effects of yaw;

(11) types of failure:

(i) sudden or gradual;

(ii) complete or partial.

(12) yaw, direction and further effects of yaw;

(13) flight instrument indications;

(14) identification of failed engine;

(15) the couples and residual out of balance forces: resultant flight attitude;

(16) use of rudder to counteract yaw;

(17) use of aileron: dangers of misuse;

(18) use of elevator to maintain level flight;

(19) use of power to maintain a safe air speed and altitude;

(20) supplementary recovery to straight and level flight: simultaneous increase of speed and reduction in power;

(21) identification of failed engine: idle leg = idle engine;

(22) use of engine instruments for identification:

(i) fuel pressure or flow;

(ii) RPM gauge response effect of CSU action at lower and higher air speed;

(iii) engine temperature gauges.

(23) confirmation of identification: close the throttle of identified failed engine;

(24) effects and recognition of engine failure in turns;

(25) identification and control;

(26) side forces and effects of yaw.

(27) During turning flight:

(i) effect of 'inside' engine failure: effect sudden and pronounced;

(ii) effect of 'outside' engine failure: effect less sudden and pronounced;

(iii) the possibility of confusion in identification (particularly at low power):

(A) correct use of rudder;

(B) possible need to return to lateral level flight to confirm correct identification.

(iv) visual and flight instrument indications;

(v) effect of varying speed and power;

(vi) speed and thrust relationship;

(vii) at normal cruising speed and cruising power: engine failure clearly recognised;

(viii) at low safe speed and climb power: engine failure most positively recognised;

(ix) high speed descent and low power: possible failure to notice asymmetry (engine failure).

(28) Minimum control speeds:

(i) ASI colour coding: red radial line.

Note: this exercise is concerned with the ultimate boundaries of controllability in various conditions that a student can reach in a steady asymmetric power state, approached by a gradual speed reduction. Sudden and complete failure should not be given at the Flight Manual vmca. The purpose of the exercise is to continue the gradual introduction of a student to control an aeroplane in asymmetric power flight during extreme or critical situations. It is not a demonstration of vmca.

(ii) Techniques for assessing critical speeds with wings level and recovery: dangers involved when minimum control speed and the stalling speed are very close: use of Vsse;

(iii) Establish a minimum control speed for each asymmetrically disposed engine to establish critical engine (if applicable);

(iv) Effects on minimum control speeds of:

(A) bank;

(B) zero thrust setting;

(C) take-off configuration:

(a) landing gear down and take-off flap set;

(b) landing gear up and take-off flap set.

Note: it is important to appreciate that the use of 5 ° of bank towards the operating engine produces a lower vmca and also a better performance than that obtained with the wings held level. It is now normal for manufacturers to use 5 ° of bank in this manner when determining the vmca for the specific type. Thus, the vmca quoted in the aeroplane manual will have been obtained using the technique.

(29) Feathering and un-feathering:

(i) minimum heights for practising feathering or un-feathering drills;

(ii) engine handling: precautions (overheating, icing conditions, priming, warm-up, method of simulating engine failure: reference to aircraft engine manual and service instructions and bulletins).

(30) Engine failure procedure:

(i) once the maintenance of control has been achieved, the order in which the procedures are carried out will be determined by the phase of operation and the aircraft type.

(ii) flight phase:

(A) in cruising flight;

(B) critical phase such as immediately after take-off or during the approach to landing or during a go-around.

(31) Aircraft type:

Variations will inevitably occur in the order of certain drills and checks due to differences between aeroplane types and perhaps between models of the same type, and the flight manual or equivalent document (for example owner's manual or pilot's operating handbook) is to be consulted to establish the exact order of these procedures.

For example, one flight manual or equivalent document (for example owner's manual or pilot's operating handbook) may call for the raising of flaps and landing gear before feathering, whilst another may recommend feathering as a first step. The reason for this latter procedure could be due to the fact that some engines cannot be feathered if the RPM drops below a certain figure.

Again, in some aeroplanes, the raising of the landing gear may create more drag during retraction due to the transient position of the landing gear doors and as a result of this retraction would best be left until feathering has been accomplished and propeller drag reduced.

Therefore, the order in which the drills and checks are shown in this syllabus under 'immediate actions' and 'subsequent actions' are to be used as a general guide only and the exact order of precedence is determined by reference to the flight manual or equivalent document (for example owner's manual or pilot's operating handbook) for the specific aeroplane type being used on the course.

(32) In-flight engine failure in cruise or other flight phase not including take-off or landing:

(i) immediate actions:

(A) recognition of asymmetric condition and control of the aircraft;

(B) identification and confirmation of failed engine:

(a) idle leg = idle engine;

(b) closing of throttle for confirmation.

(C) cause and fire check:

(a) typical reasons for failure;

(b) methods of rectification.

(D) feathering decision and procedure:

(a) reduction of other drag;

(b) need for speed but not haste;

(c) use of rudder trim.

(ii) subsequent actions;

(A) live engine:

(a) temperature, pressures and power;

(b) remaining services;

(c) electrical load: assess and reduce as necessary;

(d) effect on power source for air driven instruments;

(e) landing gear;

(f) flaps and other services.

(B) re-plan flight:

(a) ATC and weather;

(b) terrain clearance, SE cruise speed;

(c) decision to divert or continue.

(C) fuel management: best use of remaining fuel;

(D) dangers of re-starting damaged engine;

(E) action if unable to maintain altitude: effect of altitude on power available;

(F) effects on performance;

(G) effects on power available and power required;

(H) effects on various airframe configuration and propeller settings;

(I) use of flight manual or equivalent document (for example owner's manual or pilot's operating handbook):

(a) cruising;

(b) climbing: ASI colour coding (blue line);

(c) descending;

(d) turning.

(J) 'live' engine limitations and handling;

(K) take-off and approach: control and performance.

(33) Significant factors:

(i) significance of take-off safety speed:

(A) effect of landing gear, flap, feathering, take-off, trim setting, systems for operating landing gear and flaps;

(B) effect on mass, altitude and temperature (performance).

(ii) significance of best SE climb speed (Vyse):

(A) acceleration to best engine climb speed and establishing a positive climb;

(B) relationship of SE climb speed to normal climb speed;

(C) action if unable to climb.

(iii) significance of asymmetric committal height and speed: action if baulked below asymmetric committal height.

(34) Engine failure during take-off:

(i) below vmca or unstick speed:

(A) accelerate or stop distance considerations;

(B) prior use of flight manual data if available.

(ii) above vmca or unstick speed and below safety speed;

(iii) immediate re-landing or use of remaining power to achieve forced landing;

(iv) considerations:

(A) degree of engine failure;

(B) speed at the time;

(C) mass, altitude and temperature (performance);

(D) configuration;

(E) length of runway remaining;

(F) position of any obstacles ahead.

(35) Engine failure after take-off:

(i) simulated at a safe height and at or above take-off safety speed;

(ii) considerations:

(A) need to maintain control;

(B) use of bank towards operating engine;

(C) use of available power achieving best SE climb speed;

(D) mass, altitude, temperature (performance);

(E) effect of prevailing conditions and circumstances.

(36) Immediate actions: maintenance of control, including air speed and use of power:

(i) recognition of asymmetric condition;

(ii) identification and confirmation of failed engine;

(iii) feathering and removal of drag (procedure for type);

(iv) establishing best SE climb speed.

(37) Subsequent actions: whilst carrying out an asymmetric power climb to the downwind position at SE best rate of climb speed:

(i) cause and fire check;

(ii) live engine, handling considerations;

(iii) remaining services;

(iv) ATC liaison;

(v) fuel management.

Note: these procedures are applicable to aeroplane type and flight situation.

(38) Significance of asymmetric committal height:

(i) Asymmetric committal height is the minimum height needed to establish a positive climb whilst maintaining adequate speed for control and removal of drag during an approach to a landing.

Because of the significantly reduced performance of many CS/JAR/FAR 23 aeroplanes when operating on one engine, consideration is to be given to a minimum height from which it would be safely possible to attempt a go-around procedure, during an approach when the flight path will have to be changed from a descent to a climb with the aeroplane in a high drag configuration.

Due to the height loss which will occur during the time that the operating engine is brought up to full power, landing gear and flap retracted, and the aeroplane established in a climb at vyse a minimum height (often referred to as 'Asymmetric committal height') is to be selected, below which the pilot should not attempt to take the aeroplane round again for another circuit. This height will be compatible with the aeroplane type, all up weight, altitude of the aerodrome being used, air temperature, wind, the height of obstructions along the climb out path, and pilot competence.

(ii) circuit approach and landing on asymmetric power:

(A) definition and use of asymmetric committal height;

(B) use of standard pattern and normal procedures;

(C) action if unable to maintain circuit height;

(D) speed and power settings required;

(E) decision to land or go-around at asymmetric committal height: factors to be considered.

(iii) undershooting importance of maintaining correct air speed (not below vyse).

(39) Speed and heading control:

(i) height, speed and power relationship: need for minimum possible drag;

(ii) establishing positive climb at best SE rate of climb speed:

(A) effect of availability of systems, power for flap and landing gear;

(B) operation and rapid clean up.

Note 1: The air speed at which the decision is made to commit the aeroplane to a landing or to go-around should normally be the best SE rate of climb speed and in any case not less than the safety speed.

Note 2: On no account should instrument approach 'decision height' and its associated procedures be confused with the selection of minimum height for initiating a go-around in asymmetric power flight.

(40) Engine failure during an all engines approach or missed approach:

(i) use of asymmetric committal height and speed considerations;

(ii) speed and heading control;

(iii) decision to attempt a landing, go-around or force land as circumstances dictate.

Note: at least one demonstration and practice of engine failure in this situation should be performed during the course.

(41) Instrument flying on asymmetric power:

(i) considerations relating to aircraft performance during:

(A) straight and level flight;

(B) climbing and descending;

(C) standard rate turns;

(D) level, climbing and descending turns including turns onto pre-selected headings.

(ii) availability of vacuum operated instruments;

(iii) availability of electrical power source.

(b) Air exercise

This section covers the operation of a SP ME aeroplane when one engine has failed and it is applicable to all such light piston aeroplanes. Checklists should be used as applicable.

(1) introduction to asymmetric flight:

(2) close the throttle of one engine;

(3) feather its propeller;

(4) effects on aeroplane handling at cruising speed;

(5) effects on aeroplane performance for example cruising speed and rate of climb;

(6) note foot load to maintain a constant heading;

(7) un-feather the propeller;

(8) return to normal flight finding the zero thrust throttle setting;

(9) comparison of foot load when feathered and with zero thrust set.

(10) effects and recognition of engine failure in level flight with the aeroplane straight and level at cruise speed:

(i) slowly close the throttle of one engine;

(ii) note yaw, roll and spiral descent.

(11) return to normal flight:

(i) close throttle of other engine;

(ii) note same effects in opposite direction.

(12) methods of control and identification of failed engine close one throttle and maintain heading and level flight by use of:

(i) rudder to control yaw;

(ii) aileron to hold wings level;

(iii) elevators to maintain level flight;

(iv) power (as required) to maintain air speed and altitude.

(13) alternative or supplementary method of control:

(i) simultaneously;

(ii) lower aeroplane nose to increase air speed;

(iii) reduce power;

(iv) loss of altitude: inevitable.

(14) identification of failed engine: idle foot = idle engine;

(15) use of instruments for identification:

(i) fuel pressure or fuel flow;

(ii) RPM gauge or CSU action may mask identification;

(iii) engine temperature gauges.

(16) confirmation of identification: close the throttle of the identified failed engine;

(17) effects and recognition of engine failure in turns and effects of 'inside' engine failure:

(i) more pronounced yaw;

(ii) more pronounced roll;

(iii) more pronounced pitch down.

(18) effects of 'outside' engine failure:

(i) less pronounced yaw;

(ii) less pronounced roll;

(iii) less pronounced pitch down.

(19) possibility of confusion in identification:

(i) use of correct rudder application;

(ii) return to lateral level flight if necessary.

(20) flight instrument indications;

(21) effect of varying speed and power;

(22) failure of one engine at cruise speed and power: engine failure clearly recognised;

(23) failure of one engine at low speed and high power (not below vsse): engine failure most positively recognised;

(24) failure of one engine at higher speeds and low power: possible failure to recognise engine failure;

(25) minimum control speeds;

(26) establish the vyse:

(i) select maximum permitted manifold pressure and RPM;

(ii) close the throttle on one engine;

(iii) raise the aeroplane nose and reduce the air speed;

(iv) note the air speed when maximum rudder deflection is being applied and when directional control can no longer be maintained;

(v) lower the aeroplane nose and reduce power until full directional control is regained;

(vi) the lowest air speed achieved before the loss of directional control will be the Vmc for the flight condition;

(vii) repeat the procedure closing the throttle of the other engine; (viii) the higher of these two air speeds will identify the most critical engine to fail.

Note: warning - in the above situations the recovery is to be initiated immediately before directional control is lost with full rudder applied, or when a safe margin above the stall remains, for example when the stall warning device operates, for the particular aeroplane configuration and flight conditions. On no account should the aeroplane be allowed to decelerate to a lower air speed.

(27) establish the effect of using 5 ° of bank at vmc:

(i) close the throttle of one engine;

(ii) increase to full power on the operating engine;

(iii) using 5 ° of bank towards the operating engine reduce speed to the Vmc;

(iv) note lower Vmc when 5 ° of bank is used.

(28) ‘in-flight’ engine failure procedure;

(29) in cruise and other flight circumstances not including take-off and landing.

(30) Immediate actions: maintenance of control including air speed and use of power:

(i) identification and confirmation of failed engine;

(ii) failure cause and fire check;

(iii) feathering decision and implementation;

(iv) reduction of any other drag, for example flaps, cowl flaps etc.;

(v) retrim and maintain altitude.

(31) Subsequent actions:

(i) live engine:

(A) oil temperature, pressure, fuel flow and power;

(B) remaining services;

(C) electrical load: assess and reduce as necessary;

(D) effect on power source for air driven instruments;

(E) landing gear;

(F) flaps and other services.

(ii) re-plan flight:

(A) ATC and weather;

(B) terrain clearance;

(C) SE cruise speed;

(D) decision to divert or continue;

(iii) fuel management: best use of fuel;

(iv) dangers of re-starting damaged engine;

(v) action if unable to maintain altitude:

(A) adopt Vyse;

(B) effect of altitude on power available.

(vi) effects on performance;

(vii) effects on power available and power required;

(viii) effects on various airframe configurations and propeller settings;

(ix) use of flight manual or equivalent document (for example owner's manual or pilot's operating handbook):

(A) cruising;

(B) climbing: ASI colour coding (blue line);

(C) descending;

(D) turning.

(x) 'live' engine limitations and handling;

(xi) take-off and approach: control and handling;

Note: to be done at a safe height away from the circuit;

(xii) take-off case with landing gear down and take-off flap set (if applicable);

(xiii) significance of take-off at or above safety speed (at safety speed. The ability to maintain control and to accelerate to SE climb speed with aeroplane clean and zero thrust set. Thereafter to achieve a positive climb);

(xiv) significance of flight below safety speed (below safety speed and above vmca. A greater difficulty to maintain control, a possible loss of height whilst maintaining speed, cleaning up, accelerating to SE climb speed and establishing a positive climb);

(xv) significance of best SE climb speed (the ability to achieve the best rate of climb on one engine with minimum delay).

(32) Significance of asymmetric committal height:

(i) the ability to maintain or accelerate to the best SE rate of climb speed and to maintain heading whilst cleaning up with perhaps a slight height loss before climbing away;

(ii) below this height, the aeroplane is committed to continue the approach to a landing.

(33) Engine failure during take-off run and below safety speed briefing only;

(34) Engine failure after take-off;

Note: to be initiated at a safe height and at not less than take-off safety speed with due regard to the problems of a prolonged SE climb in the prevailing conditions.

(i) immediate actions:

(A) control of direction and use of bank;

(B) control of air speed and use of power;

(C) recognition of asymmetric condition;

(D) identification and confirmation of failed engine feathering and reduction of drag (procedure for type);

(E) re-trim;

(ii) subsequent actions: whilst carrying out an asymmetric power climb to the downwind position at SE best rate of climb speed:

(A) cause and fire check;

(B) live engine, handling considerations;

(C) drills and procedures applicable to aeroplane type and flight situation;

(D) ATC liaison;

(E) fuel management.

(35) Asymmetric circuit, approach and landing;

(i) downwind and base legs:

(A) use of standard pattern;

(B) normal procedures;

(C) landing gear and flap lowering considerations;

(D) position for base leg;

(E) live engine handling;

(F) air speed and power settings;

(G) maintenance of height.

(ii) final approach:

(A) asymmetric committal height drill;

(B) control of air speed and descent rate;

(C) flap considerations.

(iii) going round again on asymmetric power (missed approach):

(A) not below asymmetric committal height;

(B) speed and heading control;

(C) reduction of drag, landing gear retraction;

(D) maintaining Vyse;

(E) establish positive rate of climb.

(36) Engine failure during all engines approach or missed approach: Note: to be started at not less than asymmetric committal height and speed and not more than part flap set:

(i) speed and heading control;

(ii) reduction of drag flap;

(iii) decision to attempt landing or go-around;

(iv) control of descent rate if approach is continued;

(v) if go-around is initiated, maintain vyse, flaps and landing gear retracted and establish positive rate of climb.

Note: at least one demonstration and practice of engine failure in this situation should be performed during the course.

(37) Instrument flying on asymmetric power;

(38) Flight instrument checks and services available:

(i) straight and level flight;

(ii) climbing and descending;

(iii) standard rate turns;

(iv) level, climbing and descending turns including turns onto pre- selected headings.

AMC1 LIC.940.CRI CRI — Revalidation and renewal

REFRESHER TRAINING

(a) Paragraph (c)(1) of LIC.940.CRI determine that an applicant for renewal of a CRI certificate shall complete refresher training as a CRI at an ATO. Paragraph (a)(2) also establishes that an applicant for revalidation of the CRI certificate that has not completed a minimum amount of instruction hours (established in paragraph (a)(1)) during the validity period of the certificate shall undertake refresher training at an ATO for the revalidation of the certificate. The amount of refresher training needed should be determined on a case by case basis by the ATO, taking into account the following factors:

(1) the experience of the applicant;

(2) whether the training is for revalidation or renewal;

(3) the amount of time lapsed since the last time the applicant has conducted training, in the case of revalidation, or since the certificate has lapsed, in the case of renewal. The amount of training needed to reach the desired level of competence should increase with the time lapsed.

(b) Once the ATO has determined the needs of the applicant, it should develop an individual training programme that should be based on the CRI training course and focus on the aspects where the applicant has shown the greatest needs.

AMC1 LIC.930.IRI IRI— Training course

GENERAL

(a) The aim of the IRI training course is to train aircraft licence holders to the level of competence defined in LIC.920, and adequate for an IRI.

(b) The IRI training course should give particular stress to the role of the individual in relation to the importance of human factors in the man- machine environment.

(c) Special attention should be paid to the applicant’s levels of maturity and judgement including an understanding of adults, their behavioural attitudes and variable levels of education.

(d) With the exception of the section on ‘teaching and learning’, all the subject detail contained in the theoretical and flight training syllabus is complementary to the instrument rating pilot course syllabus which should already be known by the applicant. Therefore, the objective of the course is to:

(1) refresh and bring up to date the technical knowledge of the student instructor;

(2) train pilots in accordance with the requirements of the modular instrument flying training course;

(3) enable the applicant to develop the necessary instructional techniques required for teaching of instrument flying, radio navigation and instrument procedures to the level required for the issue of an instrument rating;

(4) ensure that the student instrument rating instructor’s flying is of a sufficiently high standard.

(e) In part 3 some of the air exercises of the flight instruction syllabus of this AMC may be combined in the same flight.

(f) During the training course the applicants should be made aware of their own attitudes to the important aspects of flight safety. Improving safety awareness should be a fundamental objective throughout the training course. It will be of major importance for the training course to aim at giving applicants the knowledge, skills and attitudes relevant to an instructor’s task. To achieve this, the course curriculum, in terms of objectives, should comprise at least the following areas.

(g) It is to be noted that airmanship is a vital ingredient of all flight operations. Therefore, in the following air exercises the relevant aspects of airmanship are to be stressed at the appropriate times during each flight.

(h) The student instructor should learn how to identify common errors and how to correct them properly, which should be emphasised at all times.

CONTENT

(i) The training course consists of three parts:

(1) Part 1: teaching and learning that should follow the content of AMC1 LIC.920.

(2) Part 2: instrument technical theoretical knowledge instruction (technical training).

(3) Part 3: flight instruction.

Part 1

The content of the teaching and learning part of the FI training course, as established in AMC1 LIC.930.FI, should be used as guidance to develop the course syllabus.

Part 2

THEORETICAL KNOWLEDGE INSTRUCTION SYLLABUS

(a) The instrument theoretical knowledge instruction should comprise not less than 10 hours training to include the revision of instrument theoretical knowledge, the preparation of lesson plans and the development of classroom instructional skills to enable the IRI to instruct the instrument theoretical knowledge syllabus.

(b) All the subject detail contained in the instrument theoretical knowledge instruction syllabus and flight instruction syllabus is complementary to the instrument rating pilot course syllabus which should already be known by the applicant. Therefore, the objective of the course is to:

(1) refresh and bring up to date the technical knowledge of the student instructor;

(2) train pilots in accordance with the requirements of the modular instrument flying training course;

(3) enable the applicant to develop the necessary instructional techniques required for teaching of instrument flying, radio navigation and instrument procedures to the level required for the issue of an instrument rating; and

(4) ensure that the student instrument rating instructor’s flying is of a sufficiently high standard.

(c) The theoretical subjects covered below should be used to develop the instructor’s teaching skills. The items selected should relate to the student’s background and should be applied to training for an IR.

GENERAL SUBJECTS

(d) Physiological and psychological factors:

(1) the senses;

(2) spatial disorientation;

(3) sensory illusions;

(4) stress.

(e) Flight instruments:

(1) air speed indicator;

(2) altimeter;

(3) vertical speed indicator;

(4) attitude indicator;

(5) heading indicator;

(6) turn and slip indicator;

(7) magnetic compass;

(8) in relation to the above instruments the following items should be covered:

(i) principles of operation;

(ii) errors and in-flight serviceability checks;

(iii) system failures.

(f) Radio navigation aids:

(1) basic radio principles;

(2) use of VHF RTF channels;

(3) the Morse code;

(4) basic principles of radio aids;

(5) use of VOR;

(6) ground and aeroplane equipment;

(7) use of NDB/ADF;

(8) ground and aeroplane equipment;

(9) use of VHF/DF;

(10) radio detection and ranging (radar);

(11) ground equipment;

(12) primary radar;

(13) secondary surveillance radar;

(14) aeroplane equipment;

(15) transponders;

(16) precision approach system;

(17) other navigational systems (as applicable) in current operational use;

(18) ground and aeroplane equipment;

(19) use of DME;

(20) ground and aeroplane equipment;

(21) marker beacons;

(22) ground and aeroplane equipment;

(23) pre-flight serviceability checks;

(24) range, accuracy and limitations of equipment.

(g) Flight planning considerations;

(h) Aeronautical information publications:

(1) the training course should cover the items listed below, but the applicant's aptitude and previous aviation experience should be taken into account when determining the amount of instructional time allotted. Although a number of items contained under this heading are complementary to those contained in the PPL/CPL/IR syllabi, the instructor should ensure that they have been covered during the applicant's training and due allowance should be made for the time needed to revise these items as necessary.

(2) AIP

(3) NOTAM class 1 and 2;

(4) AIC;

(5) information of an operational nature;

(6) the rules of the air and ATS;

(7) visual flight rules and instrument flight rules;

(8) flight plans and ATS messages;

(9) use of radar in ATS;

(10) radio failure;

(11) classification of airspace;

(12) airspace restrictions and hazards;

(13) holding and approach to land procedures;

(14) precision approaches and non-precision approaches;

(15) radar approach procedures;

(16) missed approach procedures;

(17) visual manoeuvring after an instrument approach;

(18) conflict hazards in uncontrolled airspace;

(19) communications;

(20) types of services;

(21) extraction of AIP data relating to radio aids;

(22) charts available;

(23) en-route;

(24) departure and arrival;

(25) instrument approach and landing;

(26) amendments, corrections and revision service.

(i) flight planning general:

(1) the objectives of flight planning;

(2) factors affecting aeroplane and engine performance;

(3) selection of alternate(s);

(4) obtaining meteorological information;

(5) services available;

(6) meteorology briefing;

(7) telephone or electronic data processing;

(8) actual weather reports (TAFs, METARs and SIGMET messages);

(9) the route forecast;

(10) the operational significance of the meteorological information obtained (including icing, turbulence and visibility);

(11) altimeter considerations;

(12) definitions of:

(i) transition altitude;

(ii) transition level;

(iii) flight level;

(iv) QNH;

(v) regional QNH;

(vi) standard pressure setting;

(vii) QFE.

(13) altimeter setting procedures;

(14) pre-flight altimeter checks;

(15) take-off and climb;

(16) en-route;

(17) approach and landing;

(18) missed approach;

(19) terrain clearance;

(20) selection of a minimum safe en-route altitude;

(21) IFR;

(22) preparation of charts;

(23) choice of routes and flight levels;

(24) compilation of flight plan or log sheet;

(25) log sheet entries;

(26) navigation ground aids to be used;

(27) frequencies and identification;

(28) radials and bearings;

(29) tracks and fixes;

(30) safety altitude(s);

(31) fuel calculations;

(32) ATC frequencies (VHF);

(33) tower, approach, en-route, radar, FIS, ATIS, and weather reports;

(34) minimum sector altitudes at destination and alternate aerodromes;

(35) determination of minimum safe descent heights or altitudes (decision heights) at destination and alternate aerodromes.

(j) The privileges of the instrument rating:

(1) outside controlled airspace;

(2) within controlled airspace;

(3) period of validity and renewal procedures.

Part 3

FLIGHT INSTRUCTION SYLLABUS

(a) An approved IRI course should comprise of at least 10 hours of flight instruction, of which a maximum of 8 hours may be conducted in an FSTD. A similar number of hours should be used for the instruction and practice of pre-flight and post-flight briefing for each exercise.

(b) The flight instruction should aim to ensure that the applicant is able to teach the air exercises safely and efficiently.

