

**HONG KONG  
CIVIL AVIATION DEPARTMENT**



**CAD 509 (A)**

**REQUIREMENTS FOR APPROVAL OF  
FLYING TRAINING ORGANISATIONS OFFERING  
AN INTEGRATED COURSE OF TRAINING FOR  
HONG KONG COMMERCIAL PILOT'S LICENCE WITH  
INSTRUMENT RATING (AEROPLANE)**

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## GLOSSARY OF TERMS

AIP	Aeronautical Information Publication
AIS	Aeronautical Information Service
AN(HK)O 1995	The Air Navigation (Hong Kong) Order 1995
ATC	Air Traffic Control
ATPL(A)	Airline Transport Pilot's Licence (Aeroplane)
The CAD	The Hong Kong Civil Aviation Department
HKAR-1	Hong Kong Aviation Requirements – 1
HKAOC Holder	Hong Kong Air Operator's Certificate Holder
CPL/IR(A)	Commercial Pilot's Licence / Instrument Rating (Aeroplane)
CV	Curriculum Vitae
FTO	Flying Training Organisation
ICAO	The International Civil Aviation Organisation
IFR	The Instrument Flight Rules
IR	Instrument Rating
IRT	Instrument Rating Test
GFT	General Flying Test
PIC	Pilot-in-command
PPL	Private Pilot's Licence
P U/T	Student pilot or qualified pilot undergoing training
QA	Quality Assurance
RTF	Radiotelephony
SMS	Safety Management System
SMSM	SMS Manual

Aeroplane	A power-driven heavier-than-air aircraft, deriving its lift in flight chiefly from aerodynamic reactions on surfaces which remain fixed under given conditions of flights.
Dual instruction time	Flight time during which a person is receiving flight instruction from a properly authorised pilot on board the aircraft.
Flight procedures trainer	(See Synthetic flight trainer.)
Flight simulator	(See Synthetic flight trainer.)
Flight time	The total time from the moment that an aircraft first moves under its own or external power for the purpose of taking off until the moment it comes to rest at the end of the flight.
Flight time as student pilot-in-command	Flight time during which the flight instructor will only observe the student acting as pilot-in-command and shall not influence or control the flight of the aircraft.
Instrument time	Instrument flight time or instrument ground time
Instrument flight time	Time during which a pilot is controlling an aircraft in flight solely by reference to instruments.
Instrument ground time	Time during which a pilot is receiving instruction in simulated instrument flight in synthetic flight trainers approved by the State Authority.
Night	The time between half an hour after sunset and half an hour before sunrise, sunset and sunrise being determined at surface level.
Pilot-in-command	The pilot responsible for the operation and safety of an aircraft during flight time.
Professional pilot	A pilot who holds a licence which permits the piloting of aircraft in operations for which remuneration is given.
Single-pilot aeroplanes	Aeroplanes certificated for operation by a minimum crew of one pilot.
Solo flight time	Flight time during which a student pilot is the sole occupant of an aircraft.

Synthetic flight trainer	<p>Any one of the following 3 types of apparatus in which flight conditions are simulated on the ground:</p> <ol style="list-style-type: none"><li data-bbox="564 338 1414 593">a. A flight simulator, which provides an accurate representation of the flight deck of a particular aircraft type to the extent that the mechanical, electrical, electronic, etc. aircraft systems control functions, the normal environment of flight crew members, and the performance and flight characteristics of that type of aircraft are realistically simulated;</li><li data-bbox="564 633 1414 846">b. A flight procedures trainer, which provides a realistic flight deck environment, and which simulates instrument responses, simple control functions of mechanical, electrical, electronic, etc. aircraft systems, and the performance and flight characteristics of aircraft of a particular class;</li><li data-bbox="564 887 1414 1030">c. A basic instrument flight trainer, which is equipped with appropriate instruments, and which simulates the flight deck environment of an aircraft in flight in instrument flight conditions.</li></ol>
Type (of aircraft)	<p>All aircraft of the same basic design, including all modifications except those modifications which result in a change of handling, flight characteristics or flight crew complement.</p>



## 1 INTRODUCTION

- 1.1 Article 20(11) of the Air Navigation (Hong Kong) Order 1995, as amended, enables the Hong Kong Civil Aviation Department (CAD), subject to such conditions as it thinks fit, to approve any course of training or instruction and to approve a person to provide any course of training or instruction for the purpose of the grant of flight crew licences.
- 1.2 The purpose of this document is to detail the governing policies, requirements and procedures for the issue, renewal and variation of CAD Approval to Flying Training Organisations (FTOs) offering approved integrated courses of training leading to the issue of a Hong Kong Commercial Pilot's Licence with Instrument Rating for aeroplanes (HK CPL/IR(A)).
- 1.3 The requirements set out in this document will apply to FTOs wishing to offer an integrated course of training for HK CPL/IR(A). The pre-requisites normally required before the CAD would give consideration is that the FTO is approved by its own State Authority to conduct integrated courses for the issue of CPL/IR(A) or ATPL(A) in accordance with ICAO Annex 1 or JAR-FCL 1, AND either:
  - a. A Hong Kong Air Operator's Certificate (HKAOC) holder has advised the CAD of its intention to contract the FTO for its pilot training programme; OR
  - b. It has contracted a Hong Kong Tertiary Education Organisation to conduct part of the integrated course.
- 1.4 Upon the Approval from CAD to conduct CAD509(A) training, the FTO may intake self-sponsored candidates for HKCPL/IR(A) training course. However, the FTO shall inform the self-sponsored candidates in an explicit manner that any employment is not guaranteed after the successful completion of the training and that the CAD and the FTO shall not be liable

## **2 THE FLYING TRAINING ORGANISATION (FTO)**

- 2.1 For the purposes of this document, an FTO is considered normally to be a single or multiple organisations located within or outside of Hong Kong, staffed, equipped and operated in a suitable environment offering the flying training, synthetic flight instruction and theoretical knowledge instruction required for an integrated course of training leading to the issue of a HK CPL/IR(A).

## **3 USE OF LANGUAGE**

- 3.1 As CAD would normally expect courses to be prepared in and given in the English language, all course material including the required documentation or records should be maintained in English.

## 4 OBTAINING AND MAINTAINING APPROVAL

4.1 An FTO seeking approval to conduct HK CPL/IR(A) integrated training courses it proposes to offer must apply to the Assistant Director-General of Civil Aviation (Flight Standards). The application must be accompanied by the Training Manual, a complete set of student study notes, a full description of the training programme (which may be included in the Training Manual), Operations Manual and, if considered necessary, Flying Orders. The following items must also be submitted:

- a. A detailed management structure with names, qualifications and responsibilities of managerial and instructional staff who will be engaged in activities related to the approval.
- b. A resume (CV) for the Head of Training, Chief Flying Instructor, Chief Ground Instructor, Chief Synthetic Flight Instructor, other key training staff, and Quality Assurance (QA) and Safety Management System (SMS) personnel.
- c. A list of those flight instructors nominated to be supervising flight instructors.
- d. A list of the training aircraft to be used on course.
- e. A list of the aerodromes to be used, if more than one.
- f. A list of synthetic flight trainers to be used on courses.
- g. A description of the accommodation to be used to provide flight operations, theoretical knowledge instruction and management/administrative support activities.
- h. A description of the student accommodation.
- i. Proof of availability of aircraft, synthetic flight trainers, facilities and staff for the courses to be conducted if any of these are not permanently available to the FTO.
- j. A description of the SMS.
- k. Evidence of sufficient funding.

- 4.2 The FTO will not be required to duplicate submission of information relating to the items listed above if that information is already included in another document submitted, for example the Operations Manual.
- 4.3 After consideration of the application and the associated documentation, arrangements will be made for a CAD Inspection Team to inspect the FTO to ensure that it meets the requirements set out in this document. Subject to satisfactory inspection, the FTO and the HK CPL/IR(A) integrated course on offer will be approved for a period of 36 months.
- 4.4 The initial inspection will focus on:
- a. Staff
    - adequacy of numbers and qualifications
    - validity of licences and ratings and logbooks of flight instructors.
  - b. Training aircraft
    - registration
    - documentation
    - maintenance and maintenance records.
  - c. Facilities
    - adequacy for the course and the number of students (this includes the adequacy of the aerodromes to be used and the area(s) in which flight training is to be conducted).
  - d. Documentation
    - documents related to the course
    - updating system
    - training and operations manuals
    - training records
  - e. Flight instruction and synthetic flight instruction including pre flight briefing, actual flight and post flight debriefing.
  - f. The SMS
  - g. Evidence of sufficient funding

- 4.5 It will be a condition of the approval that the CAD may conduct periodic inspection visits at any time during the period of approval. One interim inspection will normally be conducted on an eighteen monthly basis, and a copy of the narrative report will be sent to the FTO. Continuation of an approval is not automatic but depends upon the outcome of inspections.
- 4.6 Authorised Inspectors of CAD will sample student training flights, phase/progress tests or periods of synthetic flight instruction at any stage during a course.
- 4.7 The arrangements for these sampling exercises will be made with the Head of Training or his designated representative. Pre flight and post flight briefing will be included in the sampling of student flying sorties.
- 4.8 Student training records must be made available to Authorised Inspectors.
- 4.9 Authorised Inspectors will inform the Head of Training of any weaknesses in a student's performance revealed during the sampling exercise not consistent with the student's training records or standardised teaching methods.
- 4.10 Authorised Inspectors will also conduct sampling checks on flight instructors and synthetic flight instructors from time to time, arrangements for which will be made with the appropriate personnel within the organisation.
- 4.11 It will be a condition of the approval that the appointment of the Head of Training, Chief Flying Instructor, Chief Ground Instructor or Chief Synthetic Flight Instructor should be acceptable to the CAD. The CAD must be informed of the departure or intended departure of the above-mentioned senior personnel. It should be noted that one person may not normally hold two (or more) of the named posts simultaneously.

4.12 The CAD cannot guarantee to inform an FTO of its decision in relation to an application for renewal of an approval unless the application is received by the CAD no later than 60 days before the expiry date of the existing approval. This is to allow time for administrative procedures and renewal inspections to be completed. The FTO will be required to show that the necessary standards have been maintained. The emphasis will be on checking the quality of instruction given and of flight operations as conducted by the organisation. Having checked that the required facilities continue to be provided, the CAD Inspection Team will concentrate on the day to day conduct of training and the safety of flight operations and will pay particular attention to :

- a. student records which must be comprehensive and show that the approved course is being fully covered. The Inspection Team may need to speak to the instructors concerned in the presence of senior staff to dispel any doubts the members of the team might have;
- b. briefings, airborne and synthetic flight instructional exercises and classroom lectures which the Inspection Team may wish to observe;
- c. flight records which must by content and accuracy promote safety by ensuring timely availability of essential information to pilots and maintenance engineers;
- d. evidence of the correct use of meteorological, ATC and AIS information and facilities.