A. AEROPLANES
LONG BRIEFINGS AND AIR EXERCISES EXERCISE 1: INTRUMENT FLYING (Basic)

(for revision, as deemed necessary by the instructor)

(a) Long briefing objectives:

(1) flight instruments;

(2) physiological considerations;

(3) instrument appreciation:

(i) attitude instrument flight;

(ii) pitch indications;

(iii) bank indications;

(iv) different instrument presentations;

(v) introduction to the use of the attitude indicator;

(vi) pitch attitude;

(vii) bank attitude;

(viii) maintenance of heading and balanced flight;

(ix) instrument limitations (inclusive system failures).

(4) attitude, power and performance:

(i) attitude instrument flight;

(ii) control instruments;

(iii) performance instruments;

(iv) effect of changing power and configuration;

(v) cross-checking the instrument indications;

(vi) instrument interpretation;

(vii) direct and indirect indications (performance instruments);

(viii) instrument lag;

(ix) selective radial scan.

(5) the basic flight manoeuvres (full panel):

(i) straight and level flight at various air speeds and aeroplane configurations;

(ii) climbing;

(iii) descending;

(iv) standard rate turns;

(v) level, climbing and descending on to pre-selected headings.

(b) Air exercise:

(1) instrument flying (basic);

(i) physiological sensations;

(ii) instrument appreciation;

(iii) attitude instrument flight;

(iv) pitch attitude;

(v) bank attitude;

(vi) maintenance of heading and balanced flight;

(vii) attitude instrument flight;

(viii) effect of changing power and configuration;

(ix) cross-checking the instruments;

(x) selective radial scan;

(2) the basic flight manoeuvres (full panel):

(i) straight and level flight at various air speeds and aeroplane configurations;

(ii) climbing;

(iii) descending;

(iv) standard rate turns;

(v) level, climbing and descending on to pre-selected headings.

EXERCISE 2: INTRUMENT FLYING (Advanced)

(a) Long briefing objectives:

(1) full panel;

(2) 30 ° level turns;

(3) unusual attitudes: recoveries;

(4) transference to instruments after take-off;

(5) limited panel;

(6) basic flight manoeuvres;

(7) unusual attitudes: recoveries.

(b) Air exercise:

(1) full panel;

(2) 30 ° level turns;

(3) unusual attitudes: recoveries;

(4) limited panel

(5) repeat of the above exercises.

EXERCISE 3: RADIO NAVIGATION (APPLIED PROCEDURES): USE OF VOR

(a) Long briefing objectives:

(1) availability of VOR stations en-route;

(2) station frequencies and identification;

(3) signal reception range;

(4) effect of altitude;

(5) VOR radials;

(6) use of OBS;

(7) to or from indicator;

(8) orientation;

(9) selecting radials;

(10) intercepting a pre-selected radial;

(11) assessment of distance to interception;

(12) effects of wind;

(13) maintaining a radial;

(14) tracking to and from a VOR station;

(15) procedure turns;

(16) station passage;

(17) use of two stations for obtaining a fix;

(18) pre-selecting fixes along a track;

(19) assessment of ground speed and timing;

(20) holding procedures;

(21) various entries;

(22) communication (R/T procedures and ATC liaison).

(b) Air exercise:

(1) station selection and identification;

(2) orientation;

(3) intercepting a pre-selected radial;

(4) R/T procedures and ATC liaison;

(5) maintaining a radial inbound;

(6) recognition of station passage;

(7) maintaining a radial outbound;

(8) procedure turn;

(9) use of two stations to obtain a fix along the track;

(10) assessment of ground speed and timing;

(11) holding procedures and entries;

(12) holding at a pre-selected fix;

(13) holding at a VOR station.

EXERCISE 4: RADIO NAVIGATION (APPLIED PROCEDURES): USE OF NDB

(a) Long briefing objectives:

(1) availability of an NDB facilities en-route;

(2) location, frequencies, tuning (as applicable) and identification codes;

(3) signal reception range;

(4) static interference;

(5) night effect;

(6) station interference;

(7) mountain effect;

(8) coastal refraction;

(9) orientation in relation to an NDB;

(10) homing;

(11) intercepting a pre-selected magnetic bearing and tracking inbound;

(12) station passage;

(13) tracking outbound;

(14) time and distance checks;

(15) use of two NDBs to obtain a fix or alternatively use of one NDB and one other navaid;

(16) holding procedures and various approved entries;

(17) communication (R/T procedures and ATC liaison).

(b) Air exercise:

(1) selecting, tuning and identifying an NDB;

(2) ADF orientation;

(3) communication (R/T procedures and ATC liaison);

(4) homing;

(5) tracking inbound;

(6) station passage;

(7) tracking outbound;

(8) time and distance checks;

(9) intercepting a pre-selected magnetic bearing;

(10) determining the aeroplane's position from two NDBs or alternatively from one NDB and one other navaid;

(11) ADF holding procedures and various approved entries.

EXERCISE 5: RADIO NAVIGATION (APPLIED PROCEDURES): USE OF VHF/DF

(a) Long briefing objectives:

(1) availability of VHF/DF facilities en-route;

(2) location, frequencies, station call signs and hours of operation;

(3) signal and reception range;

(4) effect of altitude;

(5) communication (R/T procedures and ATC liaison);

(6) obtaining and using types of bearings, for example QTE, QDM and QDR;

(7) homing to a station;

(8) effect of wind;

(9) use of two VHF/DF stations to obtain a fix (or alternatively one VHF/DF station and one other navaid);

(10) assessment of groundspeed and timing.

(b) Air exercise:

(1) establishing contact with a VHF/DF station;

(2) R/T Procedures and ATC liaison;

(3) obtaining and using a QDR and QTE;

(4) homing to a station;

(5) effect of wind;

(6) use of two VHF/DF stations to obtain a fix (or alternatively one VHF/DF station and one other navaid);

(7) assessment of groundspeed and timing.

EXERCISE 6: RADIO NAVIGATION (APPLIED PROCEDURES): USE OF DME

(a) Long briefing objectives:

(1) availability of DME facilities;

(2) location, frequencies and identification codes;

(3) signal reception range;

(4) slant range;

(5) use of DME to obtain distance, groundspeed and timing;

(6) use of DME to obtain a fix.

(b) Air exercise:

(1) station selection and identification;

(2) use of equipment functions;

(3) distance;

(4) groundspeed;

(5) timing;

(6) DME arc approach;

(7) DME holding.

EXERCISE 7: RADIO NAVIGATION (APPLIED PROCEDURES): USE OF TRANSPONDERS (SSR)

(a) Long briefing objectives:

(1) operation of transponders;

(2) code selection procedure;

(3) emergency codes;

(4) precautions when using airborne equipment.

(b) Air exercise:

(1) operation of transponders;

(2) types of transponders;

(3) code selection procedure;

(4) emergency codes;

(5) precautions when selecting the required code.

EXERCISE 8: RADIO NAVIGATION (APPLIED PROCEDURES): USE OF EN-ROUTE RADAR

(a) Long briefing objectives:

(1) availability of radar services;

(2) location, station frequencies, call signs and hours of operation;

(3) AIP and NOTAMs;

(4) provision of service;

(5) communication (R/T, procedures and ATC liaison);

(6) airspace radar advisory service;

(7) emergency service;

(8) aircraft separation standards.

(b) Air exercise:

(1) communication (R/T procedures and ATC liaison);

(2) establishing the service required and position reporting;

(3) method of reporting conflicting traffic;

(4) terrain clearance.

EXERCISE 9: PRE-FLIGHT AND AERODROME DEPARTURE AND ARRIVAL PROCEDURES

(a) Long briefing objectives:

(1) determining the serviceability of the aeroplane radio;

(2) navigation equipment;

(3) obtaining the departure clearance;

(4) setting up radio navaids before take-off for example VOR frequencies, required radials, etc.;

(5) aerodrome departure procedures, frequency changes;

(6) altitude and position reporting as required;

(7) SID procedures;

(8) obstacle clearance considerations.

(b) Air exercise:

(1) radio equipment serviceability checks;

(2) departure clearance;

(3) navaid selection;

(4) frequencies, radials, etc.;

(5) aerodrome departure checks, frequency changes, altitude and position reports;

(6) SID procedures.

EXERCISE 10: INSTRUMENT APPORACH: ILS APPROACHES TO SPECIFIED MINIMA AND MISSED APPROACH PROCEDURE

(a) Long briefing objectives:

(1) precision approach charts;

(2) approach to the initial approach fix and minimum sector altitude;

(3) navaid requirements, for example radar, ADF, etc.;

(4) communication (ATC liaison and R/T phraseology);

(5) holding procedure;

(6) the final approach track;

(7) forming a mental picture of the approach;

(8) completion of aerodrome approach checks;

(9) initial approach procedure;

(10) selection of the ILS frequency and identification;

(11) obstacle clearance altitude or height;

(12) operating minima;

(13) achieving the horizontal and vertical patterns;

(14) assessment of distance, groundspeed time, and rate of descent from the final approach fix to the aerodrome;

(15) use of DME (as applicable);

(16) go-around and missed approach procedure;

(17) review of the published instructions;

(18) transition from instrument to visual flight (sensory illusions);

(19) visual manoeuvring after an instrument approach:

(i) circling approach;

(ii) visual approach to landing.

(b) Air exercise:

(1) initial approach to the ILS;

(2) completion of approach planning;

(3) holding procedure;

(4) frequency selection and identification of ILS;

(5) review of the published procedure and minimum sector altitude;

(6) communication (ATC liaison and R/T phraseology);

(7) determination of operating minima and altimeter setting;

(8) weather consideration, for example cloud base and visibility;

(9) availability of runway lighting;

(10) ILS entry methods;

(11) radar vectors;

(12) procedural method;

(13) assessment of approach time from the final approach fix to the aerodrome;

(14) determination of:

(i) the descent rate on final approach;

(ii) the wind velocity at the surface and the length of the landing runway;

(iii) the obstruction heights to be borne in mind during visual manoeuvring after an instrument approach;

(15) circling approach;

(16) the approach:

(i) at the final approach fix;

(ii) use of DME (as applicable);

(iii) ATC liaison;

(iv) note time and establish air speed and descent rate;

(v) maintaining the localiser and glide path;

(vi) anticipation in change of wind velocity and its effect on drift;

(vii) decision height;

(17) runway direction;

(18) overshoot and missed approach procedure;

(19) transition from instrument to visual flight;

(20) circling approach;

(21) visual approach to landing.

EXERCISE 11: INSTRUMENTS APPROACH: NDB APPROACHES TO SPECIFIED MINIMA AND MISSED APPROACH PROCEDURES

(a) Long briefing objectives:

(1) non-precision approach charts;

(2) initial approach to the initial approach fix and minimum sector altitude;

(3) ATC liaison;

(4) communication (ATC procedures and R/T phraseology);

(5) approach planning;

(6) holding procedure;

(7) the approach track;

(8) forming a mental picture of the approach;

(9) initial approach procedure;

(10) operating minima;

(11) completion of approach planning;

(12) achieving the horizontal and vertical patterns;

(13) assessment of distance, groundspeed time, and rate of descent from the final approach fix to the aerodrome;

(14) use of DME (as applicable);

(15) go-around and missed approach procedure;

(16) review of the published instructions;

(17) transition from instrument to visual flight (sensory illusions);

(18) visual manoeuvring after an instrument approach;

(19) circling approach;

(20) visual approach to landing.

(b) Air exercise:

(1) completion of approach planning including determination of:

(i) descent rate from the final approach fix;

(ii) the wind velocity at the surface and length of the landing runway;

(iii) the obstruction heights to be borne in mind during visual manoeuvring after an instrument approach;

(2) circling approach;

(3) go-around and missed approach procedure;

(4) initial approach;

(5) frequency selection and identification;

(6) review of the published procedure and minimum safe sector altitude;

(7) ATC liaison and R/T phraseology;

(8) determination of decision height and altimeter setting;

(9) weather considerations, for example cloud base and visibility;

(10) availability of runway lighting;

(11) determination of inbound track;

(12) assessment of time from final approach fix to the missed approach point;

(13) ATC liaison;

(14) the outbound procedure (inclusive completion of pre-landing checks);

(15) the inbound procedure;

(16) re-check of identification code;

(17) altimeter setting re-checked;

(18) the final approach;

(19) note time and establish air speed and descent rate;

(20) maintaining the final approach track;

(21) anticipation of change in wind velocity and its effect on the drift;

(22) minimum descent altitude or height;

(23) runway direction;

(24) go-around and missed approach procedure;

(25) transition from instrument to visual flight (sensory illusions);

(26) visual approach.

EXERCISE 12: RADIO NAVIGATION (APPLIED PROCEDURES): USE OF GNSS (to be developed)

(a) Long briefing objectives: use of GNSS.

(b) Air exercise: use of GNSS.

B. HELICOPTERS

LONG BRIEFINGS AND AIR EXERCISES

EXERCISE 1: INSTRUMENT FLYING (Basic)
(for revision as deemed necessary by the instructor)

(a) Long briefing objectives:

(1) flight instruments;

(2) physiological considerations;

(3) instrument appreciation:

(i) attitude instrument flight;

(ii) pitch indications;

(iii) bank indications;

(iv) different instrument presentations;

(v) introduction to the use of the attitude indicator;

(vi) pitch attitude;

(vii) bank attitude;

(viii) maintenance of heading and balanced flight;

(ix) instrument limitations (including system failures);

(4) attitude, power and performance:

(i) attitude instrument flight;

(ii) control instruments;

(iii) performance instruments;

(iv) effect of changing power;

(v) cross-checking the instrument indications;

(vi) instrument interpretation;

(vii) direct and indirect indications (performance instruments);

(viii) instrument lag;

(ix) selective radial scan;

(5) the basic flight manoeuvres (full panel):

(i) straight and level flight at various air speeds;

(ii) climbing;

(iii) descending;

(iv) standard rate turns;

(v) level, climbing and descending on to pre-selected headings.

(b) Air exercise:

(1) physiological sensations;

(2) instrument appreciation;

(3) attitude instrument flight;

(4) pitch attitude;

(5) bank attitude;

(6) maintenance of heading and balanced flight;

(7) attitude instrument flight;

(8) effect of changing power;

(9) cross-checking the instruments;

(10) selective radial scan;

(11) the basic flight manoeuvres (full panel):

(i) straight and level flight at various air speeds and helicopter configurations;

(ii) climbing;

(iii) descending;

(iv) standard rate turns;

(v) level, climbing and descending on to pre-selected headings;

(vi) manoeuvring at minimum and maximum IMC speed.

EXERCISE 2: INSTRUMENT FLYING (Advanced)

(a) Long briefing objectives:

(1) full panel;

(2) 30° level turns;

(3) unusual attitudes: recoveries;

(4) transition to instruments after take-off;

(5) limited panel;

(6) basic flight manoeuvres;

(7) unusual attitudes: recoveries.

(b) Air exercise:

(1) full panel;

(2) 30° level turns;

(3) unusual attitudes: recoveries;

(4) identification and recovery from low pitch steep bank and high pitch steep bank attitudes (at low and high power settings);

(5) limited panel;

(6) repeat of the above exercises.

EXERCISE 3: RADIO NAVIGATION (APPLIED PROCEDURES): USE OF VOR

(a) Long briefing objectives:

(1) availability of VOR stations en-route;

(2) station frequencies and identification;

(3) signal reception range;

(4) effect of altitude;

(5) VOR radials;

(6) use of OBS;

(7) to and from indicator;

(8) orientation;

(9) selecting radials;

(10) intercepting a pre-selected radial;

(11) assessment of distance to interception;

(12) effects of wind;

(13) maintaining a radial;

(14) tracking to and from a VOR station;

(15) procedure turns;

(16) station passage;

(17) use of two stations for obtaining a fix;

(18) pre-selecting fixes along a track;

(19) assessment of ground speed and timing;

(20) holding procedures;

(21) various entries;

(22) communication (R/T procedures and ATC liaison).

(b) Air exercise:

(1) station selection and identification;

(2) orientation;

(3) intercepting a pre-selected radial;

(4) R/T procedures and ATC liaison;

(5) maintaining a radial inbound;

(6) recognition of station passage;

(7) maintaining a radial outbound;

(8) procedure turns;

(9) use of two stations to obtain a fix along the track;

(10) assessment of ground speed and timing;

(11) holding procedures and entries;

(12) holding at a pre-selected fix;

(13) holding at a VOR station.

EXERCISE 4: RADIO NAVIGATION (APPLIED PROCEDURES): USE OF NDB

(a) Long briefing objectives:

(1) availability of NDB facilities en-route;

(2) location, frequencies, tuning (as applicable) and identification codes;

(3) signal reception range;

(4) static interference;

(5) night effect;

(6) station interference;

(7) mountain effect;

(8) coastal refraction;

(9) orientation in relation to an NDB;

(10) homing;

(11) intercepting a pre-selected magnetic bearing and tracking inbound;

(12) station passage;

(13) tracking outbound;

(14) time and distance checks;

(15) use of two NDBs to obtain a fix or alternatively use of one NDB and one other navaid;

(16) holding procedures;

(17) communication (R/T procedures and ATC liaison).

(b) Air exercise:

(1) selecting, tuning and identifying an NDB;

(2) ADF orientation;

(3) communication (R/T procedures and ATC liaison);

(4) homing;

(5) tracking inbound;

(6) station passage;

(7) tracking outbound;

(8) time and distance checks;

(9) intercepting a pre-selected magnetic bearing;

(10) determining the helicopter’s position from two NDBs or alternatively from one NDB and one other navaid;

(11) ADF holding procedures.

EXERCISE 5: RADIO NAVIGATION (APPLIED PROCEDURES): USE OF VHF/DF

(a) Long briefing objectives:

(1) availability of VHF/DF facilities en-route;

(2) location, frequencies, station call signs and hours of operation;

(3) signal and reception range;

(4) effect of altitude;

(5) communication (R/T procedures and ATC liaison);

(6) obtaining and using types of bearings, for example QTE, QDM, QDR;

(7) homing to a station;

(8) effect of wind;

(9) use of two VHF/DF stations to obtain a fix (or alternatively one VHF/DF station and one other navaid);

(10) assessment of groundspeed and timing.

(b) Air exercise:

(1) establishing contact with a VHF/DF station;

(2) R/T procedures and ATC liaison;

(3) obtaining and using a QDR and QTE;

(4) homing to a station;

(5) effect of wind;

(6) use of two VHF/DF stations to obtain a fix (or alternatively one VHF/DF station and one other navaid);

(7) assessment of groundspeed and timing.

EXERCISE 6: RADIO NAVIGATION (APPLIED PROCEDURES): USE OF DME

(a) Long briefing objectives:

(1) availability of DME facilities;

(2) location, frequencies and identification codes;

(3) signal reception range;

(4) slant range;

(5) use of DME to obtain distance, groundspeed and timing;

(6) use of DME to obtain a fix;

(b) Air exercise:

(1) station selection and identification;

(2) use of equipment functions;

(3) distance;

(4) groundspeed;

(5) timing;

(6) DME arc approach;

(7) DME holding.

EXERCISE 7: RADIO NAVIGATION (APPLIED PROCEDURES): USE OF TRANSPONDERS

(a) Long briefing objectives:

(1) operation of transponders;

(2) code selection procedure;

(3) emergency codes;

(4) precautions when using airborne equipment.

(b) Air exercise:

(1) operation of transponders;

(2) types of transponders;

(3) code selection procedure;

(4) emergency codes;

(5) precautions when selecting the required code.

EXERCISE 8: RADIO NAVIGATION (APPLIED PROCEDURES): USE OF EN-ROUTE RADAR SERVICES

(a) Long briefing objectives:

(1) availability of radar services;

(2) location, station frequencies, call signs and hours of operation;

(3) AIP and NOTAMS;

(4) provision of service;

(5) communication (R/T procedures and ATC liaison);

(6) airspace radar advisory service;

(7) emergency service;

(8) aircraft separation standards.

(b) Air exercise:

(1) communication (R/T procedures and ATC liaison);

(2) establishing the service required and position reporting;

(3) method of reporting conflicting traffic;

(4) terrain clearance.

EXERCISE 9: PRE-FLIGHT AND AERODROME DEPARTURE AND ARRIVAL POOCEDURES

(a) Long briefing objectives:

(1) determining the serviceability of the radio equipment;

(2) navigation equipment;

(3) obtaining the departure clearance;

(4) setting up radio navaids before take-off for example VOR frequencies, required radials, etc.;

(5) aerodrome departure procedures, frequency changes;

(6) altitude and position reporting as required;

(7) SID procedures;

(8) obstacle clearance considerations.

(b) Air exercise:

(1) radio equipment serviceability checks;

(2) departure clearance;

(3) navaid selection;

(4) frequencies, radials, etc.;

(5) aerodrome departure checks, frequency changes, altitude and position reports;

(6) SID procedures.

EXERCISE 10: INSTRUMENT APPROACH: PRECISION APPROACH AID TO SPECIFIED MINIMA AND MISSED APPROACH PROCEDURES

(a) Long briefing objectives:

(1) precision approach charts;

(2) approach to the initial approach fix and minimum sector altitude;

(3) navaid requirements, for example radar, ADF, etc.;

(4) communication (ATC liaison and R/T phraseology);

(5) holding procedure;

(6) the final approach track;

(7) forming a mental picture of the approach;

(8) completion of aerodrome approach checks;

(9) initial approach procedure;

(10) selection of the ILS frequency and identification;

(11) obstacle clearance altitude or height;

(12) operating minima;

(13) achieving the horizontal and vertical patterns;

(14) assessment of distance, groundspeed time, and rate of descent from the final approach fix to the aerodrome;

(15) use of DME (as applicable);

(16) go-around and missed approach procedure;

(17) review of the published instructions;

(18) transition from instrument to visual flight (sensory illusions);

(19) visual manoeuvring after an instrument approach;

(i) circling approach;

(ii) visual approach to landing.

(b) Air exercise:

(1) initial approach to the ILS;

(2) completion of approach planning;

(3) holding procedure;

(4) frequency selection and identification of ILS;

(5) review of the published procedure and minimum sector altitude;

(6) communication (ATC liaison and R/T phraseology);

(7) determination of operating minima and altimeter setting;

(8) weather consideration, for example cloud base and visibility;

(9) availability of landing site lighting;

(10) ILS entry methods;

(11) radar vectors;

(12) procedural method;

(13) assessment of approach time from the final approach fix to the aerodrome;

(14) determination of:

(i) the descent rate on final approach;

(ii) the wind velocity at the surface and the length of the landing site;

(iii) the obstruction heights to be borne in mind during visual manoeuvring after an instrument approach;

(15) circling approach;

(16) the approach:

(i) at the final approach fix;

(ii) use of DME (as applicable);

(iii) ATC liaison;

(iv) note time and establish air speed and descent rate;

(v) maintaining the localizer and glide path;

(vi) anticipation in change of wind velocity and its effect on drift;

(vii) decision height.

(17) landing direction;

(18) go-around and missed approach procedure;

(19) transition from instrument to visual flight;

(20) circling approach;

(21) visual approach to landing.

EXERCISE 11: INSTRUMENT APPROACH: NON-PRECISION APPROACH TO SPECIFIED MINIMA AND MISSED APPROACH PROCEDURES

(a) Long briefing objectives:

(1) non-precision approach charts;

(2) initial approach to the initial approach fix and minimum sector altitude;

(3) ATC liaison;

(4) communication (ATC procedures and R/T phraseology);

(5) approach planning;

(6) holding procedure;

(7) the approach track;

(8) forming a mental picture of the approach;

(9) initial approach procedure;

(10) operating minima;

(11) completion of approach planning;

(12) achieving the horizontal and vertical patterns;

(13) assessment of distance, groundspeed time, and rate of descent from the final approach fix to the aerodrome;

(14) use of DME (as applicable);

(15) go-around and missed approach procedure;

(16) review of the published instructions;

(17) transition from instrument to visual flight (sensory illusions);

(18) visual manoeuvring after an instrument approach;

(19) circling approach;

(20) visual approach to landing.

(b) Air exercise:

(1) completion of approach planning, including determination of:

(i) descent rate from the final approach fix;

(ii) the wind velocity at the surface and length of the landing site;

(iii) the obstruction heights to be borne in mind during visual manoeuvring after an instrument approach.

(2) circling approach;

(3) go-around and missed approach procedure;

(4) initial approach;

(5) frequency selection and identification;

(6) review of the published procedure and minimum safe sector altitude;

(7) ATC liaison and R/T phraseology;

(8) determination of decision height and altimeter setting;

(9) weather considerations, for example cloud base and visibility;

(10) availability of landing site lighting;

(11) determination of inbound track;

(12) assessment of time from final approach fix to the missed approach point;

(13) ATC liaison;

(14) the outbound procedure (incl. completion of pre-landing checks);

(15) the inbound procedure;

(16) re-check of identification code;

(17) altimeter setting re-checked;

(18) the final approach;

(19) note time and establish air speed and descent rate;

(20) maintaining the final approach track;

(21) anticipation of change in wind velocity and its effect on the drift;

(22) minimum descent altitude or height;

(23) landing site direction;

(24) go-around and missed approach procedure;

(25) transition from instrument to visual flight (sensory illusions);

(26) visual approach.

EXERCISE 12: USE OF GNSS (to be developed)

(a) Long briefing objectives: use of GNSS.

(b) Air exercise: use of GNSS.

C. AIRSHIPS

LONG BRIEFINGS AND AIR EXERCISES

EXERCISE 1: INSTRUMENT FLYING (Basic)
(for revision as deemed necessary by the instructor)

(a) Long briefing objectives:

(1) flight instruments;

(2) physiological considerations;

(3) instrument appreciation:

(i) attitude instrument flight;

(ii) pitch indications;

(iii) different instrument presentations;

(iv) introduction to the use of the attitude indicator;

(v) pitch attitude;

(vi) maintenance of heading and balanced flight;

(vii) instrument limitations (inclusive system failures).

(4) attitude, power and performance:

(i) attitude instrument flight;

(ii) control instruments;

(iii) performance instruments;

(iv) effect of changing power, trim and configuration;

(v) cross-checking the instrument indications;

(vi) instrument interpretation;

(vii) direct and indirect indications (performance instruments);

(viii) instrument lag;

(ix) selective radial scan.

(5) the basic flight manoeuvres (full panel):

(i) straight and level flight at various air speeds and airship configurations;

(ii) climbing;

(iii) descending;

(iv) standard rate turns;

(v) level, climbing and descending on to pre-selected headings.