## **5 REVOCATION, SUSPENSION VARIATION OF THE APPROVAL**

- 5.1 If the CAD thinks that the requirements set out in this document cease to be met in part or in whole, or if the standards on which approval was granted are not maintained, an approval may be revoked, suspended or varied by the CAD in accordance with Article 62 of the Air Navigation (Hong Kong) Order 1995 (as amended).
- 5.2 Should there be a failure to meet the requirements or standards, the FTO will be formally notified of the non-conformances and, if necessary, a restricted approval document issued to permit the remedial action identified to be taken within a timescale specified by the CAD. Should the FTO fail to meet the standards in the specified time, revocation, suspension or variation of the approval will be considered.

## **6 CHARGES**

- 6.1 The charges for the grant and renewal of the approval of an FTO are to be made at cost recovery rates and the amount of which will be related to the CAD man-hours expended. In addition, the CAD will recover the expenditure incurred in conducting inspections of the FTOs.

## **7 SAFETY MANAGEMENT SYSTEM (SMS)**

- 7.1 An FTO shall implement a SMS acceptable to the CAD, as a minimum:
- (a) Identifies safety hazards;
  - (b) Ensures that remedial action necessary to maintain an acceptable level of safety is implemented;
  - (c) Provides for continuous monitoring and regular assessment of the safety level achieved; and
  - (d) Aims to make continuous improvement to the overall level of safety.

Notes: Guidance on SMS is contained in Appendix 9 of this document. Relevant information can also be found in the CAD 712 – “Safety Management System (SMS) for Air Operators and Maintenance Organisations – A Guide to Implementation” and the ICAO Safety Management Manual (Doc 9859).

- 7.2 A SMS shall clearly define lines of safety accountability throughout the FTO, including a direct accountability for safety on the part of senior management.
- 7.3 An FTO shall establish a flight a flight safety documents system, for the use and guidance of operational personnel, as part of its SMS.

Note: Guidance on the development and organisation of a flight safety documents system is provided in ICAO Annex 6, Attachment H.

## **8 FINANCIAL RESOURCES**

- 8.1 An FTO should satisfy the CAD that sufficient funding is available to conduct training to the approved standards. Further information on this requirement is at Appendix 4.

## **9 PRACTICALITIES CONCERNING THE PROCESS OF OBTAINING APPROVAL**

- 9.1 FTOs should expect that considerable resources and effort are required to prepare an initial application for approval to conduct integrated courses of training, particularly in relation to the development of up to date student study notes and other documentation. Equally the review of such material is both demanding of staff effort within the CAD and must take its place beside other work undertaken- it is not given special priority against other tasks. Therefore organisations should make realistic assumptions from the outset as to how long it will take to obtain approval and are strongly recommended to inform the CAD of their intentions at an early stage of planning.
- 9.2 Applications to renew an approval should be submitted well before the expiry of the existing approval. This is to allow adequate time for the CAD to complete the necessary pre inspection work including a review of the organisation's funding and make arrangements for the inspection, conduct the inspection and complete the relevant post inspection tasks. The CAD cannot guarantee to inform an organisation of its decision in relation to an application for renewal of an approval unless the application is received by the CAD no later than 60 days prior to the expiry of the existing approval.



- 9.3 If an approval has lapsed and an organisation wishes to re-establish the approval it should apply as if making an initial application for approval. The relevant charges will apply.
- 9.4 An organisation may not commence, conduct or continue training courses requiring CAD approval unless it has the relevant approval documentation in its possession.

## **10 MANAGEMENT AND STAFFING**

- 10.1 The CAD requires that an adequate number of qualified, competent full-time staff are to be employed by the FTO. Particular emphasis will be placed on the qualifications and competence of all training staff in their specialisation and in training techniques. All training staff must be acceptable to the CAD. CVs of key training staff should be forwarded to the CAD.
- 10.2 All changes in key training staff should be notified and be acceptable to the CAD.
- 10.3 The CAD will also pay particular attention to staff/student ratios.
- 10.4 The agreement of the CAD must be obtained before part-time instructors are employed to instruct on courses approved by the CAD.

## 11 HEAD OF TRAINING

- 11.1 A Head of Training (HT) acceptable to the CAD must be appointed who will be responsible to the CAD for discharging the overall responsibility for ensuring satisfactory integration of flight training, synthetic flight training and theoretical knowledge instruction, and for supervising the progress of individual students.
- 11.2 Apart from having extensive experience in pilot training as a flight instructor for professional pilots' licences and possess a sound managerial capability, the HT should normally have held an executive flying post (e.g. Chief Flying Instructor) within an organisation approved to conduct integrated courses of training for Professional Pilot Licence. In addition, the HT should normally hold or have held, in the three years prior to first appointment as a HT, a CPL/IR(A) or ATPL(A) issued by the CAD or an authority acceptable to the CAD.
- 11.3 The CAD would not normally expect the HT to function as a line instructor. He may perform, though not to the extent of becoming burdened with, administration, maintenance, finance, marketing or any management functions related to the HK CPL/IR(A) integrated courses. Such supporting functions should be the responsibility of another senior management post (such as the General Manager).