(b) Air exercise:

(1) physiological sensations;

(2) instrument appreciation;

(3) attitude instrument flight;

(4) pitch attitude;

(5) bank attitude;

(6) maintenance of heading and balanced flight;

(7) attitude instrument flight;

(8) effect of changing power and configuration;

(9) cross-checking the instruments;

(10) selective radial scan;

(11) the basic flight manoeuvres (full panel):

(i) straight and level flight at various air speeds and airship configurations;

(ii) climbing;

(iii) descending;

(iv) standard rate turns;

(v) level, climbing and descending on to pre-selected headings.

EXERCISE 2: INSTRUMENT FLYING (Advanced)

(a) Long briefing objectives:

(1) full panel;

(2) unusual attitudes: recoveries;

(3) transference to instruments after take-off;

(4) limited panel;

(5) basic flight manoeuvres;

(6) unusual attitudes: recoveries.

(b) Air exercise:

(1) full panel;

(2) unusual attitudes: recoveries;

(3) limited panel;

(4) repeat of the above exercises.

EXERCISE 3: RADIO NAVIGATION (APPLIED PROCEDURES): USE OF VOR

(a) Long briefing objectives:

(1) availability of VOR stations en-route;

(2) station frequencies and identification;

(3) signal reception range;

(4) effect of altitude;

(5) VOR radials;

(6) use of OBS;

(7) to or from indicator;

(8) orientation;

(9) selecting radials;

(10) intercepting a pre-selected radial;

(11) assessment of distance to interception;

(12) effects of wind;

(13) maintaining a radial;

(14) tracking to and from a VOR station;

(15) procedure turns;

(16) station passage;

(17) use of two stations for obtaining a fix;

(18) pre-selecting fixes along a track;

(19) assessment of ground speed and timing;

(20) holding procedures;

(21) various entries;

(22) communication (R/T procedures and ATC liaison).

(b) Air exercise:

(1) station selection and identification;

(2) orientation;

(3) intercepting a pre-selected radial;

(4) R/T procedures and ATC liaison;

(5) maintaining a radial inbound;

(6) recognition of station passage;

(7) maintaining a radial outbound;

(8) procedure turns;

(9) use of two stations to obtain a fix along the track;

(10) assessment of ground speed and timing;

(11) holding procedures and entries;

(12) holding at a pre-selected fix;

(13) holding at a VOR station.

EXERCISE 4: RADIO NAVIGATION (APPLIED PROCEDURES): USE OF ADF
(Automatic DF equipment)

(a) Long briefing objectives:

(1) availability of NDB facilities en-route;

(2) location, frequencies, tuning (as applicable) and identification codes;

(3) signal reception range;

(4) static interference;

(5) night effect;

(6) station interference;

(7) mountain effect;

(8) coastal refraction;

(9) orientation in relation to an NDB;

(10) homing;

(11) intercepting a pre-selected magnetic bearing and tracking inbound;

(12) station passage;

(13) tracking outbound;

(14) time and distance checks;

(15) use of two NDBs to obtain a fix or alternatively use of one NDB and one other navaid;

(16) holding procedures and various approved entries;

(17) communication (R/T procedures and ATC liaison).

(b) Air exercise:

(1) selecting, tuning and identifying an NDB;

(2) ADF orientation;

(3) communication (R/T procedures and ATC liaison);

(4) homing;

(5) tracking inbound;

(6) station passage;

(7) tracking outbound;

(8) time and distance checks;

(9) intercepting a pre-selected magnetic bearing;

(10) determining the airship’s position from two NDBs or alternatively from one NDB and one other navaid;

(11) ADF holding procedures and various approved entries.

EXERCISE 5: RADIO NAVIGATION (APPLIED PROCEDURES): USE OF VHF/DF

(a) Long briefing objectives:

(1) availability of VHF/DF facilities en-route;

(2) location, frequencies, station call signs and hours of operation;

(3) signal and reception range;

(4) effect of altitude;

(5) communication (R/T procedures and ATC liaison);

(6) obtaining and using types of bearings, for example QTE, QDM, QDR;

(7) homing to a station;

(8) effect of wind;

(9) use of two VHF/DF stations to obtain a fix (or alternatively one VHF/DF station and one other navaid);

(10) assessment of groundspeed and timing.

(b) Air exercise:

(1) establishing contact with a VHF/DF station;

(2) R/T procedures and ATC liaison;

(3) obtaining and using a QDR and QTE;

(4) homing to a station;

(5) effect of wind;

(6) use of two VHF/DF stations to obtain a fix (or alternatively one VHF/DF station and one other navaid);

(7) assessment of groundspeed and timing.

EXERCISE 6: RADIO NAVIGATION (APPLIED PROCEDURES): USE OF DME

(a) Long briefing objectives:

(1) availability of DME facilities;

(2) location, frequencies and identification codes;

(3) signal reception range;

(4) slant range;

(5) use of DME to obtain distance, groundspeed and timing;

(6) use of DME to obtain a fix.

(b) Air exercise:

(1) station selection and identification;

(2) use of equipment functions;

(3) distance;

(4) groundspeed;

(5) timing;

(6) DME arc approach;

(7) DME holding.

EXERCISE 7: RADIO NAVIGATION (APPLIED PROCEDURES): USE OF TRANSPONDERS

(a) Long briefing objectives:

(1) operation of transponders;

(2) code selection procedure;

(3) emergency codes;

(4) precautions when using airborne equipment.

(b) Air exercise:

(1) operation of transponders;

(2) types of transponders;

(3) code selection procedure;

(4) emergency codes;

(5) precautions when selecting the required code.

EXERCISE 8: RADIO NAVIGATION (APPLIED PROCEDURES): USE OF EN-ROUTE RADAR SERVICES

(a) Long briefing objectives:

(1) availability of radar services;

(2) location, station frequencies, call signs and hours of operation;

(3) AIP and NOTAMS;

(4) provision of service;

(5) communication (R/T, procedures and ATC liaison);

(6) airspace radar advisory service;

(7) emergency service;

(8) aircraft separation standards.

(b) Air exercise:

(1) communication (R/T procedures and ATC liaison);

(2) establishing the service required and position reporting;

(3) method of reporting conflicting traffic;

(4) terrain clearance.

EXERCISE 9: PRE-FLIGHT AND AERODROME DEPARTURE AND ARRIVAL PROCEDURES

(a) Long briefing objectives:

(1) determining the serviceability of the airship radio;

(2) navigation equipment;

(3) obtaining the departure clearance;

(4) setting up radio navaids before take-off for example VOR frequencies, required radials, etc.;

(5) aerodrome departure procedures, frequency changes;

(6) altitude and position reporting as required;

(7) SID procedures;

(8) obstacle clearance considerations.

(b) Air exercise:

(1) radio equipment serviceability checks;

(2) departure clearance;

(3) navaid selection;

(4) frequencies, radials, etc.;

(5) aerodrome departure checks, frequency changes, altitude and position reports;

(6) SID procedures.

EXERCISE 10: INSTRUMENT APPROACHES: ILS APPROACHES TO SPECIFIED MINIMA AND MISSED APPROACHES PROCEDURES

(a) Long briefing objectives:

(1) precision approach charts;

(2) approach to the initial approach fix and minimum sector altitude;

(3) navaid requirements, for example radar, ADF, etc.;

(4) communication (ATC liaison and R/T phraseology); (5) review;

(6) holding procedure;

(7) the final approach track;

(8) forming a mental picture of the approach;

(9) completion of aerodrome approach checks;

(10) initial approach procedure;

(11) selection of the ILS frequency and identification;

(12) obstacle clearance altitude or height;

(13) operating minima;

(14) achieving the horizontal and vertical patterns;

(15) assessment of distance, groundspeed time, and rate of descent from the final approach fix to the aerodrome;

(16) use of DME (as applicable);

(17) go-around and missed approach procedure;

(18) review of the published instructions;

(19) transition from instrument to visual flight (sensory illusions);

(20) visual manoeuvring after an instrument approach;

(i) circling approach;

(ii) visual approach to landing.

(b) Air exercise:

(1) initial approach to the ILS;

(2) completion of approach planning;

(3) holding procedure;

(4) frequency selection and identification of ILS;

(5) review of the published procedure and minimum sector altitude;

(6) communication (ATC liaison and R/T phraseology);

(7) determination of operating minima and altimeter setting;

(8) weather consideration, for example cloud base and visibility;

(9) availability of runway lighting;

(10) ILS entry methods;

(11) radar vectors;

(12) procedural method;

(13) assessment of approach time from the final approach fix to the aerodrome;

(14) determination of:

(i) the descent rate on final approach;

(ii) the wind velocity at the surface (and the length of the landing runway);

(iii) the obstruction heights to be borne in mind during visual manoeuvring after an instrument approach;

(15) circling approach;

(16) the approach:

(i) at the final approach fix;

(ii) use of DME (as applicable);

(iii) ATC liaison;

(iv) note time and establish air speed and descent rate;

(v) maintaining the localiser and glide path;

(vi) anticipation in change of wind velocity and its effect on drift;

(vii) decision height;

(viii) runway direction.

(17) missed approach procedure;

(18) transition from instrument to visual flight;

(19) circling approach;

(20) visual approach to landing.

EXERCISE 11: INSTRUMENT APPROACHES: NDB APPROACHES TO SPECIFIED MINIMA AND MISSED APPROACHES PROCEDURE

(a) Long briefing objectives:

(1) non-precision approach charts;

(2) initial approach to the initial approach fix and minimum sector altitude;

(3) ATC liaison;

(4) communication (ATC procedures and R/T phraseology);

(5) approach planning:

(i) holding procedure;

(ii) the approach track;

(iii) forming a mental picture of the approach;

(iv) initial approach procedure;

(v) operating minima;

(vi) completion of approach planning.

(6) achieving the horizontal and vertical patterns;

(7) assessment of distance, groundspeed time, and rate of descent from the final approach fix to the aerodrome;

(8) use of DME (as applicable);

(9) go-around and missed approach procedure;

(10) review of the published instructions;

(11) transition from instrument to visual flight (sensory illusions);

(12) visual manoeuvring after an instrument approach;

(13) circling approach;

(14) visual approach to landing.

(b) Air exercise:

(1) completion of approach planning including;

(2) determination of:

(i) descent rate from the final approach fix;

(ii) the wind velocity at the surface and length of the landing runway;

(iii) the obstruction heights to be borne in mind during visual manoeuvring after an instrument approach.

(3) circling approach;

(4) go-around and missed approach procedure;

(5) initial approach;

(6) frequency selection and identification;

(7) review of the published procedure and minimum safe sector altitude;

(8) ATC liaison and R/T phraseology;

(9) determination of decision height and altimeter setting;

(10) weather considerations, for example cloud base and visibility;

(11) availability of runway lighting;

(12) determination of inbound track;

(13) assessment of time from final approach fix to the missed approach point;

(14) ATC liaison;

(15) the outbound procedure (inclusive completion of pre-landing checks);

(16) the inbound procedure;

(17) re-check of identification code;

(18) altimeter setting re-checked;

(19) the final approach;

(20) note time and descent rate;

(21) maintaining the final approach track;

(22) anticipation of change in wind velocity and its effect on the drift;

(23) minimum descent altitude or height;

(24) runway direction;

(25) go-around and missed approach procedure;

(26) transition from instrument to visual flight (sensory illusions);

(27) visual approach.

EXERCISE 12: RADIO NAVIGATION (APPLIED PROCEDURES): USE OF GNNS (to be developed)

(a) Long briefing objectives: use of GNSS.

(b) Air exercise: use of GNSS.

AMC1 LIC.930.MCCI MCCI — Training course

AEROPLANES

GENERAL

(a) The objective of the technical training is to apply the core instructor competencies acquired during the teaching and learning training to MCC training.

(b) During the practical training the applicant should demonstrate the ability to instruct a pilot in MCC.

(c) To supervise applicants for MCCI certificates, the adequate experience should include at least three type rating or MCC courses.

(d) It is to be noted that airmanship is a vital ingredient of all flight operations. Therefore, in the following air exercises the relevant aspects of airmanship are to be stressed at the appropriate times during each flight.

(e) The student instructor should learn how to identify common errors and how to correct them properly, which should be emphasised at all times.

COURSE OBJECTIVE

(f) The course should be designed to give adequate training to the applicant in theoretical knowledge instruction and FSTD instruction to instruct those aspects of MCC required by an applicant for a type rating on a first MP aeroplane.

(g) Confirmation of competency of the applicant to be authorised as an MCCI(A) will be determined by the applicant conducting at least 3 hours MCC instruction to a satisfactory standard on the relevant FNPT or FFS under the supervision of a TRI(A), SFI(A) or MCCI(A) nominated by the ATO for this purpose.

(h) The course consists of three parts:

(1) Part 1: teaching and learning that should follow the content of AMC1 LIC.920;

(2) Part 2: technical theoretical knowledge instruction (technical training);

(3) Part 3: flight instruction.

Part 1

The content of the teaching and learning part of the FI training course, as established in AMC1 LIC.930.FI, should be used as guidance to develop the course syllabus.

Part 2

TECHNICAL THEORETICAL KNOWLEDGE INSTRUCTION SYLLABUS

(a) The FSTD training consists of the application of core instructor competencies to MCC training in a commercial air transport environment, including principles of threat and error management and CRM.

The content of the training programme should cover MCC course exercises in sufficient depth to meet the standard required for issue of the MCCI(A) certificate.

(b) The course should be related to the type of FSTD on which the applicant wishes to instruct. A training programme should give details of all theoretical knowledge instruction.

(c) Identification and application of human factors (as set in the ATPL syllabus 040) related to MCC aspects of the training.

Part 3

FLIGHT INSTRUCTION SYLLABUS

(a) The content of the instruction programme should cover training exercises as applicable to the MCC requirements of an applicant for a MP type rating.

(b) Training exercises:

The exercises should be accomplished as far as possible in a simulated commercial air transport environment. The instruction should cover the following areas:

(1) pre-flight preparation, including documentation, and computation of take-off performance data;

(2) pre-flight checks, including radio and navigation equipment checks and setting;

(3) before take-off checks, including powerplant checks, and take-off briefing by the PF;

(4) normal take-offs with different flap settings, tasks of PF and PNF, call-outs;

(5) rejected take-offs; crosswind take-offs; take-offs at maximum take- off mass; engine failure after v1;

(6) normal and abnormal operation of aircraft systems, use of checklists;

(7) selected emergency procedures to include engine failure and fire, smoke control and removal, windshear during take-off and landing, emergency descent, incapacitation of a flight crew member;

(8) early recognition of and reaction on approaching stall in differing aircraft configurations;

(9) instrument flight procedures, including holding procedures; precision approaches using raw navigation data, flight director and automatic pilot, one engine simulated inoperative approaches, non-precision and circling approaches, approach briefing by the PF, setting of navigation equipment, call-out procedures during approaches; computation of approach and landing data;

(10) go-arounds; normal and with one engine simulated inoperative, transition from instrument to visual flight on reaching decision height or minimum descent height or altitude;

(11) landings, normal, crosswind and with one engine simulated inoperative, transition from instrument to visual flight on reaching decision height or minimum descent height or altitude.

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SUBPART K

EXAMINERS

GM1 LIC.1000 Examiner certificates

SPECIAL CONDITIONS

When new aircraft are introduced, requirements such as to hold a licence and rating equivalent to the one for which the skill test is being conducted, or to have adequate flight experience, may not be possible to comply with. In this case, to allow for the first ratings for these aircraft to be issued to applicants, competent authorities need the possibility to issue a specific certificate that does not have to comply with the requirements established in this Subpart.

The Authority should only give these certificates to holders of other examiner certificates. As far as possible, preference should be given to persons with experience in similar types or classes of aircraft, for example, in aircraft having the same kind and number of engines or rotors and of the same order of mass or technology.

The certificate should ideally be limited in validity to the time needed to qualify the first examiners for the new aircraft in accordance with this Subpart, but in any case it should not exceed the 3 years established in the rule.

GM1 LIC.1005(b) Limitation of privileges in case of vested interests

Examples of a situation where the examiner should consider if his/her objectivity is affected are when the applicant is a relative or a friend of the examiner, or when they are linked by economical interests or political affiliations, etc.

AMC1 LIC.1010 Prerequisites for examiners

When evaluating the applicant's background, the Authority should evaluate the personality and character of the applicant, and his/her cooperation with the Authority.

The Authority may also take into account whether the applicant has been convicted of any relevant criminal or other offenses, taking into account national law and principles of non-discrimination.

AMC1 LIC.1015 Examiner standardisation

GENERAL

(a) The Authority may provide the course itself or through an arrangement with an ATO. This arrangement should clearly state that the ATO is acting under the management system of the Authority.

(b) The course should last:

 (1) for the FE and FIE, at least 1 day, divided into theoretical and practical training;

(2) for other examiners, at least 3 days, divided into theoretical training (1 day) and practical training in an FFS conducting role played proficiency checks and skill tests (at least 2 days).

(c) The Authority or the ATO should determine any further training required before presenting the candidate for the examiner assessment of competence.

CONTENT

(d) The training should comprise:

(1) Theoretical training covering at least:

(i) the contents of AMC2 LIC.1015 and the FEM;

(ii) CAR LIC and related AMCs and GM relevant to their duties;

(iii) operational requirements and related AMCs and GM relevant to their duties;

(iv) national requirements relevant to their examination duties;

(v) fundamentals of human performance and limitations relevant to flight examination;

(vi) fundamentals of evaluation relevant to applicant's performance;

(vii) management system of ATOs;

(viii) MCC, human performance and limitations, if applicable.

(2) Examiners should also be briefed on the protection requirements for personal data, liability, accident insurance and fees, as applicable.

(3) All items above are the core knowledge requirements for an examiner and are recommended as the core course material. This core course may be studied before recommended examiner training is commenced. The core course may utilise any suitable training format.

(4) Practical training consisting of at least:

(i) knowledge and management of the test for which the certificate is to be sought. These are described in the relevant modules in the FEM;

(ii) knowledge of the administrative procedures pertaining to that test or check.

(5) For an initial examiner certificate, practical training should include the examination of the test profile sought, consisting of the conduct of at least two test or check profiles in the role of examiner (these two tests or checks profiles can be performed in the same simulator session), including briefing, conduct of the skill test and proficiency check, assessment of the applicant to whom the test or check is given, debriefing and recording

or documentation under the supervision of an examiner of the appropriate category on the applicable type. This training is conducted in the aircraft if approval for testing or checking in the aircraft is required. If examiner privileges in FSTD's are required, practical instruction in the use of FSTD(s) for testing or checking should also be completed.

(6) If examiner privileges are to include the conduct of proficiency checks for the revalidation or renewal of an instrument rating, practical instruction should include the conduct of at least four instrument check profiles in the role of examiner, including briefing, conduct of the skill test and proficiency check, assessment of the applicant to whom the test or check is given, debriefing and recording or documentation under the supervision of an examiner of the appropriate category on the applicable type. This training is conducted in the aircraft if approval for testing or checking in the aircraft is required. If examiner privileges in both FSTD and aircraft are required, at least one of the instrument check profiles should be conducted in an FSTD.

(7) For extension of an examiner certificate to further types (as required for TRE), further practical training on the new type may be required, consisting of the conduct of at least one test or check profile in the role of examiner on the new type, including briefing, conduct of the skill test and proficiency check, assessment of the applicant to whom the test or check is given, debriefing and recording or documentation under the supervision of an examiner of the appropriate category on the applicable type. A further examiner check on the new type may be required, which may be supervised by an inspector of the Authority or a suitably authorised senior examiner.

AMC2 LIC.1015 Examiner standardisation

STANDARDISATION ARRANGEMENTS FOR EXAMINERS LIMITATIONS

(a) An examiner should allow an applicant adequate time to prepare for a test or check, normally not more than 1 hour.

(b) An examiner should plan a test or check flight so that all required exercises can be performed while allowing sufficient time for each of the exercises and with due regard to the weather conditions, traffic situation, ATC requirements and local procedures.

PURPOSE OF A TEST OR CHECK

(c) Determine through practical demonstration during a test or check that an applicant has acquired or maintained the required level of knowledge and skill or proficiency.

(d) Improve training and flight instruction in ATOs by feedback of information from examiners about items or sections of tests or checks that are most frequently failed.

(e) Assist in maintaining and, where possible, improving air safety standards by having examiners display good airmanship and flight discipline during tests or checks.

CONDUCT OF TEST OR CHECK

(f) An examiner will ensure that an applicant completes a test or check in accordance with CAR LIC requirements and is assessed against the required test or check standards.

(g) Each item within a test or check section should be completed and assessed separately. The test or check schedule, as briefed, should not normally be altered by an examiner. A failed item is not always a failed section, for example type rating skill test where a failure of an item in a section does not fail the entire section, only the failed item is taken again.

(h) Marginal or questionable performance of a test or check item should not influence an examiner's assessment of any subsequent items.

(i) An examiner should verify the requirements and limitations of a test or check with an applicant during the pre-flight briefing.

(j) When a test or check is completed or discontinued, an examiner should debrief the applicant and give reasons for items or sections failed. In case of a failed or discontinued skill test and proficiency check, the examiner should provide appropriate advice to assist the applicant in re-tests or re- checks.

(k) Any comment on, or disagreement with, an examiner's test or check evaluation or assessment made during a debriefing will be recorded by the examiner on the test or check report, and will be signed by the examiner and countersigned by the applicant.

EXAMINER PREPARATION

(l) An examiner should supervise all aspects of the test or check flight preparation, including, where necessary, obtaining or assuring an ATC 'slot' time.

(m) An examiner will plan a test or check in accordance with CAR LIC requirements. Only the manoeuvres and procedures set out in the appropriate test or check form will be undertaken. The same examiner should not re-examine a failed applicant without the agreement of the applicant.

EXAMINER APPROACH

(n) An examiner should encourage a friendly and relaxed atmosphere to develop both before and during a test or check flight. A negative or hostile approach should not be used. During the test or check flight, the examiner should avoid negative comments or criticisms and all assessments should be reserved for the debriefing.

ASSESSMENT SYSTEM

(o) Although test or checks may specify flight test tolerances, an applicant should not be expected to achieve these at the expense of smoothness or stable flight. An examiner should make due allowance for unavoidable deviations due to turbulence, ATC instructions, etc. An examiner should terminate a test or check only when it is clear that the applicant has not been able to demonstrate the required level of knowledge, skill or proficiency and that a full re-test will be necessary or for safety reasons. An examiner will use one of the following terms for assessment:

(1) a 'pass', provided that the applicant demonstrates the required level of knowledge, skill or proficiency and, where applicable, remains within the flight test tolerances for the licence or rating;

(2) a ‘fail’ provided that any of the following apply:

(i) the flight test tolerances have been exceeded after the examiner has made due allowance for turbulence or ATC instructions;

(ii) the aim of the test or check is not completed;

(iii) the aim of exercise is completed but at the expense of safe flight, violation of a rule or regulation, poor airmanship or rough handling;

(iv) an acceptable level of knowledge is not demonstrated;

(v) an acceptable level of flight management is not demonstrated;

(vi) the intervention of the examiner or safety pilot is required in the interest of safety.

(3) a ‘partial pass’ in accordance with the criteria shown in the relevant skill test appendix of CAR LIC.

METHOD AND CONTENTS OF THE TEST OR CHECK

(p) Before undertaking a test or check an examiner will verify that the aircraft or FSTD intended to be used is suitable and appropriately equipped for the test or check.

(q) A test or check flight will be conducted in accordance with the AFM and, if applicable, the AOM.

(r) A test or check flight will be conducted within the limitations contained in the operations manual of an ATO.

(s) Contents:

(1) a test or check is comprised of:

(i) oral examination on the ground (where applicable);

(ii) pre-flight briefing;

(iii) in-flight exercises;

(iv) post-flight debriefing.

(2) oral examination on the ground should include:

(i) aircraft general knowledge and performance;

(ii) planning and operational procedures;

(iii) other relevant items or sections of the test or check.

(3) pre-flight briefing should include:

(i) test or check sequence;

(ii) power setting, speeds and approach minima, if applicable;

(iii) safety considerations.

(4) in-flight exercises will include each relevant item or section of the test or check;

(5) post-flight debriefing should include:

(i) assessment or evaluation of the applicant;

(ii) documentation of the test or check with the applicant's FI present, if possible.

(t) A test or check is intended to simulate a practical flight. Thus, an examiner may set practical scenarios for an applicant while ensuring that the applicant is not confused and air safety is not compromised.

(u) When manoeuvres are to be flown by sole reference to instruments, the examiner should ensure that a suitable method of screening is used to simulate IMC.

(v) An examiner should maintain a flight log and assessment record during the test or check for reference during the post or flight debriefing.

(w) An examiner should be flexible to the possibility of changes arising to pre- flight briefings due to ATC instructions, or other circumstances affecting the test or check.

(x) Where changes arise to a planned test or check an examiner should be satisfied that the applicant understands and accepts the changes. Otherwise, the test or check flight should be terminated.

(y) Should an applicant choose not to continue a test or check for reasons considered inadequate by an examiner, the applicant will be assessed as having failed those items or sections not attempted. If the test or check is terminated for reasons considered adequate by the examiner, only these items or sections not completed will be tested during a subsequent test or check.

(z) An examiner may terminate a test or check at any stage, if it is considered that the applicant's competency requires a complete re-test or re-check.

GM1 LIC.1015 Examiner standardisation

(a) An examiner should plan per day not more than:

(1) three tests or checks relating to PPL, CPL, IR or class ratings;

(2) [four tests or checks relating to the SPL or BPL;]

(3) two tests or checks related to CPL, IR or ATPL;

(4) two assessments of competence related to instructor certificates;

(5) four tests or checks relating to SP type ratings.

(b) [An examiner should plan at least 2 hours for a SPL or BPL, 3 hours for a PPL, CPL, IR or class rating test or checks, and at least 4 hours for FI, CPL, IR, MPL, ATPL or MP type rating tests or checks, including pre- flight briefing and preparation, conduct of the test, check or assessment of competence, de-briefing, evaluation of the applicant and documentation.]

(c) When planning the duration of a test, check or assessment of competence, the following values may be used as guidance:

(1) [45 minutes for a BPL and SP class ratings VFR only;

(2) 90 minutes for PPL and CPL, including navigation section;]

(3) 60 minutes for IR, FI and SP type or class ratings;

(4) 120 minutes for CPL, MPL, ATPL and MP type ratings.

(d) [For the SPL test or check flight the flight time must be sufficient to allow that all the items in each test or check section can be fully completed.] If not all the items can be completed in one flight, additional flights have to be done.