## 12 CHIEF FLYING INSTRUCTOR

- 12.1 A Chief Flying Instructor (CFI) acceptable to the CAD must be appointed who should be responsible for the supervision of flight and synthetic flight instructional staff, the standardisation of all flight and synthetic flight instructions and flight safety standards. The CFI should also be responsible for all student flight and synthetic flight instruction records.
- 12.2 The CFI must:
- a. hold a valid CPL/IR(A) or ATPL(A) issued by the CAD or an authority acceptable to the CAD; and
  - b. hold a current Flying Instructor (FI) Rating issued by the CAD or an authority acceptable to the CAD for giving flight instruction for professional pilot licence courses and for all types of aircraft used on the course; and

- c. hold valid aircraft ratings for all aeroplanes used on the course; and
- d. have completed at least 3000 hours pilot-in-command flight time, including a minimum of 2000 hours on flying instructional duties and 200 hours on instrument flying instructional duties.

### **13 FLIGHT INSTRUCTORS**

13.1 Sufficient flight instructors must be employed to ensure the proper continuity of flight training on both single and twin-engined phases for all students attending the courses.

13.2 Flight Instructors must:

- a. hold a valid CPL/IR(A) or ATPL(A) issued by the CAD or an authority acceptable to the CAD;
- b. hold valid aircraft ratings for the types of aeroplane used on the course in which instruction will be given; and
- c. hold an instructor rating issued by the CAD or an authority acceptable to the CAD, which is both appropriate to the part of the course and valid for the types of aeroplane in which instruction will be given e.g. instrument rating instructor, flight instructor for professional pilot licences, as appropriate; and
- d. have completed at least 500 hours of flight time as pilots of aeroplanes; and
- e. have at least 200 hours experience of ab initio flying instruction and have supervised at least 25 student solo flights.

13.3 The maximum flying hours, maximum flying duty hours and minimum rest time between instructional duties of flight instructors must be acceptable to the CAD.

## **14 SUPERVISION OF FLIGHT INSTRUCTORS WITH RESTRICTED PRIVILEGES**

- 14.1 For a flight instructor with experience less than those stated in para. 13.2e above, the privileges of his/her instructor rating are restricted to carry out under the supervision of a “supervising” flight instructor for day/night flight instruction at PPL(A) level of the HK CPL/IR(A) integrated courses, excluding approval of first solo flights by day or night and first solo navigation flights by day or by night.
- 14.2 An FTO seeking to use flight instructors with restricted privileges should, before so doing, nominate flight instructors acceptable to the CAD to carry out the supervisory function.
- 14.3 The CAD will have to be satisfied with the duties and responsibilities of supervising flight instructors specified in the documentation required in connection with the approval (e.g. the Operations Manual).
- 14.4 Supervising flight instructors must always be present and available at a facility where flight instructors with restricted privileges are discharging instructional duties.
- 14.5 The ratio of flight instructors with restricted privileges to supervising flight instructors must not exceed 4:1.

## **15 STUDENT/FLIGHT INSTRUCTOR RATIO CALCULATION**

- 15.1 The ratios given in paragraphs 15.2, 15.3 and 15.4 must not be exceeded without prior agreement of the CAD.
- 15.2 The basic ratio of students to line flight instructors, excluding the HT, must not exceed 6:1.
- 15.3 For ratio calculation, the CFI may be counted as one half of a line instructor.
- 15.4 A student should be included in the ratio calculation from the time at which his/her flight training commences until the course is completed.

## **16 CHIEF SYNTHETIC FLIGHT INSTRUCTOR**

- 16.1 A Chief Synthetic Flight Instructor (CSFI) acceptable to the CAD must be appointed who will be responsible for all synthetic flight training, for monitoring synthetic flight instructor standards and maintaining student records. The CSFI is responsible to the Head of Training. In conjunction with the CFI, the CSFI will in particular ensure that flight and synthetic flight training are fully integrated.
- 16.2 The CSFI must:
- a. hold or have held an ATPL(A) or CPL/IR(A) issued by the CAD or an authority acceptable to the CAD and have instructional experience; OR
  - b. have at least two years' experience as a synthetic flight instructor at an FTO approved by its own State Authority to conduct courses for the Instrument Rating.

## **17 INSTRUCTORS FOR SYNTHETIC FLIGHT TRAINING**

- 17.1 Sufficient instructors must be employed to ensure the proper continuity of synthetic flight training for all students attending the courses being run by the FTO.
- 17.2 Each synthetic flight instructor must:
- a. hold or have held an ATPL(A) or CPL/IR(A) issued by the CAD or an authority acceptable to the CAD and have instructional experience; OR
  - b. have at least 12 months' experience as a synthetic flight instructor for Instrument Rating Courses conducted by an FTO approved by the CAD or an authority acceptable to the CAD; OR
  - c. have relevant experience as a military flight instructor.
- 17.3 Standardisation of instructors is the responsibility for the Chief Synthetic Flight Instructor. The CAD will need to be satisfied that instructors have been instructed on and achieved an appropriate standard in the types of synthetic flight trainers to be used on courses, covering their operation and the instruction to be given to students in accordance with the synthetic flight training syllabus.
- 17.4 Synthetic flight instructors should not normally instruct for more than 1000 machine hours in any period of 12 months.

## **18 CHIEF GROUND INSTRUCTOR**

- 18.1 A Chief Ground Instructor (CGI) must be appointed who is acceptable to the CAD. He will be responsible to the HT for the overall management of the theoretical knowledge instruction; supervision and standardisation of theoretical knowledge instructors; maintenance of student theoretical knowledge instruction records and the programming of student ground examinations.

- 18.2 The CGI must have undergone a course of training in instructional techniques and have had extensive previous experience in giving theoretical knowledge and:
- a. hold or have held an ATPL(A) or a CPL/IR(A) or a Flight Navigator's Licence issued by an authority acceptable to the CAD; OR
  - b. hold an ATPL(A) or CPL/IR(A) issued by the CAD and have experience as a pilot or navigator in civil aviation or equivalent military air experience; OR
  - c. have academic and professional qualifications acceptable to the CAD.

## **19 THEORETICAL KNOWLEDGE INSTRUCTORS**

- 19.1 Sufficient ground instructors must be employed to ensure the proper continuity of theoretical knowledge instruction for all students attending the courses being run by the FTO.
- 19.2 Ground instructors must have extensive experience in aviation and previous experience in instructing for professional pilot training courses. At least four full-time ground instructors, including the Chief Ground Instructor, must be employed. The number of ground instructors should be such that class numbers in subjects involving a high degree of supervision or practical work by students or extensive use of demonstration equipment should not normally exceed 12 students. In other classes it should not exceed 24 students. Ground instructors who are not involved in additional responsibilities should not normally exceed 23 teaching hours in any one week. These figures should be taken to include all classroom contact time whether on HK CPL/IR(A) integrated courses or other courses in which a theoretical knowledge instructor takes part. In the context of taking part in 'other courses', the teaching hours committed to HK CPL/IR(A) integrated courses should be proportionately reduced.

## 20 APPOINTMENT OF AUTHORISED EXAMINERS

- 20.1 CAD may appoint suitably qualified staff employed by the FTO on full-time basis as Authorised Examiners (AE) to administer flights tests for grant of Hong Kong CPL(A), the initial issue of a Hong Kong IR(A) and the issue or renewal of Aircraft Ratings on behalf of the Hong Kong Civil Aviation Department.
- 20.2 An applicant will have to meet the following pre-requisites before CAD would consider his/her appointment as an AE:
- a. Hold a current CPL/IR(A) or ATPL(A) issued by the CAD or an authority acceptable to the CAD; and
  - b. Hold current Aircraft Rating(s) for the type(s) of aeroplane on which he/she will administer flight tests; and
  - c. Hold or have held an FI Rating issued by the CAD or an authority acceptable to the CAD; and
  - d. Possess knowledge of Hong Kong legislative requirements; and
  - e. Have satisfactorily completed an Authorised Examiner Course acceptable to the CAD, or holding a current examiner's authority issued by an authority acceptable to the CAD; and
  - f. Authorised Inspector of CAD must be satisfied with the performance of the applicant after observing him/her administering a CPL(A) GFT or initial IRT or Aircraft Rating flight test as appropriate.



## **21 ADMINISTRATIVE STAFF**

21.1 Administrative staff must be provided to maintain:

- a. records of students' academic achievements before and during the course;
- b. detailed records of flight training, theoretical knowledge instruction and synthetic flight training given to individual students;
- c. detailed and regular progress reports, based on individual reports from instructors, and regular progress flight tests and ground examinations.

## **22 TRAINING RECORDS**

22.1 An FTO must maintain and retain the following records for a period of at least 5 years, using appropriate administrative staff:

- a. limited personal details of the student, eg. expiry dates of medical certificates, ratings, etc;
- b. a summary of any credits in flying experience and theoretical knowledge instruction to which individual students may be entitled;
- c. cumulative flying training achieved;
- d. for each training flight, the date, the aircraft registration, the flight time, the instructor's name and written comments by the instructor on the students performance, progress and other factors such as attitude and manner during the flight and during the course as a whole. Students should be invited to sign each report acknowledging the debrief;

- e. summary reports and the result of progress/phase tests, flight tests and theoretical knowledge examinations including arrangements for remedial training after failed tests/examinations;
  - f. training in aircraft emergency procedures, to be recorded separately and displayed prominently.
- 22.2 The format of student training records is to be specified in the Training Manual and must be acceptable to the CAD.
- 22.3 Similar records should be maintained for synthetic flight and theoretical knowledge instructions.
- 22.4 Computer based records should be backed up daily. The arrangements for safeguarding such records are to be entered in the Training Records section of the Training Manual.