AMC1 LIC.1020 Examiners assessment of competence

GENERAL

(a) The Authority may nominate either one of its inspectors or a senior examiner to assess the competence of applicants for an examiner certificate.

DEFINITIONS

(b) Definitions:

(1) 'Inspector': the inspector of the Authority conducting the examiner competence assessment;

(2) 'Examiner applicant': the person seeking certification as an examiner;

(3) 'Candidate': the person being tested or checked by the examiner applicant. This person may be a pilot for whom the test or check would be required, or the inspector of the Authority who is conducting the examiner certification acceptance test.

CONDUCT OF THE ASSESSMENT

(c) An inspector of the Authority or a senior examiner will observe all examiner applicants conducting a test on a 'candidate' in an aircraft for which examiner certificate is sought. Items from the related training course and test or check schedule will be selected by the inspector for examination of the 'candidate' by the examiner applicant. Having agreed with the inspector the content of the test, the examiner applicant will be expected to manage the entire test. This will include briefing, the conduct of the flight, assessment and debriefing of the 'candidate'. The inspector will discuss the assessment with the examiner applicant before the 'candidate' is debriefed and informed of the result.

BRIEFING THE 'CANDIDATE'

(d) The 'candidate' should be given time and facilities to prepare for the test flight. The briefing should cover the following:

(1) the objective of the flight;

(2) licensing checks, as necessary;

(3) freedom for the 'candidate' to ask questions;

(4) operating procedures to be followed (for example operators manual);

(5) weather assessment;

(6) operating capacity of 'candidate' and examiner;

(7) aims to be identified by 'candidate';

(8) simulated weather assumptions (for example icing and cloud base);

(9) use of screens (if applicable);

(10) contents of exercise to be performed;

(11) agreed speed and handling parameters (for example V-speeds, bank angle, approach minima);

(12) use of R/T;

(13) respective roles of 'candidate' and examiner (for example during emergency);

(14) administrative procedures (for example submission of flight plan).

(e) The examiner applicant should maintain the necessary level of communication with the 'candidate'. The following check details should be followed by the examiner applicant:

(1) involvement of examiner in a MP operating environment;

(2) the need to give the 'candidate' precise instructions;

(3) responsibility for safe conduct of the flight;

(4) intervention by examiner, when necessary;

(5) use of screens;

(6) liaison with ATC and the need for concise, easily understood intentions;

(7) prompting the 'candidate' about required sequence of events (for example following a go-around);

(8) keeping brief, factual and unobtrusive notes.

ASSESSMENT

(f) The examiner applicant should refer to the flight test tolerances given in the relevant skill test. Attention should be paid to the following points:

(1) questions from the 'candidate';

(2) give results of the test and any sections failed;

(3) give reasons for failure.

DEBRIEFING

(g) The examiner applicant should demonstrate to the inspector the ability to conduct a fair, unbiased debriefing of the 'candidate' based on identifiable factual items. A balance between friendliness and firmness should be evident. The following points should be discussed with the 'candidate', at the applicant's discretion:

(1) advise the candidate on how to avoid or correct mistakes;

(2) mention any other points of criticism noted;

(3) give any advice considered helpful.

RECORDING OR DOCUMENTATION

(h) The examiner applicant should demonstrate to the inspector the ability to complete the relevant records correctly. These records may be:

(1) the relevant test or check form;

(2) licence entry;

(3) notification of failure form;

(4) relevant company forms where the examiner has privileges of conducting operator proficiency checks.

DEMONSTRATION OF THEORETICAL KNOWLEDGE

(i) The examiner applicant should demonstrate to the inspector a satisfactory knowledge of the regulatory requirements associated with the function of an examiner.

AMC1 LIC.1020; LIC.1025

QUALIFICATION OF SENIOR EXAMINERS

(a) A senior examiner specifically tasked by the Authority to observe skill tests or proficiency checks for the revalidation of examiner certificates should:

(1) hold a valid or current examiner certificate appropriate to the privileges being given;

(2) have examiner experience level acceptable to the Authority;

(3) have conducted a number of skill tests or proficiency checks as a CAR LIC examiner.

(b) The Authority may conduct a pre-assessment of the applicant or candidate carrying out a skill test and proficiency check under supervision of an inspector of the Authority.

(c) Applicants should be required to attend a senior examiner briefing, course or seminar arranged by the Authority. Content and duration will be determined by the Authority and should include:

(1) pre-course self-study;

(2) legislation;

(3) the role of the senior examiner;

(4) an examiner assessment;

(5) national administrative requirements.

(d) The validity of the authorisation should not exceed the validity of the examiners certificate, and in any case should not exceed 3 years. The authorisation may be revalidated in accordance with procedures established by the Authority.

AMC1 LIC.1025 Validity, revalidation and renewal of examiner certificates

EXAMINER REFRESHER SEMINAR

The examiner refresher seminar should follow the content of the examiner standardisation course, included in AMC1 LIC.1015, and take into account specific contents adequate to the category of examiner affected.

AMC1 LIC.1030 (b)(3) Conduct of skill tests, proficiency checks and assessments of competence

OBLIGATIONS FOR EXAMINERS APPLICATION AND REPORT FORMS

Common application and report forms can be found:

(a) [For skill tests or proficiency checks for issue, revalidation or renewal of a BPL, SPL, PPL, CPL and IR in AMC1 to Appendix 7;]

(b) For training, skill tests or proficiency checks for ATPL, MPL or class and type ratings, in AMC1 to Appendix 9;

(c) For assessments of competence for instructors, in AMC5 LIC.935.

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SUBPART L

FLIGHT ENGINEERS

GM LIC.1080 List of Aeroplane Types Requiring a Flight Engineer

1 This following table includes aeroplane types required to be operated with a Flight Engineer.

2 Explanation of table:

(a) the symbol (D) in column 3 indicates that differences training is required when moving between variants or other types of aeroplane which are separated by the use of a line in column 2;

(b) although the licence endorsement (column 4) contains all aeroplanes listed in column 2, the required familiarisation or differences training has still to be completed;

List of AEROPLANE Types -
Requiring a Flight Engineer *

1 Manufacturer	2 A/C Certification	3	4 Licence Endorsement
Aerospatiale/BAC	Concorde		Concorde
Aero Spaceline	377 SGTF Super Guppy		Super Guppy
Airbus	A300 - B1 - B2 series - B4 series - C4-200 series - F4-200 series		A300
	A300 - 300-600ST (Beluga)		A300-600ST
Boeing	B707 - 100 series - 300 series - 400 series		B707
	B727 -100 series -200 series		B727
	B747 - 100 series - 200 series - 300 series	(D)	B747 100-300-S.P.
	- S.P.		
Boeing/McDonnell-Douglas	Douglas-3A-S1C3G		DC3
	DC4		DC4
	DC6 series		DC6
	DC7C		DC7
	DC8-33 DC8-50, 60, 70 series		DC8
	DC10 series		DC10
Lockheed	L382 G		Hercules
	L188 Electra series A	(D)	L188 Electra
	L188 Electra series C		
	L1011 series		L1011
Short Brothers	SC5 Belfast		Belfast

* Multi-pilot aeroplanes may be operated with a F/E as an additional member of the flight crew.

SUBPART M

TRAINING ORGANISATIONS

GM LIC 1.1100
Financial Evaluation of Training Organisations (ATO)

OBJECTIVE

1. The objective of this guidance material is to set out the means of compliance for the Authority to be satisfied that ATOs have sufficient funding available to conduct training to the approved standards of CAR LIC. It is not intended to be a consumer protection provision. The grant and revalidation of an approval cannot therefore be construed as a guarantee of the underlying financial soundness of the organisation. It is an indication, on the basis of financial information provided, that the approved organisation can provide sufficient facilities and qualified staff such that flying training can be, or can continue to be, provided in accordance with relevant CAR LIC training requirements and standards.

APPLICATION FOR APPROVAL OR REVALIDATION

2. Any application for initial approval or revalidation is to be supported by a plan, covering the period of approval requested, which includes at least the following information:

    (a) Training facilities and number of students

    Details, as appropriate, of:

    – the number and types of training aircraft that will be used;
    – the number of flight and ground instructors that will be employed;
    – the number of classrooms and other types of training facilities (synthetic training devices, etc.) intended for use;
    – the supporting infrastructure (staff offices, operations room, briefing rooms, rest rooms, hangars, etc.)
    – planned number of students (by month and course)

    (b) Financial Details

    – capital expenditure necessary to provide the planned facilities;
    – costs associated with running each of the courses for which approval is sought;
    – income forecasts for the period of approval;
    – a forecast financial operating statement for the business for which approval is sought;
    – details of any other financial trading arrangement on which the viability of the approved organisation may be dependent.

3. The plan submitted in support of an application for initial approval or revalidation is to be accompanied by a Financial Statement from the applicant's bankers or auditors, which certifies that the applicant has, or has recourse to, sufficient financial resources to meet the applicant's proposals as described in the plan to conduct CAR LIC approved courses. An appropriately revised Financial Statement will be required whenever the applicants wish to expand their activities in addition to those described in the plan, in order to satisfy the requirements of LIC.

ONGOING FINANCIAL MONITORING

4. After approval has been granted, if the Authority has reason to believe that the necessary standards of compliance with CAR LIC are not being met or may not be met due to a lack or apparent lack of financial resources, the Authority may require the organisation to demonstrate in a written submission that sufficient funds can and will be made available to continue to meet

the terms of approval, or such modifications to it as may have been agreed with the Authority. Any such submission is to be accompanied by a further Financial Statement signed by the approved organisation's bankers or auditors.

5. The Authority may also require a Financial Statement if it appears to the Authority that operation of the approved course(s) is significantly at variance with the proposals contained in the business plan.

GM1 LIC.1110
Training and Operations Manual for ATOs

TRAINING MANUAL

Training Manuals for use at an ATO conducting approved integrated or modular flying training courses should include the following:

Part 1 – The Training Plan

The aim of the course (ATP(A),CPL/IR(A), CPL(A) as applicable)	A statement of what the student is expected to do as a result of the training, the level of performance, and the training constraints to be observed.
Pre-entry requirements	Minimum age, educational requirements (including language), medical requirements. Any individual State requirements.
Credits for previous experience	To be obtained from the Authority before training begins.
Training Syllabi	The flying syllabus (single-engine), the flying syllabus (multi-engine), the synthetic flight training syllabus and the theoretical knowledge training syllabus.
The time scale and scale, in weeks, for each syllabus	Arrangements of the course and the integration of syllabi time.
Training programme	The general arrangements of daily and weekly programmes for flying, ground and synthetic flight training. Bad weather constraints. Programme constraints in terms of maximum student training times, (flying, theoretical knowledge, synthetic) e.g. per day/week/month. Restrictions in respect of duty periods for students. Duration of dual and solo flights at various stages. Maximum flying hours in any day/night; maximum number of training flights in any day/night. Minimum rest period between duty periods.
Training records	Rules for security of records and documents.

	Attendance records.
	The form of training records to be kept.
	Persons responsible for checking records and students' log books.
	The nature and frequency of record checks.
	Standardisation of entries in training records.
	Rules concerning log book entries.
Safety training	Individual responsibilities.
	Essential exercises.
	Emergency drills (frequency).
	Dual checks (frequency at various stages).
	Requirement before first solo day/night/navigation etc.
Tests and examinations	Flying
	(a) Progress checks
	(b) Skill tests
	Theoretical Knowledge
	(a) Progress tests
	(b) Theoretical knowledge examinations
	Authorisation for test.
	Rules concerning refresher training before retest.
	Test reports and records.
	Procedures for examination paper preparation, type of question and assessment, standard required for 'Pass'.
	Procedure for question analysis and review and for raising replacement papers.
	Examination resit procedures.
Training effectiveness	Individual responsibilities.
	General assessment.
	Liaison between departments.
	Identification of unsatisfactory progress (individual students).
	Actions to correct unsatisfactory progress.
	Procedure for changing instructors.
	Maximum number of instructor changes per student.
	Internal feedback system for detecting training deficiencies.
	Procedure for suspending a student from training.
	Discipline.
	Reporting and documentation.

Standards and Level of performance at various stages	Individual responsibilities. Standardisation. Standardisation requirements and procedures. Application of test criteria.

Part 2 – Briefing and Air Exercises

Air Exercise	A detailed statement of the content specification of all the air exercises to be taught, arranged in the sequence to be flown with main and sub-titles. This should normally be the same as the air exercise specification for the flight instructor rating course.
Air exercise reference list	An abbreviated list of the above exercises giving only main and sub-titles for quick reference, and preferably in flip-card form to facilitate daily use by flight instructors.
Course structure – Phase of training	A statement of how the course will be divided into phases, indication of how the above air exercises will be divided between the phases and how they will be arranged to ensure that they are completed in the most suitable learning sequence and that essential (emergency) exercises are repeated at the correct frequency. Also, the syllabus hours for each phase and for groups of exercises within each phase shall be stated and when progress tests are to be conducted, etc.
Course structure integration of syllabi	The manner in which theoretical knowledge, synthetic flight training and flying training will be integrated so that as the flying training exercises are carried out students will be able to apply the knowledge gained from the associated theoretical knowledge instruction and synthetic flight training.
Student progress	The requirement for student progress and include a brief but specific statement of what a student is expected to be able to do and the standard of proficiency he must achieve before progressing from one phase of air exercise training to the next. Include minimum experience requirements in terms of hours, satisfactory exercise completion, etc. as necessary before significant exercises, e.g. night flying.
Instructional methods	The ATO requirements, particularly in respect of pre- and post-flying briefing, adherence to syllabi and training specifications, authorisation of solo flights, etc.
Progress tests	The instructions given to examining staff in respect of the conduct and documentation of all progress tests.
Glossary of terms	Definition of significant terms as necessary.
Appendices	Progress test report forms. Skill test report forms. ATO certificates of experience, competence, etc. as required.

Part 3 – Synthetic Flight Training

Structure generally as for Part 2.

Part 4 – Theoretical knowledge instruction

Structure of the theoretical knowledge course	A statement of the structure of the course, including the general sequence of the topics to be taught in each subject, the time allocated to each topic, the breakdown per subject and an example of a course schedule. Distance Learning courses should include instructions of the material to be studied for individual elements of the course.
Lesson Plans	A description of each lesson or group of lessons including teaching materials, training aids, progress test organisation and inter-connection of topics with other subjects.
Teaching materials	Specification of the training aids to be used (e.g. study materials, course manual references, exercises, self-study materials, demonstration equipment).
Student progress	The requirement for student progress, including a brief but specific statement of the standard that must be achieved and the mechanism for achieving this, before application for theoretical knowledge examinations.
Progress testing	The organisation of progress testing in each subject, including topics covered, evaluation methods and documentation.
Review procedure	The procedure to be followed if the standard required at any stage of the course is not achieved, including an agreed action plan with remedial training if required.

OPERATIONS MANUAL

Operations Manual for use at an ATO conducting approved integrated or modular flying training courses include the following:

(a) General

- A list and description of all volumes in the Operations Manual
- Administration (function and management)
- Responsibilities (all management and administrative staff)
- Student discipline and disciplinary action
- Approval/authorisation of flights
- Preparation of flying programme (restriction of numbers of aircraft in poor weather)
- Command of aeroplane
- Responsibilities of pilot-in-command

- Carriage of passengers
- Aeroplane documentation
- Retention of documents
- Flight crew qualification records (licences and ratings)
- Revalidation (medical certificates and ratings)
- Flying duty period and flight time limitations (flying instructors)
- Flying duty period and flight time limitations (students)
- Rest periods (flying instructors)
- Rest periods (students)
- Pilots' log books
- Flight planning (general)
- Safety (general) – equipment, radio listening watch, hazards, accidents and incidents (including reports), safety pilots etc.

(b) Technical

- Aircraft descriptive notes
- Aircraft handling (including checklists, limitations, aeroplane maintenance and technical logs, in accordance with relevant CARs, etc.)
- Emergency procedures
- Radio and radio navigation aids
- Allowable deficiencies (based on MMEL, if available)

(c) Route

- Performance (legislation, take-off, route, landing etc.)
- Flight planning (fuel, oil, minimum safe altitude, navigation equipment etc.)
- Loading (loadsheets, mass, balance, limitations)
- Weather minima (flying instructors)
- Weather minima (students – at various stages of training)
- Training routes/areas

(d) Staff Training

- Appointments of persons responsible for standards/competence of flying staff
- Initial training
- Refresher training
- Standardisation training
- Proficiency checks
- Upgrading training
- ATO staff standards evaluation

AMC LIC 1.1120)
Guidelines for Approval of an Aircraft Type Rating Course

TRAINING PROGRAMME

1 Type ratings

1.1 To obtain approval a type rating course should, as far as possible, provide for a continuous process of ground, FSTD and flight training to enable the student to assimilate the knowledge and skills required to operate a specific aircraft type safely and efficiently. The student's ability to do this will be determined by the demonstration of a satisfactory level of theoretical knowledge of the aircraft determined by progressive checking of knowledge and examination, progressive assessment by the ATO during flying training and the successful completion of a practical skill test with an authorised examiner. There should be no difference in the level of knowledge or competency required of the student, irrespective of the intended role of the student as pilot-in-command, co-pilot or flight engineer member of the flight crew.

1.2 A type rating course should normally be conducted as a single, full-time course of study and training. However, in the situation where the course is intended to enable a pilot to fly a further aircraft type while continuing to fly a current type, such as to enable mixed fleet flying with the same operator acceptable under CAR OPS, some elements of the theoretical knowledge course conducted by self-study may be undertaken while the student continues to fly the current type. Any such arrangement should be acceptable to the approving Authority but combining flight training for a new type with continuing operation of another type will not normally be acceptable.

2 Variants

2.1 Familiarisation training: Where an aeroplane type rating also includes variants of the same aircraft type requiring Familiarisation training, the additional Familiarisation training may be included in the theoretical knowledge training of the initial type rating course. Flight training should be conducted on a single variant within the type.

2.2 Differences training: Where an aeroplane type rating also includes variants of the same aircraft type for which difference training is required, the initial training course should be directed towards a single variant. Additional training to operate other variants within the same type rating should be completed after successful completion of the initial type rating course, although elements of this differences training may be undertaken at appropriate stages of the initial course, with the agreement of the approving Authority. Differences training to operate variants within the same type rating will be subject to approval, either as a separate course or as part of the basic type rating training course.

3. Programme of Theoretical Knowledge and Flight Training

3.1 The training programme should specify the time allocated to theoretical knowledge training, FSTD training and if not approved for Zero Flight Time Training in accordance with CAR LIC. 730(A), the aeroplane. The training programme will be assessed and, for approval to be given, deemed to be adequate by the approving Authority. The initial type rating course should be programmed on the basis that the student has the minimum licensing and experience requirements for entry to the course, as required by CAR LIC. For a first type rating on a multi-pilot aircraft, the course should also provide for consolidation and type-specific training in those elements of basic MCC training relevant to the type or variant.

3.2 If a ATO wishes to provide a training course that includes credit for previous experience on similar types of aircraft, such as those with common systems or operating procedures with the new type, the entry requirements to such courses should be specified by the ATO and must define the minimum level of experience and qualification required of the flight crew member. The approving Authority will need to agree the proposed entry level and reduced training requirements of these courses.

3.3 A ATO is permitted to sub-contract elements of training to a third party training provider. In such cases the sub-contracted organisation should normally be approved to conduct such training by the Authority. When the sub-contracted organisation is not approved, the approving Authority of the ATO should include the sub contracted organisation in the approval process and be satisfied that the standard of training intended to be given meets the equivalent requirements of a San Marino approved organisation. The other obligations of the ATO, such as student progress monitoring and an adequate form of quality system management, can be exercised by the ATO seeking approval, and which retains responsibility for the whole course.

GROUND TRAINING

4. Syllabus

4.1 The ground training syllabus should provide for the student to gain a thorough understanding of the operation, the function and, if appropriate, the abnormal and emergency operation of all aircraft systems. This training should also include those systems essential to the operation of the aircraft, such as ‘fly by wire’ flight control systems, even if the flight crew have little or no control of their normal or abnormal operation.

5. Theoretical Knowledge Instruction

5.1 The theoretical knowledge instruction training should meet the general objectives of (but is not limited to):

a. giving the student a thorough knowledge of the aircraft structure, power plant and systems, and their associated limitations, including mass and balance, aircraft performance and flight planning considerations;

b. giving the student a knowledge of the positioning and operation of the flight deck controls and indicators for the aircraft and its systems;

c. giving the student an understanding of system malfunctions, their effect on aircraft operations and interaction with other systems;

d. giving the student the understanding of normal, abnormal and emergency procedures

6. Facilities and Training Aids

6.1 The ATO should provide adequate facilities for classroom instruction and have available appropriately qualified and experienced instructors. Training aids should enable students to gain practical experience of the operation of systems covered by the theoretical knowledge syllabus and, in the case of multi-pilot aircraft, enable such practical application of the knowledge to be carried out in a multi-crew environment. Facilities should be made available for student self-study outside the formal training programme.

7. Computer Based Training (CBT)

7.1 CBT provides a valuable source of theoretical instruction, enabling the student to progress at his own pace within specified time limits. Many such systems ensure that syllabus subjects are fully covered and progress can be denied until a satisfactory assimilation of knowledge has been demonstrated. Such systems may allow self-study or distance learning, if they incorporate adequate knowledge testing procedures. When CBT is used as part of the theoretical knowledge instruction phase, the student should also have access to a suitably qualified instructor able to assist with areas of difficulty for the student.

8. Self-Study and Distance Learning

8.1 Elements of the theoretical knowledge syllabus may be adequately addressed by distance learning, if approved see paragraph 1.2, or self study, particularly when utilising CBT. Progress testing, either by self-assessed or instructor-evaluated means must be included in any self study programme. If self-study or distance learning is included in the theoretical knowledge training, the course should also provide for an adequate period of supervised consolidation and knowledge testing prior to the commencement of flight training.

9. Progress Tests and Final Theoretical Knowledge Examination

9.1 The theoretical knowledge training programme should provide for progressive testing of the assimilation of the required knowledge. This testing process should also provide for retesting of syllabus items so that a thorough understanding of the required knowledge is assured. This should be achieved by intervention by a qualified instructor or, if using CBT with a self testing facility, and by further testing during the supervised consolidation phase of the ground course.

9.2 The final theoretical knowledge examination should cover all areas of the theoretical knowledge syllabus. The final examination should be conducted as a supervised written knowledge test without reference to course material. The pass mark of 75% assumes the achievement of satisfactory levels of knowledge during the progressive phase tests of the course. The student should be advised of any areas of lack of knowledge displayed during the examination and, if necessary, given remedial instruction.

9.3 A successful pass of the theoretical knowledge course and final examination should be a prerequisite for progression to the flight training phase of the type rating course.

FLIGHT TRAINING

10. Flight Synthetic Training Devices (FSTD)

10.1 FSTDs provide the most effective flight training, enabling realistic practice of all abnormal and emergency procedures in a safe and easily-controlled environment for both the student and instructor. For multi-pilot aircraft they also enable CRM and MCC concepts to be incorporated at all stages of training. Only in exceptional circumstances should an Authority approve a type rating course for a multipilot aeroplane which does not include FSTD training,

10.2 The amount of training required when using FSTDs will depend on the complexity of the aeroplane concerned, and to some extent on the previous experience of the pilot. Except for those courses giving credit for previous experience (para 3.2) a minimum of 32 hours FSTD training should be programmed for a crew of a multi-pilot aeroplane, of which at least 16 hours should be in a Flight Simulator operating as a crew. Flight simulator time may be reduced at the discretion of the approving Authority if other qualified FSTDs used during the flight training programme accurately replicate the flight deck environment, operation and aeroplane response. Such FSTDs may typically include FMC training devices using hardware and computer programmes identical to those of the aeroplane, or type specific FNPT IIs.

11. Aeroplane Training with Flight Simulator

11.1 With the exception of courses approved for Zero Flight Time Training, certain training exercises normally involving take-off and landing in various configurations will need to be completed in the aeroplane rather than an approved Flight Simulator. For multi-pilot aeroplanes where the student pilot has more than 500 hours MPA experience in aeroplanes of similar size and performance, these should include at least 4 landings of which at least one should be a full stop landing. In all other cases the student should complete at least 6 landings. With the agreement of the approving Authority, this aeroplane training, provided it does not exceed 2 hours of the flight training course, may be completed after the student pilot has completed the FSTD training and has successfully undertaken the type rating skill test.

11.2 For courses approved for Zero Flight Time Training,

a. During the specific simulator session before Line Flying Under Supervision (LIFUS), consideration should be given to varying conditions, for example :
- runway surface conditions;
- runway length;
- flap setting;
- power setting;
- crosswind and turbulence conditions;
- MTOW and MLW.

The landings should be conducted as full-stop landings. The session should be flown in normal operation. Special attention should be given to the taxiing technique.

b. A training methodology should be agreed with the Authority that ensures the trainee is fully competent with the exterior inspection of the aeroplane before conducting such an inspection unsupervised.

c. The LIFUS should be performed as soon as possible after the specific simulator session.

d. The licence endorsement should be entered on the licence after the skill test, but before the first 4 take-offs and landings in the aeroplane. At the discretion of the Authority, provisional or temporary endorsement and any restriction should be entered on the licence.

e. Where a specific arrangement exists between the Training Organisation and the CAR OPS

1 operator, the Operator Proficiency Check (OPC) and the ZFTT specific details should be conducted using the operator's standard operational procedures (SOPs).

12. Aircraft without Flight Simulator

12.1 Flight training conducted solely in an aircraft without the use of FSTDs cannot cover the CRM and MCC aspects of MPA flight training, and for safety reasons cannot cover all emergency and abnormal aircraft operation required for the training and skill test. In such cases, the ATO will need to satisfy the approving Authority that adequate training in these aspects can be achieved by other means. For training conducted solely on a multi-pilot aircraft where two pilots are trained together without the use of a flight simulator, a minimum of 8 hours flight training as PF for each pilot should normally be required. For training on a single pilot aeroplane or helicopter, 10 hours flight training should normally be required. It is accepted that for some relatively simple single or multi-engine aircraft without systems such as pressurisation, FMS or electronic flight deck displays, this minimum may be reduced at the discretion of the approving Authority. In the case of multi-engine aeroplanes or helicopters the minimum training required by CAR LIC shall be included.

12.2 It is widely accepted that aircraft training normally involves inherent delay in achieving an acceptable flight situation and configuration for training to be carried out in accordance with the agreed syllabus. These could include ATC or other traffic delay on the ground prior to take off, the necessity to climb to height or transit to suitable training areas and the unavoidable need to physically reposition the aircraft for subsequent or repeat manoeuvres or instrument approaches. In such cases the approving Authority will need to ensure that the training syllabus provides adequate flexibility to enable the minimum amount of required flight training to be carried out.

SKILL TEST

13. Upon completion of the flight training the pilot will be required to undergo a skill test with an authorised examiner to demonstrate adequate competency of aircraft operation for issue of the type rating. The skill test is separate from the flight training syllabus, and provision for it cannot be included in the minimum requirements or training hours of the agreed flight training programme. The skill test may be conducted in a flight simulator, the aircraft or, in exceptional circumstances, a combination of both.

COURSE COMPLETION CERTIFICATE

14. The Head of Training, or a nominated representative, is required to certify that all training has been carried out before an applicant undertakes a skill test for the type rating to be included in the pilot’s licence. It is not uncommon for an approved ATO to be unable to provide, or have direct supervision over any training that is required to be carried out on an aircraft conducted by a third party such as the operator. In such cases, and with the agreement of the approving Authority, a ATO Course Completion Certificate may be issued confirming completion of ground and FSTD flight training. Confirmation of the completion of aircraft training should then be provided by the organisation undertaking this training, as a requirement for issue of the type rating. The period of time between any two phases of training should not exceed 60 days otherwise refresher training at the discretion of the Authority will be required.

AMC2 LIC 1120
Approval of Modular Theoretical Knowledge Distance Learning Courses

GENERAL

1. Modular theoretical knowledge training may be conducted to meet licensing requirements for the issue of a PPL, CPL, IR and ATPL, or first single pilot high performance aeroplane class/type rating. Approved distance learning courses may be offered as part of modular theoretical knowledge training at the discretion of the Authority.

TRAINING ORGANISATION

2. A variety of methods are open to ATOs to present course material. It is, however, necessary for ATOs to maintain comprehensive records in order to ensure that students make satisfactory academic progress and meet the time constraints laid down in CAR LIC for the completion of modular courses.

3. The following are given as planning guidelines for ATOs developing the distance learning element of modular courses:

    a. An assumption that a student will study for at least 15 hours per week.

    b. An indication throughout the course material of what constitutes a week's study.

    c. A recommended course structure and order of teaching acceptable to the Authority.

    d. One progress test for each subject for every 15 hours of study, which should be submitted to the ATO for assessment. Additional self-assessed progress tests should be completed at intervals of 5 to 10 study hours.

    e. Appropriate contact times throughout the course when a student can have access to an instructor by telephone, fax, e-mail or Internet.

    f. Measurement criteria to determine whether a student has satisfactorily completed the appropriate elements of the course to a standard that, in the judgement of the Head of Training, or CGI, will enable them to be entered for the CAR LIC theoretical examinations with a good prospect of success.

    g. If the ATO provides the distance learning by help of I.T. solutions, for example the Internet, instructors should monitor student's progress by appropriate means.

GM 1 to LIC.1130
Quality system for ATOs

1 In accordance with CAR LIC.1130, a ATO shall, as a condition for approval, establish and maintain a quality system. This AMC establishes the objectives of such a system, and offers a means of compliance as to which elements should be included and how the system can be integrated in the organisations.

2 The rationale for the requirements of quality systems is the need to establish a distinct assignment of roles between Authority and training organisations by creating an evident division between the regulatory and surveillance responsibility on the one hand, and responsibility of the training activities in itself on the other. Therefore the training organisations must establish a system whereby they can monitor their activities, be able to detect deviations from set rules and standards, take the necessary corrective actions and thus ensure compliance with Authority regulations and own requirements. A well established and functioning quality system will make it possible for the supervising Authority to perform inspections and surveillance efficiently and with a reasonable amount of resources.

3 It is obvious and well recognised that the scope and complexity of a quality system should reflect the size and complexity of the training organisation and its training activities. The objectives and the same principles apply, however, to any training organisation, irrespective of size and complexity. Thus, in small and relatively small training organisations, the quality system may be quite simple and integrated in the basic organisation, whereas larger organisations with more complex training activities will need to establish separate and independent quality organisations within the overall organisational set-up.

4 In determining size and complexity in this context the following guidelines apply:

- training organisations with 5 or less instructors employed are considered very small;
- training organisations employing between 6 and 20 instructors are considered small.

In determining complexity, factors such as number of aircraft types used for training, range of training courses offered, geographical spread of training activities (e.g. the use of satellites), range of training arrangements with other training organisations, etc. will be considered.

5 In a quality system of any ATO the following five elements should be clearly identifiable:

a. determination of the organisation's training policy and training and flight safety standards;

b. determination and establishment of assignment of responsibility, resources, organisation and operational processes, which will make allowance for policy and training and flight safety standards;

c. follow up system to ensure that policy, training and flight safety standards are complied with;

d. registration and documentation of deviations from policy, training and flight safety standards together with necessary analysis, evaluations and correction of such deviations;

e. evaluation of experiences and trends concerning policy, training and flight safety standards.

6 GM2 to CAR LIC.1130 describes in more detail objectives, the different elements of a quality system and offers guidance as to the set-up of quality systems in larger and/or more complex training organisations.

7 The Quality System required in CAR LIC and in other CARs may be integrated.

GM 2 to CAR LIC.1130
Quality system for ATOs

INTRODUCTION

A basis for quality should be established by every ATO and problem-solving techniques to run processes should be applied. Knowledge in how to measure, establish and ultimately achieve quality in training and education is considered to be essential.

The purpose of this IEM is to provide information and guidance to the training organisations on how to establish a Quality System that enables compliance with CAR LIC.1130.

In order to show compliance with CAR LIC.1130, an ATO should establish its Quality System in accordance with the instructions and information contained in the succeeding paragraphs.

THE QUALITY SYSTEM OF THE ATO

1 **Terminology**

Accountable Manager

A person acceptable to the Authority who has authority for ensuring that all training activities can be financed and carried out to the standards required by the Authority, and additional requirements defined by the ATO.

Quality

The totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs.

Quality Assurance

All those planned and systematic actions necessary to provide adequate confidence that all training activities satisfy given requirements, including the ones specified by the ATO in relevant manuals.

Quality Manager

The manager, acceptable to the Authority, responsible for the management of the Quality System, monitoring function and requesting corrective actions.

Quality Manual

The document containing the relevant information pertaining to the operator's quality system and quality assurance programme.

Quality Audit

A systematic and independent examination to determine whether quality activities and related results comply with planned arrangements and whether these arrangements are implemented effectively and are suitable to achieve objectives.

2 **Quality Policy and Strategy**

It is of vital importance that the ATO describes how the organisation formulates, deploys, reviews its policy and strategy and turns it into plans and actions. A formal written Quality Policy Statement should be established that is a commitment by the Head of Training as to what the Quality System is intended to achieve. The Quality Policy should reflect the achievement and continued compliance with relevant parts of CAR LIC together with any additional standards specified by the ATO.

The Accountable Manager will have overall responsibility for the Quality System including the frequency, format and structure of the internal management evaluation activities.

3 **Purpose of a Quality System**

The implementation and employment of a Quality System will enable the ATO to monitor compliance with relevant parts of LIC, the Operations Manual, the Training Manual, and any other standards as established by that ATO, or the Authority, to ensure safe and efficient training.

4 **Quality Manager**

4.1 The primary role of the Quality Manager is to verify, by monitoring activities in the field of training, that the standards required by the Authority, and any additional requirements as established by the ATO, are being carried out properly under the supervision of the Head of Training, the Chief Flying Instructor and the Chief Ground Instructor.

4.2 The Quality Manager should be responsible for ensuring that the Quality Assurance Programme is properly implemented, maintained and continuously reviewed and improved. The Quality Manager should:

– have direct access to the Head of Training;

– have access to all parts of the ATO's organisation.

4.3 In the case of small or very small ATOs, the posts of the Head of Training and the Quality Manager may be combined. However, in this event, quality audits should be conducted by independent personnel. In the case of a training organisation offering integrated training the Quality Manager should not hold the position of Head of Training, Chief Flying Instructor and Chief Ground Instructor.

5 **Quality System**

5.1 The Quality System of the ATO should ensure compliance with and adequacy of training activities requirements, standards and procedures.

5.2 The ATO should specify the basic structure of the Quality System applicable to all training activities conducted.

5.3 The Quality System should be structured according to the size of the ATO and the complexity of the training to be monitored.

6 **Scope**

A Quality System should address the following:

6.1 Leadership

6.2 Policy and Strategy

6.3 Processes

6.4 The provisions of LIC

6.5 Additional standards and training procedures as stated by the ATO

6.6 The organisational structure of the ATO

6.7 Responsibility for the development, establishment and management of the Quality System

6.8 Documentation, including manuals, reports and records

6.9 Quality Assurance Programme

6.10 The required financial, material, and human resources

6.11 Training requirements

6.12 Customer satisfaction

7 **Feedback System**

The quality system should include a feedback system to ensure that corrective actions are both identified and promptly addressed. The feedback system should also specify who is required to rectify discrepancies and non-compliance in each particular case, and the procedure to be followed if corrective action is not completed within an appropriate timescale.

8 **Documentation**

Relevant documentation includes the relevant part(s) of the Training and Operations Manual, which may be included in a separate Quality Manual.

8.1 In addition relevant documentation should also include the following:

- Quality Policy;
- Terminology;

- Specified training standards;
- A description of the organisation;
- The allocation of duties and responsibilities;
- Training procedures to ensure regulatory compliance.

8.2 The Quality Assurance Programme, reflecting:

- Schedule of the monitoring process;
- Audit procedures;
- Reporting procedures;
- Follow-up and corrective action procedures;
- Recording system;
- The training syllabus; and
- Document control.

9 **Quality Assurance Programme**

The Quality Assurance Programme should include all planned and systematic actions necessary to provide confidence that all training are conducted in accordance with all applicable requirements, standards and procedures.

10 **Quality Inspection**

The primary purpose of a quality inspection is to observe a particular event/action/document etc., in order to verify whether established training procedures and requirements are followed during the accomplishment of that event and whether the required standard is achieved.

Typical subject areas for quality inspections are:

- Actual flight and ground training;
- Maintenance;
- Technical Standards; and
- Training Standards.

11 **Audit**

An audit is a systematic, and independent comparison of the way in which a training is being conducted against the way in which the published training procedures say it should be conducted. Audits should include at least the following quality procedures and processes:

An explanation of the scope of the audit;

- Planning and preparation;
- Gathering and recording evidence; and
- Analysis of the evidence.

The various techniques that make up an effective audit are:

- Interviews or discussions with personnel;
- A review of published documents;
- The examination of an adequate sample of records;
- The witnessing of the activities which make up the training; and
- The preservation of documents and the recording of observations.

12 **Auditors**

The ATO should decide, depending on the complexity of the training, whether to make use of a dedicated audit team or a single auditor. In any event, the auditor or audit team should have relevant training and/or operational experience.

The responsibilities of the auditors should be clearly defined in the relevant documentation.

13 **Auditor's Independence**

Auditors should not have any day-to-day involvement in the area of the operation or maintenance activity which is to be audited. An ATO may, in addition to using the services of full-time dedicated personnel belonging to a separate quality department, undertake the monitoring of specific areas or activities by the use of part-time auditors.

An ATO whose structure and size does not justify the establishment of full-time auditors, may undertake the audit function by the use of part-time personnel from within his own organisation or from an external source under the terms of an agreement acceptable to the Authority.

In all cases the ATO should develop suitable procedures to ensure that persons directly responsible for the activities to be audited are not selected as part of the auditing team. Where external auditors are used, it is essential that any external specialist is familiar with the type of training conducted by the ATO.

The Quality Assurance Programme of the ATO should identify the persons within the company who have the experience, responsibility and authority to:

– Perform quality inspections and audits as part of ongoing Quality Assurance;
– Identify and record any concerns or findings, and the evidence necessary to substantiate such concerns or findings;
– Initiate or recommend solutions to concerns or findings through designated reporting channels;
– Verify the implementation of solutions within specific timescales;
– Report directly to the Quality Manager.

14 **Audit Scope**

ATOs are required to monitor compliance with the training and Operations Manuals they have designed to ensure safe and efficient training. In doing so they should as a minimum, and where appropriate, monitor:

(a) Organisation;
(b) Plans and objectives;
(c) Training Procedures;
(d) Flight Safety;
(e) Manuals, Logs, and Records;
(f) Flight and Duty Time Limitations,
(g) Rest Requirements, and Scheduling;
(h) Aircraft Maintenance/Operations interface;
(i) Maintenance Programmes and Continued Airworthiness;
(j) Airworthiness Directives management;
(k) Maintenance Accomplishment.

15 **Audit Scheduling**

A Quality Assurance Programme should include a defined audit schedule and a periodic review cycle. The schedule should be flexible, and allow unscheduled audits when trends are identified. Follow-up audits should be scheduled when necessary to verify that corrective action was carried out and that it was effective.

An ATO should establish a schedule of audits to be completed during a specific calendar period. All aspects of the training should be reviewed within a period of 12 months in accordance with the programme unless an extension to the audit period is accepted as explained below.

An ATO may increase the frequency of their audits at their discretion but should not decrease the frequency without the acceptance of the Authority. It is considered unlikely that a period of greater than 24 months would be acceptable for any audit topic.

When an ATO defines the audit schedule, significant changes to the management, organisation, training, or technologies should be considered, as well as changes to the regulatory requirements.

16 **Monitoring and Corrective Action**

The aim of monitoring within the Quality System is primarily to investigate and judge its effectiveness and thereby to ensure that defined policy, training standards are continuously complied with. Monitoring activity is based upon quality inspections, audits, corrective action and follow-up. The ATO should establish and publish a quality procedure to monitor regulatory compliance on a continuing basis. This monitoring activity should be aimed at eliminating the causes of unsatisfactory performance.

Any non-compliance identified should be communicated to the manager responsible for taking corrective action or, if appropriate, the Accountable Manager. Such non-compliance should be recorded, for the purpose of further investigation, in order to determine the cause and to enable the recommendation of appropriate corrective action.

The Quality Assurance Programme should include procedures to ensure that corrective actions are developed in response to findings. These quality procedures should monitor such actions to verify their effectiveness and that they have been completed. Organisational responsibility and accountability for the implementation of corrective action resides with the department cited in the report identifying the finding. The Accountable Manager will have the ultimate responsibility for ensuring, through the Quality Manager(s), that corrective action has re-established compliance with the standard required by the Authority and any additional requirements established by the ATO.

17. Corrective action

Subsequent to the quality inspection/audit, the ATO should establish:

(a) The seriousness of any findings and any need for immediate corrective action;

(b) The origin of the finding;

(c) What corrective actions are required to ensure that the non-compliance does not recur;

(d) A schedule for corrective action;

(e) The identification of individuals or departments responsible for implementing corrective action;

(f) Allocation of resources by the Accountable Manager where appropriate.

17.1 The Quality Manager should:

17.1.1 Verify that corrective action is taken by the manager responsible in response to any finding of non-compliance;

17.1.2 Verify that corrective action includes the elements outlined in paragraph 16 above;

17.1.3 Monitor the implementation and completion of corrective action;

17.1.4 Provide management with an independent assessment of corrective action, implementation and completion;

17.1.5 Evaluate the effectiveness of corrective action through the follow-up process.

18 **Management Evaluation**

A management evaluation is a comprehensive, systematic documented review by the management of the quality system, training policies, and procedures, and should consider:

The results of quality inspections, audits and any other indicators; as well as the overall effectiveness of the management organisation in achieving stated objectives. A management evaluation should identify and correct trends, and prevent, where possible, future non-conformities. Conclusions and recommendations made as a result of an evaluation should be submitted in writing to the responsible manager for action. The responsible manager should be an individual who has the authority to resolve issues and take action. The Accountable Manager should decide upon the frequency, format, and structure of internal management evaluation activities.

19 **Recording**

Accurate, complete, and readily accessible records documenting the results of the Quality Assurance Programme should be maintained by the ATO. Records are essential data to enable an ATO to analyse and determine the root causes of non-conformity, so that areas of non-compliance can be identified and subsequently addressed.

The following records should be retained for a period of 5 years:

- Audit Schedules;
- Quality inspection and Audit reports;
- Responses to findings;
- Corrective action reports;
- Management Evaluation reports.

20 **Quality Assurance Responsibility for Sub-Contractors**

An ATO may decide to sub-contract out certain activities to external organisations subject to the approval of the Authority.

The ultimate responsibility for the training provided by the subcontractor always remains with the ATO. A written agreement should exist between the ATO and the sub- contractor clearly defining the safety related services and quality to be provided. The sub-contractor's safety related activities relevant to the agreement should be included in the ATO's Quality Assurance Programme.

The ATO should ensure that the sub-contractor has the necessary authorisation/approval when required, and commands the resources and competence to undertake the task. If the ATO requires the sub-contractor to conduct activity which exceeds the sub-contractor's authorisation/approval, the ATO is responsible for ensuring that the sub-contractor's quality assurance takes account of such additional requirements.

21 **Quality System Training**

Correct and thorough training is essential to optimise quality in every organisation. In order to achieve significant outcomes of such training the ATO should ensure that all staff understand the objectives as laid down in the Quality Manual.

Those responsible for managing the Quality System should receive training covering:

An introduction to the concept of Quality System;
- Quality management;
- Concept of Quality Assurance;
- Quality manuals;

- Audit techniques;
- Reporting and recording; and
- The way in which the Quality System will function in the ATO.

Time should be provided to train every individual involved in quality management and for briefing the remainder of the employees. The allocation of time and resources should be governed by the size and complexity of the operation concerned.

22 **Sources of Training**

Quality management courses are available from the various National or International Standards Institutions, and an ATO should consider whether to offer such courses to those likely to be involved in the management of Quality Systems. Organisations with sufficient appropriately qualified staff should consider whether to carry out in-house training.

23 **Quality Systems for small/very small Organisations**

The requirement to establish and document a Quality System, and to employ a Quality Manager applies to all ATOs.

Complex quality systems could be inappropriate for small or very small ATOs and the clerical effort required to draw up manuals and quality procedures for a complex system may stretch their resources. It is therefore accepted that such ATOs should tailor their quality systems to suit the size and complexity of their training and allocate resources accordingly.

For small and very small ATOs it may be appropriate to develop a Quality Assurance Programme that employs a checklist. The checklist should have a supporting schedule that requires completion of all checklist items within a specified timescale, together with a statement acknowledging completion of a periodic review by top management. An occasional independent overview of the checklist content and achievement of the Quality Assurance should be undertaken.

The small ATO may decide to use internal or external auditors or a combination of the two. In these circumstances it would be acceptable for external specialists and or qualified organisations to perform the quality audits on behalf of the Quality Manager.

If the independent quality audit function is being conducted by external auditors, the audit schedule should be shown in the relevant documentation.

Whatever arrangements are made, the ATO retains the ultimate responsibility for the quality system and especially the completion and follow-up of corrective actions.

APPENDICES TO ACCEPTABLE MEANS OF COMPLIANCE

AMC1 to Appendix 3 Training courses for the issue of a CPL and an ATPL

GENERAL

(a) When ensuring that the applicant complies with the prerequisites for the course, the ATO should check that the applicant has enough knowledge of mathematics, physics and English to facilitate the understanding of the theoretical knowledge instruction content of the course.

(b) Whenever reference is made to a certain amount of hours of training, this means a full hour. Time not directly assigned to training (such as breaks, etc.) is not to be counted towards the total amount of time that is required.

A. ATP integrated course: aeroplanes

(a) The ATP integrated course should last between 12 and 36 months. This period may be extended where additional flying training or ground instruction is provided by the ATO.

CREDITING

(b) Credit for previous experience given to an applicant who already holds a PPL should be entered into the applicant's training record. In the case of a student pilot who does not hold a pilot licence and with the approval of the Authority, an ATO may designate certain dual exercises to be flown in a helicopter or a TMG up to a maximum of 20 hours.

THEORETICAL KNOWLEDGE

(c) The 750 hours of instruction can include classroom work, interactive video, slide or tape presentation, learning carrels, computer-based training, and other media as approved by the Authority, in suitable proportions.

The 750 hours of instruction should be divided in such a way that in each subject the minimum hours are:

(1)	Air law	40 hours
(2)	Aircraft general knowledge	80 hours
(3)	Flight performance and planning	90 hours
(4)	Human performance and limitations	50 hours
(5)	Meteorology	60 hours
(6)	Navigation	150 hours
(7)	Operational procedures	20 hours
(8)	Principles of flight	30 hours

(9) Communications 30 hours

Other subdivision of hours may be agreed upon between the Authority and the ATO.

FLYING TRAINING

(d) The flying instruction is divided into five phases:

(1) phase 1:

Exercises up to the first solo flight comprise a total of at least 10 hours dual flight instruction on an SE aeroplane including:

(i) pre-flight operations, mass and balance determination, aeroplane inspection and servicing;

(ii) aerodrome and traffic pattern operations, collision avoidance and precautions;

(iii) control of the aeroplane by external visual references;

(iv) normal take-offs and landings;

(v) flight at critically low air speeds, recognition of recovery from incipient and full stalls, spin avoidance;

(vi) unusual attitudes and simulated engine failure.

(2) phase 2:

Exercises up to the first solo cross-country flight comprise a total of at least 10 hours of dual flight instruction and at least 10 hours solo flight including:

(i) maximum performance (short field and obstacle clearance) take- offs and short-field landings;

(ii) flight by reference solely to instruments, including the completion of a 180 ° turn;

(iii) dual cross-country flying using external visual references, DR and radio navigation aids, diversion procedures;

(iv) aerodrome and traffic pattern operations at different aerodromes; (v) crosswind take-offs and landings;

(vi) abnormal and emergency procedures and manoeuvres, including simulated aeroplane equipment malfunctions;

(vii) operations to, from and transiting controlled aerodromes, compliance with ATS procedures, R/T procedures and phraseology;

(viii) knowledge of meteorological briefing arrangements, evaluation of weather conditions for flight and use of AIS.

(3) phase 3:

Exercises up to the VFR navigation progress test comprise a total of at least 5 hours of dual instruction and at least 40 hours as PIC. The dual instruction and testing up to the VFR navigation progress test should comprise:

(i) repetition of exercises of phases 1 and 2;

(ii) VFR flight at relatively critical high air speeds, recognition of and recovery from spiral dives;

(iii) VFR navigation progress test conducted by an FI not connected with the applicant's training;

(iv) night flight time including take-offs and landings as PIC.

(4) phase 4:

Exercises up to the instrument rating skill test comprise:

(i) at least 55 hours instrument flight, which may contain up to 25 hours of instrument ground time in an FNPT I or up to 40 hours in an FNPT II or FFS which should be conducted by an FI or an authorised SFI;

(ii) 20 hours instrument time flown as SPIC;

(iii) pre-flight procedures for IFR flights, including the use of the flight manual and appropriate ATS documents in the preparation of an IFR flight plan;

(iv) procedures and manoeuvres for IFR operation under normal, abnormal and emergency conditions covering at least:

(A) transition from visual to instrument flight on take-off;

(B) SIDs and arrivals;

(C) en-route IFR procedures;

(D) holding procedures;

(E) instrument approaches to specified minima;

(F) missed approach procedures;

(G) landings from instrument approaches, including circling.

(v) in-flight manoeuvres and specific flight characteristics;

(vi) operation of an ME aeroplane in the exercises of (iv), including operation of the aeroplane solely by reference to instruments with one engine simulated inoperative, and engine shut-down and restart (the latter training should be at a safe altitude unless carried out in an FSTD).

(5) phase 5:

(i) instruction and testing in MCC comprise the relevant training requirements;

(ii) if a type rating for MP aeroplanes is not required on completion of these regulations, the applicant will be provided with a certificate of course completion for MCC training.

B. ATP modular theoretical knowledge course: aeroplanes

(a) The aim of this course is to train pilots who have not received the theoretical knowledge instruction during an integrated course to the level of theoretical knowledge required for the ATPL.

(b) An approved course should include formal classroom work and may include the use of such facilities as interactive video, slide or tape presentation, learning carrels and computer-based training and other media distance learning (correspondence) courses as approved by the Authority. Approved distance learning (correspondence) courses may also be offered as part of the course.

(c) The ATP modular course should last 18 months. This period may be extended where additional training is provided by the ATO. The flight instruction and skill test need to be completed within the period of validity of the pass in the theoretical examinations.

C. CPL/IR integrated course: aeroplanes

(a) The CPL/IR integrated course should last between 9 and 30 months. This period may be extended where additional flying training or ground instruction is provided by the ATO.

CREDITING

(b) Credit for previous experience given to an applicant who already holds a PPL should be entered into the applicant's training record. In the case of a student pilot who does not hold a pilot licence and with the approval of the Authority, an ATO may designate certain dual exercises to be flown in a helicopter or a TMG up to a maximum of 20 hours.

THEORETICAL KNOWLEDGE

(c) The 500 hours of instruction can include classroom work, interactive video, slide or tape presentation, learning carrels, computer-based training, and other media as approved by the Authority, in suitable proportions.

The 500 hours of instruction should be divided in such a way that in each subject the minimum hours are:

(1)	Air law	30 hours
(2)	Aircraft general knowledge	50 hours
(3)	Flight performance and planning	60 hours
(4)	Human performance and limitations	15 hours
(5)	Meteorology	40 hours
(6)	Navigation	100 hours
(7)	Operational procedures	10 hours
(8)	Principles of flight	25 hours
(9)	Communications	30 hours

Other subdivisions of hours may be agreed upon between the Authority and the ATO.

FLYING TRAINING

(d) The flying instruction is divided into four phases:

(1) phase 1:

Exercises up to the first solo flight comprise a total of at least 10 hours dual flight instruction on an SE aeroplane, including:

(i) pre-flight operations, mass and balance determination, aeroplane inspection and servicing;

(ii) aerodrome and traffic pattern operations, collision avoidance and precautions;

(iii) control of the aeroplane by external visual references; (iv) normal take-offs and landings;

(v) flight at critically low air speeds, recognition of and recovery from incipient and full stalls, spin avoidance;

(vi) unusual attitudes and simulated engine failure.