## **23 LOGBOOKS**

- 23.1 Student personal flying logbooks must be kept in accordance with Article 22 of the AN(HK)O. Students may consider using CAD 407 – Personal Flying Log Book. The details to be entered in logbooks should include at least the following information:
- a. For each flight:
    - name of PIC
    - date (day, month, year) of flight
    - place and time of departure and arrival (times in UTC to be block times)
    - type (aeroplane make, model and variant)
    - registration of aeroplane
    - flight details which may be referred as training exercise(s) according to the training programme agreed by the CAD
    - single- or multi-engine
    - total time of flight
    - accumulated total time of flight

- b. For each synthetic flight trainer session:
  - type of training device
  - details of instruction which may be referred as training exercise(s) according to the training programme agreed by the CAD
  - date (d/m/y) and total time of each session
  - accumulated total time
  
- c. Pilot function
  - flight time during which the flight instructor on board the aircraft will only observe the student acting as pilot-in-command and must not influence or control the flight of the aircraft should be logged as SPIC. SPIC may be credited as pilot-in-command time.
  - flight time of successful sampling flights conducted by CAD Authorised Inspectors, progress tests and flight tests should be logged as PIC U/S (PI U/S).
  - P U/T denotes pilots receiving dual instruction.
  
- d. Instrument time
  - includes instrument flight time and instrument ground time
  - a pilot may log as instrument flight time only that time during which he operates the aircraft solely by reference to instruments, under actual or simulated instrument flight conditions.
  - The instrument flight time logged to meet the licence requirements will be less than the chock-to-chock IF instruction time by an allowance to cover ground manoeuvring times and any period spent using external references available between start and take-off and the completion of the landing roll.
  
- e. Operational conditions
  - Night
  - IFR

23.2 All approved course flight and synthetic flight training are to be clearly identified by reference to the training programme agreed by the CAD which should include details of the exercises.

- 23.3 All entries in students' logbooks are to be certified as being correct at the end of each course by the Head of Training or his designated representative(s). In addition, the Chief Synthetic Flight Instructor is to certify as correct the synthetic flight training in the students' logbooks.
- 23.4 Flight instructor's logbooks must include a monthly summary of all flying time which clearly distinguishes approved course instructional flying from other flying.

## **24 TRAINING PROGRAMME**

- 24.1 A training programme covering all aspects of the course is required. This programme is to include a breakdown of flying and ground training in either a week-by-week or phase presentation, a list of standard exercises and a syllabus summary. The content and layout of the training programme is to be agreed with the CAD.
- 24.2 The training programme should form part of the Training Manual.
- 24.3 Upset Prevention and Recovery Training (UPRT) should be included in the relevant section of the training programme for on- aeroplane training; as well as the non-type specific training in the Multi-Crew Cooperation (MCC) course (for FTO choose to adopt the alternative means of compliance under paragraph 41) in accordance with ICAO Doc 10011.
- 24.4 The training programme should cover the training element and include in progress tests with NDB, VOR, LOC and other non-precision approaches (including those under PBN classifications). The training and testing of approaches mentioned in this sub-paragraph can be conducted in a synthetic flight trainer subject to the prior agreement by CAD.

## **25 COURSE OBJECTIVE**

- 25.1 The aim of the CPL/IR(A) integrated course is to train pilots to the level of proficiency necessary to operate single-pilot multi-engine aeroplanes in commercial air transportation and to obtain the HK CPL(A) and IR(A).

## 26 FLYING TRAINING (FLIGHT AND SYNTHETIC FLIGHT TRAINING)

26.1 The flying training must comprise a total of at least 200 hours flight time in aeroplanes which may include all flying tests.

26.2 In addition, the following requirements must be met:

- a. At least 100 hours of dual instruction time which must include at least 10 hours of dual instrument flight instruction in aeroplanes; and
- b. At least 90 hours as pilot-in-command including at least 70 hours solo flight time and up to 20 hours flight time as student pilot-in-command (SPIC); and

Notes: SPIC must not be regarded as additional dual. If the instructor influences or controls any part of the flight, the student should log the whole flight as P U/T. None of the flight time on that particular flight may be claimed as SPIC.

- c. At least 50 hours of cross-country flight time as pilot-in-command including:
  - (i) at least 30 hours solo flight time; and
  - (ii) a VFR solo cross-country flight totalling at least 300 NM (540 km) in the course of which full stop landings at 2 aerodromes different from the aerodrome of departure must be made; and
  - (iii) up to 20 hours as SPIC; and
- d. At least 10 hours flight time in aeroplanes must be completed at night comprising at least 3 hours of dual instruction including at least one hour of cross-country navigation, and 5 hours solo including 5 solo take-offs and 5 solo full stop landings; and
- e. At least 100 hours of instrument time, which may contain up to 50 hours of instrument ground time in a synthetic flight trainer approved by the CAD.

- 26.3 Synthetic flight training must be integrated with flight training and theoretical knowledge instruction in a manner which will ensure that, as the various flying training exercises are conducted, students will be able to apply to them the knowledge gained from the synthetic flights. Arrangements should be made so that problems encountered in airborne instruction can be resolved during subsequent synthetic flight training.
- 26.4 Flying training should be so arranged that students do not normally receive instruction from more than 5 instructors throughout the period of the training course.
- 26.5 Flight authorisation should be confined to flight instructors employed by the FTO to give instructions on HK CPL/IR(A) integrated courses.
- 26.6 Authorisation Sheets, either in document or computer based formats must be used to record pre flight and post flight details and should normally include at least:
- a. the date;
  - b. the aircraft registration mark;
  - c. the names of the instructor and student;
  - d. the details of the exercise, the route to be flown and the aerodrome(s) to be visited;
  - e. the authorising instructor's initials or signature;
  - f. the initials or signature of the pilot-in-command both before and after the flight;
  - g. the intended duration of the flight;
  - h. the elapsed time of flight (take off to touchdown);
  - i. post flight recording of any deviation from the intended exercise, eg, cancellation or diversion due weather, etc.;
- 26.7 Technical Logs must be used to record fuel and oil states, and for post flight recording of any aircraft defects and subsequent recording of any rectification or deferring of these defects.