(2) phase 2:

Exercises up to the first solo cross-country flight comprise a total of at least 10 hours of dual flight instruction and at least 10 hours solo flight including:

(i) maximum performance (short field and obstacle clearance) take- offs and short-field landings;

(ii) flight by reference solely to instruments, including the completion of a 180 ° turn;

(iii) dual cross-country flying using external visual references, DR and radio navigation aids, diversion procedures;

(iv) aerodrome and traffic pattern operations at different aerodromes; (v) crosswind take-offs and landings;

(vi) abnormal and emergency operations and manoeuvres, including simulated aeroplane equipment malfunctions;

(vii) operations to, from and transiting controlled aerodromes, compliance with ATS procedures, R/T procedures and phraseology;

(viii) knowledge of meteorological briefing arrangements, evaluation of weather conditions for flight and use of AIS.

(3) phase 3:

Exercises up to the VFR navigation progress test comprise a total of at least 5 hours of instruction and at least 40 hours as PIC. The dual instruction and testing up to the VFR navigation progress test and the skill test should contain the following:

(i) repetition of exercises of phases 1 and 2;

(ii) VFR flight at relatively critical high air speeds, recognition of and recovery from spiral dives;

(iii) VFR navigation progress test conducted by an FI not connected with the applicant's training;

(iv) night flight time including take-offs and landings as PIC.

(4) phase 4:

Exercises up to the instrument rating skill test comprise:

(i) at least 55 hours instrument time, which may contain up to 25 hours of instrument ground time in an FNPT I or up to 40 hours in an FNPT II or FFS which should be conducted by an FI or an authorised SFI;

(ii) 20 hours instrument time flown as SPIC;

(iii) pre-flight procedures for IFR flights, including the use of the flight manual and appropriate ATS documents in the preparation of an IFR flight plan;

(iv) procedures and manoeuvres for IFR operation under normal, abnormal and emergency conditions covering at least:

(A) transition from visual to instrument flight on take-off;

(B) SIDs and arrivals;

(C) en-route IFR procedures;

(D) holding procedures;

(E) instrument approaches to specified minima;

(F) missed approach procedures;

(G) landings from instrument approaches, including circling.

(v) in-flight manoeuvres and particular flight characteristics;

(vi) operation of either an SE or an ME aeroplane in the exercises of (iv), including in the case of an ME aeroplane operation of the aeroplane solely by reference to instruments with one engine simulated inoperative and engine shut-down and restart. The latter exercise is to be conducted at a safe altitude unless carried out in an FSTD.

D. CPL integrated course: aeroplanes

(a) The CPL integrated course should last between 9 and 24 months. This period may be extended where additional flying training or ground instruction is provided by the ATO.

CREDITING

(b) Credit for the hours flown should be entered into the applicant's training record. In the case of a student pilot who does not hold a pilot licence and with the approval of the Authority, an ATO may designate certain dual exercises to be flown in a helicopter or a TMG up to a maximum of 20 hours.

THEORETICAL KNOWLEDGE

(c) The 350 hours of instruction can include classroom work, interactive video, slide or tape presentation, learning carrels, computer-based training, and other media as approved by the Authority, in suitable proportions.

FLYING TRAINING

(d) The flying instruction is divided into four phases:

(1) phase 1:

Exercises up to the first solo flight comprise a total of at least 10 hours dual flight instruction on an SE aeroplane, including:

(i) pre-flight operations, mass and balance determination, aeroplane inspection and servicing;

(ii) aerodrome and traffic pattern operations, collision avoidance and precautions;

(iii) control of the aeroplane by external visual references;

(iv) normal take-offs and landings;

(v) flight at relatively slow air speeds, recognition of and recovery from incipient and full stalls, spin avoidance;

(vi) unusual attitudes and simulated engine failure.

(2) phase 2:

Exercises up to the first solo cross-country flight comprise a total of at least 10 hours of dual flight instruction and at least 10 hours solo flight including:

(i) maximum performance (short field and obstacle clearance) take- offs and short-field landings;

(ii) flight by reference solely to instruments, including the completion of a 180 ° turn;

(iii) dual cross-country flying using external visual references, DR and radio navigation aids, diversion procedures;

(iv) aerodrome and traffic pattern operations at different aerodromes; (v) crosswind take-offs and landings;

(vi) abnormal and emergency procedures and manoeuvres, including simulated aeroplane equipment malfunctions;

(vii) operations to, from and transiting controlled aerodromes, compliance with ATS procedures, R/T procedures and phraseology;

(vii) knowledge of meteorological briefing arrangements, evaluation of weather conditions for flight and use of AIS.

(3) phase 3:

Exercises up to the VFR navigation progress test comprise a total of at least 30 hours instruction and at least 58 hours as PIC, including:

(i) at least 10 hours instrument time, which may contain 5 hours of instrument ground time in an FNPT or an FFS and should be conducted by an FI or an authorised SFI;

(ii) repetition of exercises of phases 1 and 2, which should include at least 5 hours in an aeroplane certificated for the carriage of at least four persons and have a variable pitch propeller and retractable landing gear;

(iii) VFR flight at relatively critical high air speeds, recognition of and recovery from spiral dives;

(iv) night flight time including take-offs and landings as PIC.

(4) phase 4:

The dual instruction and testing up to the CPL(A) skill test contain the following:

(i) up to 30 hours instruction which may be allocated to specialised aerial work training;

(ii) repetition of exercises in phase 3, as required;

(iii) in-flight manoeuvres and particular flight characteristics;

(iv) ME training.

If required, operation of an ME aeroplane including operation of the aeroplane with one engine simulated inoperative, and engine shutdown and restart (the latter exercise at a safe altitude unless carried out in an FSTD).

E. CPL modular course: aeroplanes

(a) The CPL modular course should last 18 months. This period may be extended where additional training is provided by the ATO. The flight instruction and skill test need to be completed within the period of validity of the pass in the theoretical examinations.

(b) An approved course should include formal classroom work and may include the use of such facilities as interactive video, slide or tape presentation, learning carrels and computer-based training and other media distance learning (correspondence) courses as approved by the Authority. Approved distance learning (correspondence) courses may also be offered as part of the course.

THEORETICAL KNOWLEDGE

(c) The 250 hours of instruction can include classroom work, interactive video, slide or tape presentation, learning carrels, computer-based training, and other media as approved by the Authority, in suitable proportions.

FLYING TRAINING

(d) The following flight time is suggested for the flying training:

(1) visual flight training: suggested flight time

(i) Exercise 1:

pre-flight operations: mass and balance determination,
aeroplane inspection and servicing.

(ii) Exercise 2:

take-off, traffic pattern, approach and landing, use of checklist, collision avoidance and checking procedures.	0:45 hours

(iii) Exercise 3:

traffic patterns: simulated engine failure during and after take-off.	0:45 hours

(iv) Exercise 4:

maximum performance (short field and obstacle clearance) take-offs and short-field landings.	1:00 hours

(v) Exercise 5:

crosswind take-offs, landings and go-arounds.	1:00 hours

(vi) Exercise 6:

flight at relatively critical high air speeds; recognition of and recovery from spiral dives.	0:45 hours

(vii) Exercise 7:

flight at critically slow air speeds, spin avoidance, recognition of and recovery from incipient and full stalls.	0:45 hours

(viii) Exercise 8:

cross-country flying using DR and radio navigation aids; flight planning by the applicant; filing of ATC flight plan; evaluation of weather briefing documentation, NOTAM, etc.; R/T procedures and phraseology; positioning by radio navigation aids; operation to, from and transiting controlled aerodromes, compliance with ATS procedures for VFR flights, simulated radio communication failure, weather deterioration, diversion procedures; simulated engine failure during cruise flight; selection of an emergency landing strip.	10:00 hours

(2) instrument flight training:

(i) This module is identical to the 10 hours basic instrument flight module as set out in AMC2 to Appendix 6. This module is focused on the basics of flying by sole reference to instruments, including limited panel and unusual attitudes.

(ii) All exercises may be performed in an FNPT I or II or an FFS. If instrument flight training is in VMC, a suitable means of simulating IMC for the student should be used.

(iii) A BITD may be used for the following exercises: (9), (10), (11), (12), (14) and (16).

(iv) The use of the BITD is subject to the following:

(A) the training is complemented by exercises on an aeroplane;

(B) the record of the parameters of the flight is available;

(C) a FI(A) or IRI(A) conducts the instruction.

(v) Exercise 9:

Basic instrument flying without external visual cues; Horizontal flight; power changes for acceleration or deceleration, maintaining straight and level flight; turns in level flight with 15 ° and 25 ° bank, left and right; roll-out onto predetermined headings. — 0:30 hours

(vi) Exercise 10:

Repetition of exercise 9; additionally climbing and descending, maintaining heading and speed, transition to horizontal flight; climbing and descending turns. — 0:45 hours

(vii) Exercise 11:

Instrument pattern: — 0:45 hours

(1) start exercise, decelerate to approach speed, flaps into approach configuration;

(2) initiate standard turn (left or right);

(3) roll out on opposite heading, maintain new heading for 1 minute;

(4) standard turn, gear down, descend 500 ft/min;

(5) roll out on initial heading, maintain descent (500 ft/min) and new heading for 1 minute;

(6) transition to horizontal flight, 1.000 ft below initial flight level;

(7) initiate go-around;

(8) climb at best rate of climb speed.

(viii) Exercise 12:

Repetition of exercise 9 and steep turns with 45° bank; recovery from unusual attitudes.	0:45 hours

(ix) Exercise 13:

Repetition of exercise 12	0:45 hours

(x) Exercise 14:

Radio navigation using VOR, NDB or, if available, VDF; interception of predetermined QDM and QDR.	0:45 hours

(xi) Exercise 15:

Repetition of exercise 9 and recovery from unusual attitudes.	0:45 hours

(xii) Exercise 16:

Repetition of exercise 9, turns and level change and recovery from unusual attitudes with simulated failure of the artificial horizon or directional gyro.	0:45 hours

(xiii) Exercise 17:

Recognition of, and recovery from, incipient and full stalls.	0:45 hours

(xiv) Exercise 18:

Repetition of exercises (14), (16) and (17).	3:30 hours

(3) ME training

If required, operation of an ME aeroplane in the exercises 1 through 18, including operation of the aeroplane with one engine simulated inoperative, and engine shutdown and restart. Before commencing training, the applicant should have complied with the type and class ratings requirements as appropriate to the aeroplane used for the test.

F. ATP/IR integrated course: helicopters

(a) The ATP/IR integrated course should last between 12 and 36 months. This period may be extended where additional flying training or ground instruction is provided by the ATO.

CREDITING

(b) Credit for the hours flown should be entered into the applicant's training record. In case of a student pilot who does not hold a pilot licence and with the approval of the Authority, an ATO may designate certain dual exercises to be flown in an aeroplane or a TMG up to a maximum of 20 hours.

THEORETICAL KNOWLEDGE

(c) The 750 hours of instruction can include classroom work, interactive video, slide or tape presentation, learning carrels, computer-based training, and other media as approved by the Authority, in suitable proportions.

The 750 hours of instruction should be divided in such a way that in each subject the minimum hours are:

(1)	Air law	40 hours
(2)	Aircraft general knowledge	80 hours
(3)	Flight performance and planning	90 hours
(4)	Human performance and limitations	50 hours
(5)	Meteorology	60 hours
(6)	Navigation	150 hours
(7)	Operational procedures	20 hours
(8)	Principles of flight	30 hours
(9)	Communications	30 hours

Other subdivision of hours may be agreed upon between the Authority and the ATO.

(d) The flight instruction is divided into four phases:

(1) phase 1:

Flight exercises up to the first solo flight comprise a total of not less than 12 hours dual flight instruction on a helicopter, including:

(i) pre-flight operations, mass and balance determination, helicopter inspection and servicing;

(ii) aerodrome and traffic pattern operations, collision avoidance and procedures;

(iii) control of the helicopter by external visual reference;

(iv) take-offs, landings, hovering, look-out turns and normal transitions from and to the hover;

(v) emergency procedures, basic auto-rotations, simulated engine failure, ground resonance recovery if relevant to type.

(2) phase 2:

Flight exercises until general handling and day VFR navigation progress check, and basic instrument flying progress check. This phase comprises a total flight time of not less than 128 hours including 73 hours of dual flight instruction flight time and including at least 5 hours VFR conversion training on an ME helicopter, 15 hours of solo flight and 40 hours flown as student PIC. The instruction and testing contain the following:

(i) sideways and backwards flight, turns on the spot;

(ii) incipient vortex ring recovery;

(iii) advanced/touchdown auto-rotations, simulated engine-off landings, practice forced landings. Simulated equipment malfunctions and emergency procedures relating to malfunctions of engines, controls, electrical and hydraulic circuits;

(iv) steep turns;

(v) transitions, quick stops, out of wind manoeuvres, sloping ground landings and take-offs;

(vi) limited power and confined area operations, including low level operations to and from unprepared sites;

(vii) flight by sole reference to basic flight instruments, including completion of a 180 ° turn and recovery from unusual attitudes to simulate inadvertent entry into cloud;

(viii) cross-country flying by external visual reference, DR and radio navigation aids, diversion procedures;

(ix) aerodrome and traffic pattern operations at different aerodromes;

(x) operations to, from and transiting controlled aerodromes; Compliance with ATS procedures, R/T procedures and phraseology;

(xi) application of meteorological briefing arrangements, evaluation of weather conditions for flight and use of AIS;

(xii) night flight, including take-offs and landings as PIC;

(xiii) general handling, day VFR navigation and basic instrument flying progress checks in accordance with Appendix 4 to CAR LIC, conducted by an FI not connected with the applicant’s training.

(3) phase 3:

Flight exercises up to IR skill test. These regulations comprises a total of 40 hours dual instrument flight time, including 10 hours of an ME IFR certificated helicopter. The instruction and testing should contain the following:

(i) pre-flight procedures for IFR flights, including the use of the flight manual and appropriate ATS documents in the preparation of an IFR flight plan;

(ii) procedures and manoeuvres for IFR operation under normal, abnormal and emergency conditions covering at least:

(A) transition from visual to instrument flight on take-off;

(B) SIDs and arrivals;

(C) en-route IFR procedures;

(D) holding procedures;

(E) instrument approaches to specified minima;

(F) missed approach procedure;

(G) landings from instrument approaches;

(H) in-flight manoeuvres and particular flight characteristics;

(I) instrument exercises with one engine simulated inoperative.

(4) phase 4:

Instruction in MCC should comprise the relevant training set out in LIC.735.H and AMC1 LIC.735.A, LIC.735.H and LIC.735.As. If a type rating for MP helicopter is not required on completion of these regulations, the applicant should be provided with a certificate of course completion for MCC training.

G. ATP integrated course: helicopters

(a) The ATP integrated course should last between 12 and 36 months. This period may be extended where additional flying training or ground instruction is provided by the ATO.

CREDITING

(b) Credit for the hours flown should be entered into the applicant’s training record. In case of a student pilot who does not hold a pilot licence and with the approval of the Authority, an ATO may designate certain dual exercises to be flown in an aeroplane or a TMG up to a maximum of 20 hours.

THEORETICAL KNOWLEDGE

(c) The 650 hours of instruction can include classroom work, interactive video, slide or tape presentation, learning carrels, computer-based training, and othermedia as approved by the

Authority, in suitable proportions.

The 650 hours of instruction should be divided in such a way that in each subject the minimum hours are:

(1)	Air law	30 hours
(2)	Aircraft general knowledge	70 hours
(3)	Flight performance and planning	65 hours
(4)	Human performance and limitations	40 hours
(5)	Meteorology	40 hours
(6)	Navigation	120 hours
(7)	Operational procedures	20 hours
(8)	Principles of flight	30 hours
(9)	Communications	25 hours

Other subdivision of hours may be agreed upon between the Authority and the ATO.

(d) The flight instruction is divided into three phases:

(1) phase 1:

Flight exercises up to the first solo flight comprise a total of not less than 12 hours dual flight instruction on a helicopter, including:

(i) pre-flight operations, mass and balance determination, helicopter inspection and servicing;

(ii) aerodrome and traffic pattern operations, collision avoidance and procedures;

(iii) control of the helicopter by external visual reference;

(iv) take-offs, landings, hovering, look-out turns and normal transitions from and to the hover;

(v) emergency procedures, basic auto-rotations, simulated engine failure, ground resonance recovery if relevant to type.

(2) phase 2:

Flight exercises until general handling and day VFR navigation progress and basic instrument flying progress check conducted by an FI not connected with the applicant's training. This phase comprises a total flight time of not less than 128 hours, including 73 hours of dual instruction flight time and including at least 5 hours VFR conversion training on an ME helicopter, 15 hours of solo flight and 40 hours flown as student PIC. The instruction and testing contain the following:

(i) sideways and backwards flight, turns on the spot;

(ii) incipient vortex ring recovery;

(iii) touchdown or advanced auto-rotations, simulated engine-off landings, practice forced landings. Simulated equipment malfunctions and emergency procedures relating to malfunctions of engines, controls, electrical and hydraulic circuits;

(iv) steep turns;

(v) transitions, quick stops, out of wind manoeuvres, sloping ground landings and take-offs;

(vi) limited power and confined area operations, including low level operations to and from unprepared sites;

(vii) 10 hours flight by sole reference to basic flight instruments, including completion of a 180 ° turn and recovery from unusual attitudes to simulate inadvertent entry into cloud;

(viii) cross-country flying by external visual reference, DR and radio navigation aids, diversion procedures;

(ix) aerodrome and traffic pattern operations at different aerodromes;

(x) operations to, from and transiting controlled aerodromes, Compliance with ATS procedures, R/T procedures and phraseology;

(xi) application of meteorological briefing arrangements, evaluation of weather conditions for flight and use of AIS;

(xii) night flight, including take-offs and landings as PIC;

(xiii) general handling, day VFR navigation and basic instrument flying progress checks in accordance with Appendix 4 to CAR LIC, conducted by an FI not connected with the applicant’s training.

(3) phase 3:

Instruction in MCC comprises the relevant training set out in LIC.735.H and AMC1 LIC.735.A, LIC.735.H and LIC.735.As. If a type rating for MP helicopter is not required on completion of these regulations, the applicant should be provided with a certificate of course completion for MCC training.

H. ATP modular theoretical knowledge course: helicopters

(a) The aim of this course is to train pilots who have not received the theoretical knowledge instruction during an integrated course to the level of theoretical knowledge required for the ATPL.

(b) An approved course should include formal classroom work and may include the use of such facilities as interactive video, slide or tape presentation, learning carrels and computer-based training and other media distance learning (correspondence) courses as approved by the Authority. Approved distance learning (correspondence) courses may also be offered as part of the course.

(c) The ATP modular course should last 18 months. This period may be extended where additional training is provided by the ATO. The flight instruction and skill test need to be completed within the period of validity of the pass in the theoretical examinations.

I. CPL/IR integrated course: helicopters

(a) The CPL/IR integrated course should last between 9 and 30 months. This period may be extended where additional flying training or ground instruction is provided by the ATO.

CREDITING

(b) Credit for the hours flown should be entered into the applicant's training record. In case of a student pilot who does not hold a pilot licence and with the approval of the Authority, an ATO may designate certain dual exercises to be flown in an aeroplane or a TMG up to a maximum of 20 hours.

THEORETICAL KNOWLEDGE

(c) The 500 hours of instruction can include classroom work, interactive video, slide or tape presentation, learning carrels, computer-based training, and other media as approved by the Authority, in suitable proportions.

The 500 hours of instruction should be divided in such a way that in each subject the minimum hours are:

(1)	Air law	30 hours
(2)	Aircraft general knowledge	50 hours
(3)	Flight performance and planning	60 hours
(4)	Human performance and limitations	15 hours
(5)	Meteorology	40 hours
(6)	Navigation	100 hours
(7)	Operational procedures	10 hours

(8) Principles of flight 25 hours

(9) Communications 30 hours

Other subdivision of hours may be agreed upon between the Authority and the ATO.

FLYING TRAINING

(d) The flight instruction is divided into three phases:

(1) phase 1:

Flight exercises up to the first solo flight. These regulations comprises a total of at least 12 hours dual flight instruction on a helicopter including:

(i) pre-flight operations: mass and balance determination, helicopter inspection and servicing;

(ii) aerodrome and traffic pattern operations, collision avoidance and procedures;

(iii) control of the helicopter by external visual reference;

(iv) take-offs, landings, hovering, look-out turns and normal transitions from and to the hover;

(v) emergency procedures, basic auto-rotation, simulated engine failure, ground resonance recovery if relevant to type.

(2) phase 2:

Flight exercises until general handling and day VFR navigation progress check conducted by an FI not connected with the applicant's training, and basic instrument progress check. These regulations comprises a total flight time of not less than 128 hours, including 73 hours of dual instruction flight time and including at least 5 hours VFR conversion training on an ME helicopter, 15 hours of solo flight and 40 hours flown as SPIC. The instruction and testing contain the following:

(i) sideways and backwards flight, turns on the spot;

(ii) incipient vortex ring recovery;

(iii) touchdown or advanced auto-rotation and simulated engine-off landings, practice forced landings. Simulated equipment malfunctions and emergency procedures relating to malfunctions of engines, controls, electrical and hydraulic circuits;

(iv) steep turns;

(v) transitions, quick stops, out of wind manoeuvres, sloping ground landings and take-offs;

(vi) limited power and confined area operations, including selection of and low level operations to and from unprepared sites;

(vii) flight by sole reference to basic flight instruments, including completion of 180 degree turn and recovery from unusual attitudes to simulate inadvertent entry into cloud;

(viii) cross-country flying by external visual reference, DR and radio navigation aids and diversion procedures;

(ix) aerodrome and traffic pattern operations at different aerodromes;

(x) operations to, from and transiting controlled aerodromes, compliance with ATS procedures, R/T procedures and phraseology;

(xi) application of meteorological briefing arrangements, evaluation of weather conditions for flight and use of AIS;

(xii) night flight, including take-offs and landings as PIC;

(xiii) general handling, day VFR navigation and basic instrument flying progress checks in accordance with Appendix 4 to CAR LIC, conducted by an FI not connected with the applicant’s training.

(3) phase 3:

Flight exercises up to IR skill test. These regulations comprises a total of 40 hours dual instrument flight time, including 10 hours of an ME IFR certificated helicopter. The instruction and testing should contain the following:

(i) pre-flight procedures for IFR flights, including the use of the flight manual and appropriate ATS documents in the preparation of an IFR flight plan;

(ii) procedures and manoeuvres for IFR operation under normal, abnormal and emergency conditions covering at least:

(A) transition from visual to instrument flight on take-off;

(B) SIDs and arrivals;

(C) en-route IFR procedures;

(D) holding procedures;

(E) instrument approaches to specified minima;

(F) missed approach procedure;

(G) landings from instrument approaches;

(H) in-flight manoeuvres and particular flight characteristics;

(I) instrument exercises with one engine simulated inoperative.

J. CPL integrated course: helicopters

(a) The CPL integrated course should last between 9 and 24 months. This period may be extended where additional flying training or ground instruction is provided by the ATO.

CREDITING

(b) Credit for the hours flown should be entered into the applicant's training record. In case of a student pilot who does not hold a pilot licence and with the approval of the Authority, an ATO may designate certain dual exercises to be flown in an aeroplane or a TMG up to a maximum of 20 hours.

THEORETICAL KNOWLEDGE

(c) The 350 hours of instruction can include classroom work, interactive video, slide or tape presentation, learning carrels, computer-based training, and other media as approved by the Authority, in suitable proportions. The 350 hours of instruction should be divided in such a way that in each subject the minimum hours are:

(1)	Air law	25 hours
(2)	Aircraft general knowledge	30 hours
(3)	Flight performance and planning	25 hours
(4)	Human performance and limitations	10 hours
(5)	Meteorology	30 hours
(6)	Navigation	55 hours
(7)	Operational procedures	8 hours
(8)	Principles of flight	20 hours
(9)	Communications	10 hours

Other subdivision of hours may be agreed upon between the Authority and the ATO.

FLYING TRAINING

(d) The flight instruction is divided into two phases:

(1) phase 1:

Flight exercises up to the first solo flight. These regulations comprises a total of not less than 12 hours dual flight instruction on a helicopter, including:

(i) pre-flight operations: mass and balance determination, helicopter inspection and servicing;

(ii) aerodrome and traffic pattern operations, collision avoidance and procedures;

(iii) control of the helicopter by external visual reference;

(iv) take-offs, landings, hovering, look-out turns and normal transitions from and to the hover;

(v) emergency procedures, basic auto-rotations, simulated engine failure, ground resonance recovery if relevant to type.

(2) phase 2:

Flight exercises until general handling and day VFR navigation progress check conducted by an FI not connected with the applicant's training, and basic instrument progress check. These regulations comprises a total flight time of not less than 123 hours, including 73 hours of dual instruction flight time, 15 hours of solo flight and 35 hours flown as SPIC. The instruction and testing contain the following:

(i) sideways and backwards flight, turns on the spot;

(ii) incipient vortex ring recovery;

(iii) touchdown or advanced auto-rotations and simulated engine-off landings, practice forced landings. Simulated equipment malfunctions and emergency procedures relating to malfunctions of engines, controls, electrical and hydraulic circuits;

(iv) steep turns;

(v) transitions, quick stops, out of wind manoeuvres, sloping ground landings and take-offs;

(vi) limited power and confined area operations, including selection of and low level operations to and from unprepared sites;

(vii) flight by sole reference to basic flight instruments, including completion of a 180° turn and recovery from unusual attitudes to simulate inadvertent entry into cloud;

(viii) cross-country flying by external visual reference, DR and radio navigation aids, diversion procedures;

(ix) aerodrome and traffic pattern operations at different aerodromes;

(x) operations to, from and transiting controlled aerodromes, Compliance with ATS procedures, R/T procedures and phraseology;

(xi) application of meteorological briefing arrangements, evaluation of weather conditions for flight and use of AIS;

(xii) night flight, including take-offs and landings as PIC;

(xiii) general handling, day VFR navigation and basic instrument flying progress checks in accordance with Appendix 4 to CAR LIC, conducted by an FI not connected with the applicant's training.

K. CPL modular course: helicopters

(a) The CPL modular course should last 18 months. This period may be extended where additional training is provided by the ATO. The flight instruction and skill test need to be completed within the period of validity of the pass in the theoretical examinations.

(b) An approved course should include formal classroom work and may include the use of facilities such as interactive video, slide or tape presentation, learning carrels and computer-based training and other media distance learning (correspondence) courses as approved by the competent authority. Approved distance learning (correspondence) courses may also be offered as part of the course.

THEORETICAL KNOWLEDGE

(c) The 250 hours of instruction can include classroom work, interactive video, slide or tape presentation, learning carrels, computer-based training, and othermedia as approved by the Authority, in suitable proportions.

FLYING TRAINING

(d) The flying instruction comprises the following items. The flight time allocated to each exercise is at the discretion of the FI, provided that at least 5 hours flight time is allocated to cross-country flying.

VISUAL INSTRUCTION

(e) Within the total of dual flight instruction time, the applicant may have completed during the visual phase up to 5 hours in a helicopter FFS or FTD 2, 3 or FNPT II, III.

(1) pre-flight operations: mass and balance calculations, helicopter inspection and servicing;

(2) level flight speed changes, climbing, descending, turns, basic auto- rotations, use of checklist, collision avoidance and checking procedures;

(3) take-offs and landings, traffic pattern, approach, simulated engine failures in the traffic pattern. Sideways and backwards flight and spot turns in the hover;

(4) recovery from incipient vortex ring condition;

(5) advanced auto-rotations covering the speed range from low speed to maximum range and manoeuvre in auto-rotations (180 °, 360 ° and 'S' turns) and simulated engine-off

landings;

(6) selection of emergency landing areas, auto-rotations following simulated emergencies to given areas and steep turns at 30 ° and 45 ° bank;

(7) manoeuvres at low level and quick-stops;

(8) landings, take-offs and transitions to and from the hover when heading out of wind;

(9) landings and take-offs from sloping or uneven ground;

(10) landings and take-offs with limited power;

(11) low level operations into and out of confined landing sites;

(12) cross-country flying using dead reckoning and radio navigation aids, flight planning by the applicant, filing of ATC flight plan, evaluation of weather briefing documentation, NOTAM, etc., R/T procedures and phraseology, positioning by radio navigation aids; operation to, from and transiting controlled aerodromes, compliance with ATS procedures for VFR flights, simulated radio communication failure, weather deterioration, diversion procedures; location of an off airfield landing site and simulated approach.

BASIC INSTRUMENT INSTRUCTION

(f) A maximum of 5 hours of the following exercises may be performed in an FFS or FTD or FNPT. Flight training should be carried out in VMC using a suitable means of simulating IMC for the student.

(1) Exercise 1:

Instrument flying without external visual cues. Level flight performing speed changes, maintaining flight altitude (level, heading) turns in level flight at rate 1 and 30° bank, left and right; roll-out on predetermined headings;

(2) Exercise 2:

repetition of exercise 1; additionally climbing and descending, maintaining heading and speed, transition to horizontal flight; climbing and descending turns;

(3) Exercise 3:

repetition of exercise 1; and recovery from unusual attitudes;

(4) Exercise 4:

radio navigation;

(5) Exercise 5:

repetition of exercise 1; and turns using standby magnetic compass and standby artificial horizon (if fitted).

GM1 to Appendix 3; Appendix 6; LIC.735.H

OVERVIEW OF FSTD TRAINING CREDITS FOR DUAL INSTRUCTION IN HELICOPTER FLYING TRAINING COURSES

		ATPL(H)/IR integrated			FSTD credits
	Dual	**Solo**	**SPIC**	**Total**	**FFS; FTD; FNPT**
Visual, including ME T/R training	75 hrs	15 hrs	40 hrs	130 hrs	30 hrs FFS C/D level or 25 hrs FTD 2, 3 or 20 hrs FNPT II/III
Basic instrument	10 hrs	-	-	10 hrs	20 hrs FFS or FTD 2, 3 or FNPT II/III or 10 hrs in at least an FNPT I
Instrument rating training	40 hrs	-		40 hrs	
MCC	15 hrs	-	-	15 hrs	15 hrs FFS or FTD 2, 3 (MCC) or FNPT II/III (MCC)
Total	140 hrs	55 hrs		195 hrs	65 hrs FFS or 60 hrs FTD 2, 3 or 55 hrs FNPT II/III or 10 hrs in at least an FNPT I
		ATPL(H)/VFR integrated			
	Dual	**Solo**	**SPIC**	**Total**	**FFS; FTD; FNPT**
Visual including ME T/R training	75 hrs	15 hrs	40 hrs	130 hrs	30 hrs FFS C/D level or 25 hrs FTD 2, 3 or 20 hrs FNPT II/III
Basic instrument	10 hrs	-	-	10 hrs	5 hrs in at least an FNPT I
MCC / VFR	10 hrs	-	-	10 hrs	10 hrs FFS or FTD 2, 3 (MCC) or FNPT II/III (MCC)
Total	95 hrs	55 hrs		150 hrs	40 hrs FFS or 35 hrs FTD 2, 3 or 30 hrs FNPT II/III or 5 hrs in at least an FNPT I
		CPL(H)/IR integrated			
	Dual	**Solo**	**SPIC**	**Total**	**FFS; FTD; FNPT**
Visual including ME T/R training	75 hrs	15 hrs	40hrs	130 hrs	30 hrs FFS C/D level or 25 hrs FTD 2, 3 or 20 hrs FNPT II/III
Basic instrument	10 hrs	-	-	10 hrs	20 hrs FFS or FTD 2,

Instrument rating training	40 hrs	-		40 hrs	3 or FNPT II/III or 10 hrs in at least an FNPT I
Total	125 hrs	55 hrs		180 hrs	50 hrs FFS C/D level or 45 hrs FTD 2, 3 or 40 hrs FNPT II/III or 10 hrs in at least an FNPT I
		CPL(H) Integrated			
	Dual	**Solo**	**SPIC**	**Total**	**FFS; FTD; FNPT**
Visual	75 hrs	15 hrs	35 hrs	125 hrs	30 hrs FFS C/D level or 25 hrs FTD 2, 3 or 20 hrs FNPT II/III
Basic instrument	10 hrs	-	-	10 hrs	5 hrs in at least an FNPT I
Total	85 hrs	50 hrs		135 hrs	35 hrs FFS or 30 hrs FTD 2, 3 or 25 hrs FNPT II/III or 5 hrs in at least an FNPT I
		CPL(H) modular			
	Dual	**Solo**	**SPIC**	**Total**	**FFS; FTD; FNPT**
Visual	20 hrs	-	-	20 hrs	5 hrs FFS or FTD 2, 3 or FNPT II/III
Basic instrument	10 hrs	-	-	10 hrs	5 hrs in at least an FNPT I
Total	30 hrs	-	-	30 hrs	10 hrs FFS or FTD 2,3 or FNPT II/III or 5 hrs in at least an FNPT I
		IR(H) modular			
	Dual	**Solo**	**SPIC**	**Total**	**FFS; FTD; FNPT**
SE	50 hrs	-	-	50 hrs	35 hrs FFS or FTD 2, 3 or FNPT II/III or 20 hrs FNPT I (H) or (A)
ME	55 hrs	-	-	55 hrs	40 hrs FFS; FTD 2, 3 FNPT II/III or 20 hrs FNPT I (H) or (A)
		MCC(H)			
	Dual	Solo	SPIC	Total	FFS; FTD; FNPT
MCC / IR	20 hrs	-	-	20 hrs	20 hrs FFS or FTD 2, 3 (MCC) or FNPT II/III (MCC)

MCC / VFR	15 hrs	-	-	15 hrs	15 hrs FFS or FTD 2, 3 (MCC) or FNPT II/III (MCC)
MCC / IR for MCC/VFR holders	5 hrs	-	-	5 hrs	5 hrs FFS or FTD 2, 3 (MCC) or FNPT II/III (MCC)

Note: In this matrix FSTD credits refer to helicopter FSTDs if not mentioned otherwise.

GM1 to Appendix 5 Integrated MPL training course

GENERAL

(a) In broad terms, the MPL holder is expected to be able to complete the airline operators' conversion course with a high probability of success and within the time frame normally allowed for this phase. The standard is equivalent to what is currently expected from graduates of the ATP(A) integrated course who have completed type rating training.

(b) The general approach is to use the existing ATP(A) integrated training course as a reference and to implement progressively the MPL integrated training course and specifically the transfer from actual flight to simulated flight.

(c) This transfer should be organised in a way that is similar to the approach used for ETOPS. Successive evolutions of the training syllabus introduce progressively a higher level of simulated flight and a reduction of actual flight. Change from one version to the next should only take place after enough experience has been gained and once its results, including those of airline operator conversion courses, have been analysed and taken into account.

MPL TRAINING SCHEME

(d) The following scheme should be applied:

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MPL Training Scheme
Minimum 240 hours of training, including "Pilot Flying" (PF) and "Pilot Non Flying" (PNF)

Integrated TEM principles

Phases of training	Training items	Flight and simulated flight training media - Minimum level requirement -		Ground training media
Phase 4 – advanced Type rating training within an airline oriented environment	• CRM • Landing training • All weather • LOFT • Abnormal procedures • Normal procedures	Aeroplane: ME Multi-crew certified ――― FSTD FS level D or C + ATC simulation	12 take-offs and landings as PF ――― PF / PNF	• CBT • E-learning • Part task trainer • Class room
Phase 3 – intermediate Application of multi-crew operations in a high performance ME turbine aeroplane	• CRM • LOFT • Abnormal procedures • Normal procedures • Multi-crew • Instrument flight	FSTD: *representing an ME turbine powered aeroplane to be operated with a co-pilot and qualified to an equivalent standard to level B + ATC simulation*	PF / PNF	
Phase 2 – basic Introduction of multi-crew operations and instrument flight	• CRM • PF / PNF complement • IFR cross-country • Instrument flight	Aeroplane: SE or ME ――― FSTD: FNPT II + MCC	PF / PNF	
Phase 1 – core flying skills Specific basic SP training	• CRM • VFR Cross-country • Solo flight • Basic Instrument flight • Principles of flight • Cockpit procedures • Upset recovery • Night flight	Aeroplane: SE or ME ――― FSTD: FNPT I / BITD	PF	

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THEORETICAL KNOWLEDGE INSTRUCTION

(e) The 750 hours of theoretical knowledge instruction can include classroom work, interactive video, slide or tape presentation, learning carrels, computer-based training, and other media as approved by the Authority, in suitable proportions.

COMPETENCY UNITS, COMPETENCY ELEMENTS AND PERFORMANCE CRITERIA

(f) Apply human performance principles, including principles of threat and error management:

(1) cooperation;

(2) leadership and managerial skills;

(3) situation awareness;

(4) decision making.

These behaviour categories are intended to help in the effective utilisation of all available resources to achieve safe and efficient operations.

These behaviour categories may be adapted and extended to incorporate issues like communication and use of automation if it is considered to be relevant to the development of the curriculum.

(g) Perform Aircraft Ground and Pre-Flight Operations

List of competency elements and performance criteria:

(1) demonstrate attitudes and behaviours appropriate to the safe conduct of flight, including recognising and managing potential threats and errors;

	Duty	Observation and assessment Satisfactory (S) Unsatisfactory (U)
(2) perform dispatch duties:		(S) or (U)
(i) verifies technical condition of the a/c, including adequate use of MEL;	PF/PNF	
(ii) checks technical bulletins and notices;	PF/PNF	
(iii) determines operational environment and pertinent weather;	PF/PNF	
(iv) determines impact of weather on aircraft performance;	PF/PNF	

	(v) applies flight planning and load procedures;	PF/PNF	
	(vi) determines fuel requirement;	PF/PNF	
	(vii) files an ATS flight plan (if required).	PF/PNF	
(3)	provide flight crew and cabin crew briefings;		(S) or (U)
	(i) briefed flight crew in all relevant matters;	PF	
	(ii) briefed cabin crew in all relevant matters.	PF	
(4)	perform pre-flight checks and cockpit preparation:		(S) or (U)
	(i) ensures the airworthiness of the aircraft;	PF	
	(ii) performs the cockpit preparation and briefings;	PF/PNF	
	(iii) performs FMS initialisation, data insertion and confirmation;	PF/PNF	
	(iv) optimises and checks take-off performance and take-off data calculation.	PF/PNF	
(5)	perform engine start:		(S) or (U)
	(i) asks for, receives acknowledges and checks ATC clearance;	PNF	
	(ii) performs engine start procedure;	PF/PNF	
	(iii) uses standard communication procedures with ground crew and ATC.	PF/PNF	
(6)	perform taxi out:		(S) or (U)
	(i) receives, checks and adheres to taxi clearance;	PNF	
	(ii) taxies the aircraft, including use of exterior lighting;	PF	
	(iii) complies to taxi clearance;	PF/PNF	
	(iv) maintains look-out for conflicting traffic and obstacles;	PF/PNF	
	(v) operates thrust, brakes and steering;	PF	
	(vi) conducts relevant briefings;	PF	

(vii)	uses standard communication procedures with crew and ATC;	PNF	
(viii)	completes standard operating procedures and checklists;	PF/PNF	
(ix)	updates and confirms FMS data;	PF/PNF	
(x)	manages changes in performance and departure route;	PF/PNF	
(xi)	completes de or anti-ice procedures.	PF/PNF	

(7) manage abnormal and emergency situations: (S) or (U)

(i)	identifies the abnormal condition;	PF/PNF	
(ii)	interprets the abnormal condition;	PF/PNF	
(iii)	performs the procedure for the abnormal condition.	PF/PNF	

(8) communicate with cabin crew, passengers and company (S) or (U)

(i)	communicates relevant information with cabin crew	PF	
(ii)	communicates relevant information with company	PF/PNF	
(iii)	makes passenger announcement when appropriate.	PF/PNF	

(h) Perform take-off

List of competency elements and performance criteria:

(1) demonstrate attitudes and behaviours appropriate to the safe conduct of flight, including recognising and managing potential threats and errors.

(2) perform pre-take-off and pre-departure preparation: (S) or (U)

(i)	checks and acknowledges line up clearance;	PF/PNF	
(ii)	checks correct runway selection ;	PF/PNF	
(iii)	confirms validity of performance data;	PF/PNF	
(iv)	checks approach sector and runway are clear;	PF/PNF	

	(v) confirms all checklists and take-off preparations completed;	PF/PNF	
	(vi) lines up the aircraft on centreline without losing distance;	PF	
	(vii) checks weather on departure sector;	PF/PNF	
	(viii) checks runway status and wind.	PF/PNF	
(3)	perform take-off roll:		(S) or (U)
	(i) applies take-off thrust;	PF	
	(ii) checks engine parameters;	PNF	
	(iii) checks air speed indicators;	PF/PNF	
	(iv) stays on runway centreline.	PF	
(4)	perform transition to instrument flight rules:		(S) or (U)
	(i) applies v1 procedures;	PF / PNF	
	(ii) rotates at vr to initial pitch attitude;	PF	
	(iii) establishes initial wings level attitude;	PF	
	(iv) retracts landing gear;	PNF	
	(v) maintains climb out speed.	PF	
(5)	perform initial climb to flap retraction altitude:		(S) or (U)
	(i) sets climb power;	PF	
	(ii) adjusts attitude for acceleration;	PF	
	(iii) selects flaps according flap speed schedule;	PF/PNF	
	(iv) observes speed restrictions;	PF	
	(v) completes relevant checklists.	PF/PNF	
(6)	perform rejected take-off:		(S) or (U)
	(i) recognises the requirement to abort the take-off;	PF	
	(ii) applies the rejected take-off procedure;	PF	

(iii) assesses the need to evacuate the aircraft. PF/PNF

(7) perform navigation: (S) or (U)

(i) complies to departure clearance; PF

(ii) complies with published departure procedures, for example speeds; PF

(iii) monitors navigation accuracy; PF/PNF

(iv) communicates and coordinates with ATC. PNF

(8) manage abnormal and emergency situations: (S) or (U)

(i) identifies the abnormal condition; PF/PNF

(ii) interprets the abnormal condition; PF/PNF

(iii) performs the procedure for the abnormal condition. PF/PNF

(i) Perform climb

List of competency elements and performance criteria:

(1) demonstrate attitudes and behaviours appropriate to the safe conduct of flight, including recognising and managing potential threats and errors;

(2) perform SID or en-route navigation: (S) or (U)

(i) complies with departure clearance and procedures; PF

(ii) demonstrates terrain awareness; PF/PNF

(iii) monitors navigation accuracy; PF/PNF

(iv) adjusts flight to weather and traffic conditions; PF

(v) communicates and coordinates with ATC; PNF

(vi) observes minimum altitudes; PF/PNF

(vii) selects appropriate level of automation; PF

(viii) complies with altimeter setting procedures. PF/PNF

(3) complete climb procedures and checklists: (S) or (U)

(i)	performs the after take-off items;	PF/PNF	
(ii)	confirms and checks according checklists.	PF/PNF	

(4) modify climb speeds, rate of climb and cruise altitude: (S) or (U)

(i)	recognises the need to change speed, rate of climb or cruise altitude;	PF	
(ii)	selects and maintains the appropriate climb speed or rate of climb;	PF	
(iii)	selects optimum cruise flight level.	PF/PNF	

(5) perform systems operations and procedures: (S) or (U)

(i)	monitors operation of all systems;	PF/PNF	
(ii)	operates systems as required.	PF/PNF	

(6) manage abnormal and emergency situations: (S) or (U)

(i)	identifies the abnormal condition;	PF/PNF	
(ii)	interprets the abnormal condition;	PF/PNF	
(iii)	performs the procedure for the abnormal condition.	PF/PNF	

(7) communicate with cabin crew, passengers and company: (S) or (U)

(i)	communicates relevant information with cabin crew;	PF	
(ii)	communicatesrelevant information with company;	PF/PNF	
(iii)	makes passenger announcements when appropriate.	PF	

(j) Perform cruise

List of competency elements and performance criteria.

(1) demonstrate attitudes and behaviours appropriate to the safe conduct of flight, including recognising and managing potential threats and errors;

(2) monitor navigation accuracy: (S) or (U)

(i)	demonstrates adequate area knowledge;	PF/PNF	

	(ii) demonstrates adequate route knowledge;	PF/PNF	
	(iii) navigates according to flight plan and clearance;	PF	
	(iv) adjusts flight to weather and traffic conditions;	PF	
	(v) communicates and coordinates with ATC;	PNF	
	(vi) observes minimum altitudes;	PF/PNF	
	(vii) uses all means of automation.	PF	
(3)	monitor flight progress:		(S) or (U)
	(i) selects optimum speed;	PF	
	(ii) selects optimum cruise flight level;	PF	
	(iii) monitors and controls fuel status;	PF/PNF	
	(iv) recognises the need for a possible diversion;	PF/PNF	
	(v) creates a diversion contingency plan if required.	PF/PNF	
(4)	perform descent and approach planning:		(S) or (U)
	(i) checks weather of destination and alternate airport;	PF/PNF	
	(ii) checks runway in use and approach procedure;	PF/PNF	
	(iii) sets the FMS accordingly;	PNF	
	(iv) checks landing weight and landing distance required;	PNF	
	(v) checks MEA, MGA and MSA;	PF/PNF	
	(vi) identifies top of descent point.	PF	
(5)	perform systems operations and procedures:		(S) or (U)
	(i) monitors operation of all systems;	PF/PNF	
	(ii) operates systems as required.	PNF	
(6)	manage abnormal and emergency situations:		(S) or (U)
	(i) identifies the abnormal condition;	PF/PNF	

(ii) interprets the abnormal condition; PF/PNF

(iii) performs the procedure for the abnormal condition. PF/PNF

(7) communicate with cabin crew, passengers and company: (S) or (U)

(i) communicates relevant information with cabin crew; PF

(ii) communicates relevant information with company; PF/PNF

(iii) makes passenger announcements when appropriate. PF

(k) Perform descent

List of competency elements and performance criteria:

(1) Demonstrate attitudes and behaviours appropriate to the safe conduct of flight, including recognising and managing potential threats and errors;

(2) initiate and manage descent: (S) or (U)

(i) starts descent according to ATC clearance or optimum descent point; PF

(ii) selects optimum speed and descent rate; PF

(iii) adjusts speed to existing environmental conditions; PF

(iv) recognises the need to adjust the descent path; PF

(v) adjusts the flight path as required; PF

(vi) utilises all means of FMS descent information. PF

(3) monitor and perform en route and descent navigation: (S) or (U)

(i) complies with arrival clearance and procedures; PF

(ii) demonstrates terrain awareness; PF/PNF

(iii) monitors navigation accuracy; PF/PNF

(iv) adjusts flight to weather and traffic conditions; PF

(v) communicates and coordinates with ATC; PNF

(vi) observes minimum altitudes; PF/PNF

(vii)	selects appropriate level or mode of automation;	PF	
(viii)	complies with altimeter setting procedures.	PF/PNF	

(4) re-planning and update of approach briefing: (S) or (U)

(i)	re-checks destination weather and runway in use;	PNF
(ii)	briefs or re-briefs about instrument approach and landing as required;	PF
(iii)	reprograms the FMS as required;	PNF
(iv)	re-checks fuel status.	PF/PNF

(5) perform holding: (S) or (U)

(i)	identifies holding requirement;	PF/PNF
(ii)	programs FMS for holding pattern;	PNF
(iii)	enters and monitors holding pattern;	PF
(iv)	assesses fuel requirements and determines max holding time;	PF/PNF
(v)	reviews the need for a diversion;	PF/PNF
(vi)	initiates diversion.	PF

(6) perform systems operations and procedures: (S) or (U)

(i)	monitors operation of all systems;	PF/PNF
(ii)	operates systems as required.	PF/PNF

(7) manage abnormal and emergency situations: (S) or (U)

(i)	identifies the abnormal condition;	PF/PNF
(ii)	interprets the abnormal condition;	PF/PNF
(iii)	performs the procedure for the abnormal condition.	PF/PNF

(8) communicate with cabin crew, passengers and company: (S) or (U)

(i)	communicates relevant information with cabin crew;	PF

(ii) communicatesrelevant information with company; PF/PNF

(iii) makes passenger announcements when appropriate; PF

(l) Perform approach

List of competency elements and performance criteria:

(1) demonstrate attitudes and behaviours appropriate to the safe conduct of flight, including recognising and managing potential threats and errors;

(2) perform approach in general: (S) or (U)

(i) executes approach according to procedures and situation; PF

(ii) selects appropriate level or mode of automation; PF

(iii) selects optimum approach path; PF

(iv) operates controls smooth and coordinated; PF

(v) performs speed reduction and flap extension; PF/PNF

(vi) performs relevant checklists; PF/PNF

(vii) initiates final descent; PF

(viii) achieves stabilised approach criteria; PF

(ix) ensures adherence to minima; PF/PNF

(x) initiates go-around if required; PF

(xi) masters transition to visual segment. PF

(3) perform precision approach: (S) or (U)

(i) performs ILS approach; PF

(ii) performs MLS approach. PF

(4) perform non-precision approach: (S) or (U)

(i) performs VOR approach; PF

(ii) performs NDB approach; PF

	(iii) performs SRE approach;	PF	
	(iv) performs GNSS approach;	PF	
	(v) performs ILS loc approach;	PF	
	(vi) performs ILS back beam approach.	PF	
(5)	perform approach with visual reference to ground:		(S) or (U)
	(i) performs standard visual approach;	PF	
	(ii) performs circling approach.	PF	
(6)	monitor the flight progress:		(S) or (U)
	(i) insures navigation accuracy;	PF/PNF	
	(ii) communicates with ATC and crew members;	PNF	
	(iii) monitors fuel status.	PF/PNF	
(7)	perform systems operations and procedures:		(S) or (U)
	(i) monitors operation of all systems;	PF	
	(ii) operates systems as required.	PF	
(8)	manage abnormal and emergency situations:		(S) or (U)
	(i) identifies the abnormal condition;	PF/PNF	
	(ii) interprets the abnormal condition;	PF/PNF	
	(iii) performs the procedure for the abnormal condition.	PF/PNF	
(9)	perform missed approach and go-around:		(S) or (U)
	(i) initiates go-around procedure;	PF	
	(ii) navigates according to missed approach procedure;	PF	
	(iii) completes the relevant checklists;	PF/PNF	
	(iv) initiates approach or diversion after the go-around;	PF	

(v) communicates with ATC and crew members. PNF

(10) communicate with cabin crew, passengers and company: (S) or (U)

(i) communicates relevant information with cabin crew; PF

(ii) communicates relevant information with company; PF/PNF

(iii) makes passenger announcements when appropriate; PF

(iv) initiates go-around procedure. PF

(m) Perform landing

List of competency elements and performance criteria:

(1) demonstrate attitudes and behaviours appropriate to the safe conduct of flight, including recognising and managing potential threats and errors;

(2) land the aircraft; (S) or (U)

(i) maintains a stabilised approach path during visual segment; PF

(ii) recognises and acts on changing conditions for windshift or wind shear segment; PF

(iii) initiates flare; PF (iv) controls thrust; PF

(v) achieves touchdown in touchdown zone on centreline; PF

(vi) lowers nose wheel; PF (vii) maintains centreline; PF

(viii) performs after-touchdown procedures; PF

(ix) makes use of appropriate braking and reverse thrust; PF

(x) vacates runway with taxi speed. PF

(3) perform systems operations and procedures: (S) or (U)

(i) monitors operation of all systems; PF

(ii) operates systems as required. PF

(4)	manage abnormal and emergency situations:		(S) or (U)
(i)	identifies the abnormal condition;	PF/PNF	
(ii)	interprets the abnormal condition;	PF/PNF	
(iii)	performs the procedure for the abnormal condition.	PF/PNF	

(n) Perform after landing and post flight operations

List of competency elements and performance criteria:

(1) demonstrate attitudes and behaviours appropriate to the safe conduct of flight, including recognising and managing potential threats and errors;

(2)	perform taxiing and parking:		(S) or (U)
(i)	receives, checks and adheres to taxi clearance;	PNF	
(ii)	taxies the aircraft including use of exterior lighting;	PF	
(iii)	controls taxi speed;	PF/PNF	
(iv)	maintains centreline;	PF	
(v)	maintains look-out for conflicting traffic and obstacles;	PF	
(vi)	identifies parking position;	PF/PNF	
(vii)	complies with marshalling or stand guidance;	PF/PNF	
(viii)	applies parking and engine shut down procedures;	PF	
(ix)	completes with relevant checklists.	PF/PNF	
(3)	perform aircraft post-flight operations:		(S) or (U)
(i)	communicates to ground personnel and crew;	PF	
(ii)	completes all required flight documentation;	PF/PNF	
(iii)	ensures securing of the aircraft;	PF	
(iv)	conducts the debriefings.	PF	

(4)	perform systems operations and procedures:			(S) or (U)
	(i)	monitors operation of all systems;	PF/PNF	
	(ii)	operates systems as required.	PF/PNF	
(5)	manage abnormal and emergency situations:			(S) or (U)
	(i)	identifies the abnormal condition;	PF/PNF	
	(ii)	interprets the abnormal condition;	PF/PNF	
	(iii)	performs the procedure for the abnormal condition.	PF/PNF	
(6)	communicate with cabin crew, passengers and company:			(S) or (U)
	(i)	communicates relevant information with cabin crew;	PF	
	(ii)	communicates relevant information with company;	PF/PNF	
	(iii)	makes passenger announcements when appropriate.	PF	

PRINCIPLES OF THREAT AND ERROR MANAGEMENT

(o) One model that explains the principles of threat and error management is the TEM model.