## **27 FLIGHT TESTING**

- 27.1 Students will undergo CPL(A) General Flying Test (GFT) consisting of Parts 1, 2 and 3 and the Instrument Rating Test (IRT), taken with CAD Authorised Examiners.
- 27.2 The syllabi for CPL(A) GFT and IRT are contained in CAD 54.

## **28 THEORETICAL KNOWLEDGE INSTRUCTION**

- 28.1 The integration of theoretical knowledge instruction with flight and synthetic flight instruction must be agreed with the CAD.
- 28.2 Theoretical knowledge instruction must be given in the form of lectures and practical demonstrations, which must be supported by up-to-date student study notes. 'Directed Study' in lieu of formal training will not be accepted. Student study notes should be prepared specifically to meet the needs of an ab-initio student pilot.
- 28.3 Distance learning (study by correspondence) will not be approved as part of an integrated course of training.
- 28.4 Students are to be prepared for the ground examinations in accordance with Appendix 2.

## **29 Invigilation of CAD Ground Examinations**

- 29.1 The dates for ground examinations for the grant of HK CPL(A) and IR(A) should be planned on a course-by-course basis and such examinations must be invigilated by CAD staff.
- 29.2 To allow time for CAD staff deployment, the FTO must give CAD at least 4 weeks' prior notification of any intended changes to the pre-planned examination dates.

### **30 TRAINING AIRCRAFT**

- 30.1 A fleet of training aircraft must be provided which will ensure the proper continuity of flying training for the number of students attending the course(s). The requirement for routine maintenance must be taken into account in determining fleet size. The fleet must comprise:
- a. single-engined aeroplanes for the ab-initio stage;
  - b. twin-engined aeroplanes for the advanced stage;
  - c. aeroplanes suitable for demonstrating stalling and spinning; and
  - d. aeroplanes equipped to permit flight under Instrument Flight Rules within Controlled Airspace.
- 30.2 Only aircraft types approved by the CAD for training purposes may be used on the course(s). The basic requirement for approval is that each aircraft must have a valid Certificate of Airworthiness in the Transport Category (Passenger) or an equivalent document in accordance with the State requirements and be maintained accordingly. The minimum requirements for course aeroplanes are specified in Appendix 5.
- 30.3 Aeroplanes used for the IR(A) flight test must be multi-engined and certificated for the carriage of four persons, have variable pitch propellers and retractable landing gear.
- 30.4 An FTO must seek prior approval from the CAD before making changes to the type(s) of aeroplanes used on the course.



## **31 SYNTHETIC FLIGHT TRAINERS**

- 31.1 All synthetic flight trainers when substituting for an aircraft for the exercises to be conducted are to be approved by the CAD.
- 31.2 Flight simulators must be approved by the CAD in accordance with CAD 453.
- 31.3 Flight procedures trainers intended to be used for training in basic instrument flight techniques and procedures, and for the gaining of the instrument ground time required by paragraph 26.2e must be approved by the CAD in accordance with in Appendix 3.

## **32 AERODROME**

- 32.1 The base aerodrome(s) at which training is conducted and any satellite aerodromes used must be licensed or approved for the purpose of training by its own State Authority and the environment of which must be suitable in every way for the course and types of aircraft to be used on the course.
- 32.2 The base aerodrome, and any alternative base aerodrome should have at least the following facilities:
- a. At least one runway or take-off area that allows training aeroplanes to make a normal take-off or landing at the maximum landing weight authorised, as appropriate,
    - (i) under calm wind (not more than 4 knots) conditions and temperatures equal to the mean high temperature for the hottest month of the year in the operating area,
    - (ii) clearing all obstacles in the take-off flight path by at least 50 feet,
    - (iii) with the powerplant operation and the landing gear and flap operation (if applicable) recommended by the manufacturer, and
    - (iv) with a smooth transition from lift-off to the best rate of climb speed without exceptional piloting skills or techniques;

- b. a wind direction indicator that is visible at ground level from the ends of each runway;
- c. permanent runway electrical lighting if used for night training; and
- d. an air traffic control service

### **33 FLIGHT OPERATIONS ACCOMMODATION**

33.1 The following accommodation is required:

- a. An Operations Room with facilities to control flying operations;
- b. A Flight Planning Room including
  - (i) appropriate current maps and charts
  - (ii) current AIS information
  - (iii) current meteorological information
  - (iv) communications to ATC and the Operations Room
  - (v) maps showing standard cross-country routes
  - (vi) maps showing current Prohibited, Danger and Restricted areas;
- c. furnished briefing rooms/cubicles of sufficient size and number;
- d. room(s) to allow flying instructors to write reports on students, complete records, etc;
- e. furnished crew-rooms for instructors and students;
- f. lavatory and washing facilities.

- 33.2 Lecture rooms of adequate size relative to the maximum student capacity, each including a black (or white) board and model aircraft with working controls should also be available.
- 33.3 A machine room or rooms shall be provided where synthetic flight trainers are used.
- 33.4 All operational and training rooms are to be suitably equipped and furnished with proper provision for heating, light and ventilation and are not to be combined with any accommodation used continuously for the purpose of administering the FTO.