(1) The components of the TEM model:

There are three basic components in the TEM model, from the perspective of flight crews: threats, errors and undesired aircraft states. The model proposes that threats and errors are part of everyday aviation operations that must be managed by flight crews, since both threats and errors carry the potential to generate undesired aircraft states. Flight crews must also manage undesired aircraft states, since they carry the potential for unsafe outcomes. Undesired state management is an essential component of the TEM model, as important as threat and error management. Undesired aircraft state management largely represents the last opportunity to avoid an unsafe outcome and thus maintain safety margins in flight operations.

(2) Threats:

(i) Threats are defined as events or errors that occur beyond the influence of the flight crew, increase operational complexity, and which must be managed to maintain the margins of safety. During typical flight operations, flight crews have to manage various contextual complexities. Such complexities would include, for example, dealing with adverse meteorological conditions, airports surrounded by high mountains, congested airspace, aircraft malfunctions, errors committed by other people outside of the cockpit, such as air traffic controllers, cabin crew members or maintenance workers, and so forth. The TEM model considers these complexities as threats because they all have the potential to negatively affect flight operations by reducing margins of safety;

(ii) Some threats can be anticipated, since they are expected or known to the flight crew. For example, flight crews can anticipate the consequences of a thunderstorm by briefing their response in advance, or prepare for a congested airport by making sure they keep a watchful eye on other aircraft as they execute the approach;

(iii) Some threats can occur unexpectedly, such as an in-flight aircraft malfunction that happens suddenly and without warning. In this case, flight crews must apply skills and knowledge acquired through training and operational experience;

(iv) Lastly, some threats may not be directly obvious to, or observable by, flight crews immersed in the operational context, and may need to be uncovered by safety analysis. These are considered latent threats. Examples of latent threats include equipment design issues, optical illusions, or shortened turn-around schedules;

(v) Regardless of whether threats are expected, unexpected, or latent, one measure of the effectiveness of a flight crew's ability to manage threats is whether threats are detected with the necessary anticipation to enable the flight crew to respond to them through deployment of appropriate countermeasures;

(vi) Threat management is a building block to error management and undesired aircraft state management. Although the threat- error linkage is not necessarily straightforward, and although it may not be always possible to establish a linear relationship, or one-to-one mapping between threats, errors and undesired states, archival data demonstrates that mismanaged threats are normally linked to flight crew errors, which in turn are often linked to undesired aircraft states. Threat management provides the most proactive option to maintain margins of safety in flight operations, by voiding safety-compromising situations at their roots. As threat managers, flight crews are the last line of defence to keep threats from impacting flight operations;

(vii) Table 1 presents examples of threats, grouped under two basic categories derived from the TEM Model. Environmental threats occur due to the environment in which flight operations take place. Some environmental threats can be planned for and some will arise spontaneously, but they all have to be managed by flight crews in real time. Organisational threats, on the other hand, can be controlled (for example removed or, at least, minimised) at source by aviation organisations. Organisational threats are usually latent in nature. Flight crews still remain the last line of defence, but there are earlier opportunities for these threats to be mitigated by aviation organisations themselves.

Environmental threats	Organisational threats
(A) weather: thunderstorms, turbulence, icing, wind shear, cross or tailwind, very low or high temperatures; (B) ATC: traffic congestion, ACAS RA/TA, ATC command, ATC error, ATC language difficulty, ATC non-standard phraseology, ATC runway change, ATIS communication or units of measurement (QFE/meters); (C) airport: contaminated or short runway; contaminated taxiway, lack of, confusing, faded signage, markings, birds, aids unserviceable, complex surface navigation procedures or airport constructions; (D) terrain: high ground, slope, lack of references or 'black hole'; (E) other: similar call-signs.	(A) operational pressure: delays, late arrivals or equipment changes; (B) aircraft: aircraft malfunction, automation event or anomaly, MEL/CDL; (C) cabin: flight attendant error, cabin event distraction, interruption, cabin door security; (D) maintenance: maintenance event or error; (E) ground: ground-handling event, de-icing or ground crew error; (F) dispatch: dispatch paperwork event or error; (G) documentation: manual error or chart error; (H) other: crew scheduling event.

Table 1. Examples of threats (list is not exhaustive)

(3) Errors:

(i) Errors are defined actions or inactions by the flight crew that lead to deviations from organisational or flight crew intentions or expectations. Unmanaged or mismanaged errors frequently lead to undesired aircraft states. Errors in the operational context thus tend to reduce the margins of safety and increase the probability of adverse events;

(ii) Errors can be spontaneous (for example without direct linkage to specific, obvious threats), linked to threats, or part of an error chain. Examples of errors would include the inability to maintain stabilised approach parameters, executing a wrong automation mode, failing to give a required callout, or misinterpreting an ATC clearance;

(iii) Regardless of the type of error, an error's effect on safety depends on whether the flight crew detects and responds to the error before it leads to an undesired aircraft state and to a potential unsafe outcome. This is why one of the objectives of TEM is to understand error management (for example detection and response), rather than to solely focus on error causality (for example causation and commission). From the safety perspective, operational errors that are timely detected and promptly responded to (for example properly managed), errors that do not lead to undesired aircraft states, do not reduce margins of safety in flight operations, and thus become operationally inconsequential. In addition to its safety value, proper error management represents an example of successful human performance, presenting both learning and training value;

(iv) Capturing how errors are managed is then as important, if not more, as capturing the prevalence of different types of error. It is of interest to capture if and when errors are detected and by whom, the response(s) upon detecting errors, and the outcome of errors. Some errors are quickly detected and resolved, thus becoming operationally inconsequential, while others go undetected or are mismanaged. A mismanaged error is defined as an error that is linked to or induces an additional error or undesired aircraft state;

(v) Table 2 presents examples of errors, grouped under three basic categories derived from the TEM model. In the TEM concept, errors have to be 'observable' and therefore, the TEM model uses the 'primary interaction' as the point of reference for defining the error categories;

(vi) The TEM model classifies errors based upon the primary interaction of the pilot or flight crew at the moment the error is committed. Thus, in order to be classified as aircraft handling error, the pilot or flight crew must be interacting with the aircraft (for example through its controls, automation or systems). In order to be classified as procedural error, the pilot or flight crew must be interacting with a procedure (for example checklists; SOPs; etc.). In order to be classified as communication error, the pilot or flight crew must be interacting with people (ATC, ground crew, other crew members, etc.);

(vii) Aircraft handling errors, procedural errors and communication errors may be unintentional or involve intentional non-compliance. Similarly, proficiency considerations (for example skill or knowledge deficiencies, training system deficiencies) may underlie all three categories of error. In order to keep the approach simple and avoid confusion, the TEM model does not consider intentional non-compliance and proficiency as separate categories of error, but rather as sub-sets of the three major categories of error.

Aircraft handling errors	(A) manual handling, flight controls: vertical, lateral or speed deviations, incorrect flaps or speed brakes, thrust reverser or power settings; (B) automation: incorrect altitude, speed, heading, auto throttle settings, incorrect mode executed or incorrect entries; (C) systems, radio, instruments: incorrect packs, incorrect anti-icing, incorrect altimeter, incorrect fuel switches settings, incorrect speed bug or incorrect radio frequency dialled; (D) ground navigation: attempting to turn down wrong taxiway or runway, taxi too fast, failure to hold short or missed taxiway or runway.
Procedural errors	(A) SOPs: failure to cross-verify automation inputs; (B) checklists: wrong challenge and response; items missed, checklist performed late or at the wrong time; (C) callouts: omitted or incorrect callouts;

	(D) briefings: omitted briefings; items missed; (E) documentation: wrong weight and balance, fuel information, ATIS, or clearance information recorded, misinterpreted items on paperwork; incorrect logbook entries or incorrect application of MEL procedures.
Communication errors	(A) crew to external: missed calls, misinterpretations of instructions, incorrect read-back, wrong clearance, taxiway, gate or runway communicated; (B) pilot to pilot: within crew miscommunication or mis-interpretation.

Table 2. Examples of errors (list is not exhaustive)

(4) Undesired aircraft states:

(i) Undesired aircraft states are flight crew-induced aircraft position or speed deviations, misapplication of flight controls, or incorrect systems configuration, associated with a reduction in margins of safety. Undesired aircraft states that result from ineffective threat or error management may lead to compromising situations and reduce margins of safety in flight operations. Often considered at the cusp of becoming an incident or accident, undesired aircraft states must be managed by flight crews;

(ii) Examples of undesired aircraft states would include lining up for the incorrect runway during approach to landing, exceeding ATC speed restrictions during an approach, or landing long on a short runway requiring maximum braking. Events such as equipment malfunctions or ATC controller errors can also reduce margins of safety in flight operations, but these would be considered threats;

(iii) Undesired states can be managed effectively, restoring margins of safety, or flight crew response(s) can induce an additional error, incident, or accident;

(iv) Table 3 presents examples of undesired aircraft states, grouped under three basic categories derived from the TEM model;

Aircraft handling	(A) aircraft control (attitude); (B) vertical, lateral or speed deviations; (C) unnecessary weather penetration; (D) unauthorised airspace penetration; (E) operation outside aircraft limitations;

	(F) unstable approach; (G) continued landing after unstable approach; (H) long, floated, firm or off- centreline landing.
Ground navigation	(A) proceeding towards wrong taxiway or runway; (B) Wrong taxiway, ramp, gate or hold spot.
Incorrect aircraft configurations	(A) incorrect systems configuration; (B) incorrect flight controls configuration; (C) incorrect automation configuration; (D) incorrect engine configuration; (E) incorrect weight and balance configuration.

Table 3. Examples of undesired aircraft states (list is not exhaustive)

(v) An important learning and training point for flight crews is the timely switching from error management to undesired aircraft state management. An example would be as follows: a flight crew selects a wrong approach in the FMC. The flight crew subsequently identifies the error during a cross-check prior to the FAF. However, instead of using a basic mode (for example heading) or manually flying the desired track, both flight crew members become involved in attempting to reprogram the correct approach prior to reaching the FAF. As a result, the aircraft 'stitches' through the localiser, descends late, and goes into an unstable approach. This would be an example of the flight crew getting 'locked in' to error management, rather than switching to undesired aircraft state management. The use of the TEM model assists in educating flight crews that, when the aircraft is in an undesired state, the basic task of the flight crew is undesired aircraft state management instead of error management. It also illustrates how easy it is to get locked in to the error management phase;

(vi) Also from a learning and training perspective, it is important to establish a clear differentiation between undesired aircraft states and outcomes. Undesired aircraft states are transitional states between a normal operational state (for example a stabilised approach) and an outcome. Outcomes, on the other hand, are end states, most notably, reportable occurrences (for example incidents and accidents). An example would be as follows: a stabilized Approach (normal operational state) turns into an unstabilised approach (undesired aircraft state) that results in a runway excursion (outcome);

(vii) The training and remedial implications of this differentiation are of significance. While at the undesired aircraft state stage, the flight crew has the possibility, through appropriate TEM, of recovering the situation, returning to a normal operational state, thus restoring margins of safety. Once the undesired aircraft state becomes an outcome, recovery of the situation, return to a normal operational state, and restoration of margins of safety is not possible.

(5) Countermeasures:

(i) Flight crews must, as part of the normal discharge of their operational duties, employ countermeasures to keep threats, errors and undesired aircraft states from reducing margins of safety in flight operations. Examples of countermeasures would include checklists, briefings, call-outs and SOPs, as well as personal strategies and tactics. Flight crews dedicate significant amounts of time and energies to the application of countermeasures to ensure margins of safety during flight operations. Empirical observations during training and checking suggest that as much as 70 % of flight crew activities may be countermeasures-related activities.

(ii) All countermeasures are necessarily flight crew actions. However, some countermeasures to threats, errors and undesired aircraft states that flight crews employ build upon 'hard' resources provided by the aviation system. These resources are already in place in the system before flight crews report for duty, and are therefore considered as systemic-based countermeasures. The following would be examples of 'hard' resources that flight crews employ as systemic-based countermeasures:

(A) ACAS;

(B) TAWS;

(C) SOPs;

(D) checklists;

(E) briefings;

(F) training;

(G) etc.

(iii) Other countermeasures are more directly related to the human contribution to the safety of flight operations. These are personal strategies and tactics, individual and team countermeasures that typically include canvassed skills, knowledge and attitudes developed by human performance training, most notably, by CRM training. There are basically three categories of individual and team countermeasures:

(A) planning countermeasures: essential for managing anticipated and unexpected threats;

(B) execution countermeasures: essential for error detection and error response;

C) review countermeasures: essential for managing the changing conditions of a flight.

(iv) Enhanced TEM is the product of the combined use of systemic- based and individual and team countermeasures. Table 4 presents detailed examples of individual and team countermeasures. Further guidance on countermeasures can be found in the sample assessment guides for terminal training objectives (PANS-TRG, Chapter 3, Attachment B) as well as in the ICAO manual, Line Operations Safety Audit (LOSA) (Doc 9803).

Planning countermeasures		
SOP briefing	The required briefing was interactive and operationally thorough	(A) Concise, not rushed, and met SOP requirements; (B) Bottom lines were established
Plans stated	Operational plans and decisions were communicated and acknowledged	Shared understanding about plans: 'Everybody on the same page'
Workload assignment	Roles and responsibilities were defined for normal and non-normal situations	Workload assignments were communicated and acknowledged
Contingency management	Crew members developed effective strategies to manage threats to safety	(A) Threats and their consequences were anticipated; (B) Used all available resources to manage threats
Execution countermeasures		
Monitor and cross-check	Crew members actively monitored and cross-checked systems and other crew members	Aircraft position, settings, and crew actions were verified
Workload management	Operational tasks were prioritised and properly managed to handle primary flight duties	(A) Avoided task fixation; (B) Did not allow work overload
Automation management	Automation was properly managed to balance situational and workload requirements	(A) Automation setup was briefed to other members (B) Effective recovery techniques from automation anomalies
Review countermeasures		

Evaluation and modification of plans	Existing plans were reviewed and modified when necessary	Crew decisions and actions were openly analysed to make sure the existing plan was the best plan
Inquiry	Crew members asked questions to investigate and/or clarify current plans of action	Crew members not afraid to express a lack of knowledge: 'Nothing taken for granted' attitude
Assertiveness	Crew members stated critical information or solutions with appropriate persistence	Crew members spoke up without hesitation

Table 4. Examples of individual and team countermeasures

AMC1 to Appendix 6 Modular training course for the IR

(a) The theoretical knowledge instruction may be given at an ATO conducting theoretical knowledge instruction only, in which case the HT of that organisation should supervise that part of the course.

(b) The 150 hours of theoretical knowledge instruction can include classroom work, interactive video, slide or tape presentation, learning carrels, computer-based training, and other media as approved by the Authority, in suitable proportions. Approved distance learning (correspondence) courses may also be offered as part of the course.

AMC2 to Appendix 6 Modular training course for the IR

AEROPLANES

BASIC INSTRUMENT FLIGHT MODULE TRAINING COURSE

(a) This 10 hours module is focused on the basics of flying by sole reference to instruments, including limited panel and unusual attitude recovery.

(b) All exercises may be performed in an FNPT I or II or an FFS, for a maximum of 5 hours. If instrument flight training is in VMC, a suitable means of simulating IMC for the student should be used.

(c) A BITD may be used for the exercises 1, 2, 3, 4, 6, and 8.

(d) The use of the BITD is subject to the following:

(1) the training should be complemented by exercises on an aeroplane;

(2) the record of the parameters of the flight must be available;

(3) a FI(A) or IRI(A) should conduct the instruction.

EXERCISES

(e) Exercise 1:

(1) basic instrument flying without hours external visual cues; 0:30 hours

(2) horizontal flight; power changes for acceleration or deceleration;

(3) maintaining straight and level flight;

(4) turns in level flight with 15 °and 25 ° bank, left and right;

(5) roll-out onto predetermined headings.

(f) Exercise 2:

(1) repetition of exercise 1; 0:45 hours

(2) additionally climbing, descending, maintaining heading and speed, transition to horizontal flight;

(3) climbing and descending turns.

(g) Exercise 3:

Instrument pattern: 0:45 hours

(1) start exercise, decelerate to approach speed, flaps into approach configuration;

(2) initiate standard turn (left or right);

(3) roll out on opposite heading, maintain new heading for 1 minute;

(4) standard turn, gear down, descend 500 ft/min;

(5) roll out on initial heading, maintain descent (500 ft/min) and new heading for 1 minute;

(6) transition to horizontal flight, 1000 ft below initial flight level;

(7) initiate go-around; (7)climb at best rate of climb speed.

(h) Exercise 4:

Repetition of exercise 1 and steep turns with 45° bank; recovery from unusual attitudes. 0:45 hours

(i) Exercise 5:

Repetition of exercise 4. 0:45 hours

(j) Exercise 6:

(1) radio navigation using VOR, NDB or, if available, VDF; 0:45 hours

(2) interception of predetermined QDM, QDR.

(k) Exercise 7:

Repetition of exercise 1 and recovery from unusual attitudes. 0.45 hours

(l) Exercise 8:

(1) Repetition of exercise 1; 0:45 hours

(2) turns, level change and recovery from unusual attitudes with simulated failure of the artificial horizon or directional gyro.

(m) Exercise 9:

Recognition of, and recovery from incipient and full stalls. 0:45 hours

(n) Exercise 10:

Repetition of exercises 6, 8 3:30 hours and 9.

CERTIFICATE OF COMPLETION OF BASIC INSTRUMENT FLIGHT MODULE

CERTIFICATE OF COMPLETION OF BASIC INSTRUMENT FLIGHT MODULE					
Pilot's last name(s):			First name(s):		
Type of licence:			Number:	State:	
Flight training hours performed on SE aeroplane:		OR	Flight training hours performed on ME aeroplane:		
Flight training hours performed in an FSTD (maximum 5 hours):					
	Signature of applicant:				

The satisfactory completion of basic instrument flight module according to requirements is certified below:

TRAINING			
Basic instrument flight module training received during period:			
from:	to:	at:	ATO
Location and date:		Signature of head of training:	

Type and number of licence and state of issue:	Name(s) in capital letters of authorised instructor:

AMC3 to Appendix 6 Modular training course for the IR

AIRSHIPS

BASIC INSTRUMENT FLIGHT MODULE TRAINING COURSE

(a) This 10 hours module is focused on the basics of flying by sole reference to instruments, including limited panel and unusual attitude recovery.

(b) All exercises may be performed in an FNPT I or II or an FFS, for a maximum of 5 hours. If instrument flight training is in VMC, a suitable means of simulating IMC for the student should be used.

(c) A BITD may be used for the exercises 1, 2, 3, 4, 6 and 8. (d) The use of the BITD is subject to the following:

(1) the training should be complemented by exercises on an airship;

(2) the record of the parameters of the flight must be available;

(3) a FI(As) or IRI(As) should conduct the instruction.

EXERCISES

(e) Exercise 1:

(1) basic instrument flying without external visual cues; 0:30 hours

(2) horizontal flight;

(3) maintaining straight and level flight;

(4) turns in level flight, left and right;

(5) rollout onto predetermined headings.

(f) Exercise 2:

(1) Repetition of exercise 1; additionally climbing and descending 0:45 hours

(2) maintaining heading and speed;

(3) transition to horizontal flight;

(4) climbing and descending turns.

(g) Exercise 3:

Instrument pattern: 0:45 hours

(1) start exercise, decelerate to approach speed, approach configuration;

(2) initiate standard turn (left or right);

(3) rollout on opposite heading, maintain new heading for 1 minute;

(4) standard turn, descend with given rate (for example 500 ft/min);

(5) rollout on initial heading, maintain descent (for example 500 ft/min) and new heading for 1 minute;

(6) transition to horizontal flight (for example 1000 ft below initial level);

(7) initiate go-around;

(8) climb at best rate of climb speed.

(h) Exercise 4:

(1) repetition of exercise 1; 0:45 hours

(2) recovery from unusual attitudes.

(i) Exercise 5

Repetition of exercise 4. 0:45 hours

(j) Exercise 6

(1) radio navigation using VOR, NDB or, if available, VDF; 0:45 hours

(2) interception of predetermined QDM, QDR.

(k) Exercise 7

(1) repetition of exercise 1; 0:45 hours

(2) recovery from unusual attitudes.

(l) Exercise 8

(1) repetition of exercise 1; 0:45 hours

(2) turns, level change and recovery from unusual attitudes with simulated failure of the artificial horizon or directional gyro.

(m) Exercise 9

Repetition of exercises (6) and (8). 4:15 hours

CERTIFICATE OF COMPLETION OF BASIC INSTRUMENT FLIGHT MODULE

CERTIFICATE OF COMPLETION OF BASIC INSTRUMENT FLIGHT MODULE			
Pilot's last name(s):		First name(s):	
Type of licence:		Number:	State:
Flight training hours performed on airship:			
Flight training hours performed in an FSTD (maximum 5 hours):			
	Signature of applicant:		

The satisfactory completion of basic instrument flight module according to requirements is certified below:

TRAINING			
Basic instrument flight module training received during period:			
from:	to:	at:	ATO
Location and date:		Signature of head of training:	
Type and number of licence and state of issue:		Name(s) in capital letters of authorised instructor:	

GM1 to Appendix 7 IR skill test

To the skill test, an ME centreline thrust aeroplane is considered an SE aeroplane.

AMC1 to Appendix 7 IR skill test

LAPL, BPL, SPL, PPL, CPL, IR SKILL TEST AND PROFICIENCY CHECK APPLICATION AND REPORT FORM

APPLICATION AND REPORT FORM LAPL, BPL, SPL, PPL, CPL, IR SKILL TEST AND PROFICIENCY CHECK		
Applicant's last name(s):		
Applicant's first name(s):		LAPL: A ☐ H ☐ B ☐ S ☐
Signature of applicant:		BPL: ☐ SPL: ☐
Type of licence*:		PPL: A ☐ H ☐ As ☐
Licence number*:		CPL: A ☐ H ☐ As ☐
State:		IR: A ☐ H ☐ As ☐

1	Details of the flight		
Group, class, type of aircraft:		Registration:	
Aerodrome or site:	Take-off time:	Landing time:	Flight time:
			Total flight time:

2	Result of the test	
Skill test details:		
Pass ☐	Fail ☐	Partial pass ☐

3	Remarks
Location and date:	
Examiner's certificate number *:	Type and number of licence:
Signature of examiner:	Name(s) in capital letters:

* *if applicable*

AMC1 to Appendix 9 Training, skill test and proficiency check for MPL, ATPL, type and class ratings, and proficiency check for IRs

APPLICATION AND REPORT FORM

If applicable, this form is also the certificate of completion of the type rating course for ZFTT.

APPLICATION AND REPORT FORM ATPL, MPL, TYPE RATING, TRAINING, SKILL TEST AND PROFICIENCY CHECK AEROPLANES (A) AND HELICOPTERS (H)			
Applicant's last name(s):	Aircraft:	SE-SP: A ☐ H ☐	ME-SP: A ☐ H ☐
Applicant's first name(s):		SE-MP: A ☐ H ☐	ME-MP: A ☐ H ☐
Signature of applicant:	Operations:	SP ☐	MP ☐
Type of licence held:	Checklist:	Training record: ☐	Type rating: ☐
Licence number:		Skill test: ☐	Class rating: ☐
		IR: ☐	
State of licence issue:		Proficiency check: ☐	ATPL: ☐ MPL: ☐

1	Theoretical training for the issue of a type or class rating performed during period		
From:	To:	At:	
Mark obtained:	% (Pass mark 75%):	Type and number of licence:	
Signature of HT:		Name(s) in capital letters:	
2	**FSTD**		
FSTD (aircraft type):	Three or more axes:Yes ☐ No ☐	Ready for service and used:	
FSTD manufacturer:	Motion or system:	Visual aid: Yes ☐ No ☐	
FSTD operator:		FSTD ID code:	
Total training time at the controls:		Instrument approaches at aerodromes to a decision altitude or height of:	
Location, date and time:		Type and number of licence:	
Type rating instructor ☐ Class rating instructor ☐	.... instructor ☐		
Signature of instructor:		Name(s) in capital letters:	
3	**Flight training: in the aircraft ☐ in the FSTD (for ZFTT) ☐**		
Type of aircraft:	Registration:	Flight time at the controls:	
Take-offs:	Landings:	Training aerodromes or sites (take-offs, approaches and landings):	
Take-off time:		Landing time:	
Location and date:		Type and number of licence held:	
Type rating instructor ☐ Class rating instructor ☐			
Signature of instructor:		Name(s) in capital letters:	

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<tr><td>4</td><td colspan="3">Skill test ☐ Proficiency check ☐</td></tr>
<tr><td colspan="4">Skill test and proficiency check details:</td></tr>
<tr><td colspan="2">Aerodrome or site:</td><td colspan="2">Total flight time:</td></tr>
<tr><td colspan="2">Take-off time:</td><td colspan="2">Landing time:</td></tr>
<tr><td>Pass ☐</td><td>Fail ☐</td><td colspan="2">Reason(s) why, if failed:</td></tr>
<tr><td colspan="2">Location and date:</td><td colspan="2">SIM or aircraft registration:</td></tr>
<tr><td colspan="2">Examiner's certificate number (if applicable):</td><td colspan="2">Type and number of licence:</td></tr>
<tr><td colspan="2">Signature of examiner:</td><td colspan="2">Name(s) in capital letters:</td></tr>
</table>

AMC2 to Appendix 9 Training, skill test and proficiency check for MPL, ATPL, type and class ratings, and proficiency check for IRs

TRAINING, SKILL TEST AND PROFICIENCY CHECK: SP AEROPLANES

Section 3.B of the training and skill test and proficiency check content for SP aeroplanes included in Appendix 9.B should include training on a circling approach, after an IFR approach.