#### **34 THEORETICAL KNOWLEDGE INSTRUCTION FACILITIES**

- 34.1 Adequate environmental control must be provided in all classrooms which must also be protected from external noise and distractions.
- 34.2 Lavatory and washing facilities must be available. Where Flight Operations accommodation and theoretical knowledge instruction facilities are co-located, a single facility of adequate size may be acceptable.
- 34.3 Suitable demonstration equipment should be available to support the theoretical knowledge instruction. This should include sectioned components and instruments, appropriate wall diagrams, transparencies, slides, models, systems demonstration equipment, mock ups and can include computer generated graphics.

## 35 OPERATIONAL PUBLICATIONS

- 35.1 In addition to the documents required by the State Authority of the FTO, the following operational publications must be immediately available to students and staff and, where applicable, kept current by amendments.
- a. Air Navigation (Hong Kong) Order 1995
  - b. HK Aeronautical Information Publication including Class I and II NOTAMs
  - c. CAD 54 – Requirements Document for Pilot Licences and Associated Ratings
  - d. HK Aeronautical Information Circulars
  - e. Flight Manuals for the aircraft used on the course
  - f. ICAO ATC Flight Plan
  - g. Standard meteorology reports and forecasts (in document or computer based formats)
  - h. Flight planning documents including flight guide supplements, radio navigation charts. TMA/CTR arrival/departure charts and aerodrome Instrument Approach Procedure charts. These may be in proprietary flight guides acceptable to the CAD, e.g. AERAD, Jeppesen.
- 35.2 A copy of the Flight Manual or an extract therefrom acceptable to the CAD and an approved Check List must be made available to each student. Extracts from the Flight Manual produced by the FTO must not be in conflict with the Flight Manual.

## **36 HEALTH AND MEDICAL CERTIFICATION ARRANGEMENTS**

- 36.1 Emergency medical treatment must be available for staff and students during working hours.

## **37 STUDENTS**

- 37.1 A student accepted for training must possess a Hong Kong Class 1 Medical Certificate throughout the whole course.
- 37.2 In deciding course entrance requirements, which must be acceptable to the CAD, organisations should note that for integrated courses, theoretical knowledge instruction should be integrated with flight training in such a way as to prepare the student for each of the flight training exercises in turn. The syllabus is designed to prepare the student for the ground examinations. Failure to absorb the theoretical knowledge training in step with the course programme will make it more difficult for the student to benefit from the flying training exercises and, eventually, to pass the flight tests and theoretical knowledge examinations to qualify for grant of the licence. It is in the student's interests therefore, that he has an educational background sufficient to enable him to keep pace with the theoretical knowledge training programme without undue difficulty. A good command of English and certain minimum standards for knowledge of Mathematics and Physics would be desirable.
- 37.3 It is expected that the CAD would approve courses in English. FTOs should therefore ensure that students, for whom English is a second language, have an acceptable standard of spoken and written English before admitting them to a course.
- 37.4 The FTO must be satisfied that a student attending the course has acquired an acceptable academic standard.
- 37.5 The students must be subjected to a selection programme, either administered by the sponsoring AOC holder or the FTO, to ensure that the students achieve the minimum entry level commensurate with commercial pilot's skill set and requirements. The selection programme should contain such elements including but not limited to pilot aptitude test or flight grading, proficiency in communication, psychometric test and medical fitness assessments.

- 37.6 During the integrated course of training, the FTO shall monitor the students' training progress, and when grades or progress falls significantly short of required minimum levels, advise them on their admissibility or suitability for continuing on the integrated course. The training programme must progress in accordance with the approved training footprint and deviation from the footprint should be avoided except for unforeseeable operational difficulties, e.g. inclement weather, breakdown of facilities or equipment, etc.

### **38 ABRIDGED COURSES OF TRAINING**

- 38.1 The FTO may apply to the CAD for conducting an abridged course of training tailored for AOC Sponsored students with previous flying experience. An assessment will be issued specifying the flying and ground training required. The HT may then formulate an abridged syllabus which must be approved by the CAD prior to course commencement.

### **39 OPERATIONS AND TRAINING MANUALS AND ORDER BOOKS**

- 39.1 An FTO applying for approval must prepare and maintain an Operations Manual and a Training Manual containing the necessary information and instructions to enable staff to perform their duties and to give guidance to students on how to comply with course requirements. The CAD must be satisfied that the information required by this paragraph and by Appendices 6 and 7 is available in written form to staff and students as appropriate.

#### **39.2 Operations Manual**

The Operations Manual must provide relevant information to particular groups of staff, eg. flight instructors, synthetic flight instructors, ground instructors, operations and maintenance staff, etc. Typical information to be included in the Operations Manual is at Appendix 7.

#### **39.3 Training Manual**

The Training Manuals must define the flight, simulated flight and ground training syllabi and cover the items listed at Appendix 6.

#### 39.4 Flying Orders

- a. One of the purposes of the Operations Manual is to provide essential safety related operational information designed for everyday use by flight instructors and students. If so preferred by the FTO, such information may be grouped together in the form of specific instructions called Flying Orders. Guidance on content and layout are at Appendix 8.
- b. Flying Orders must be issued and signed by the Head of Training and must show the date on which they were first issued or amended.
- c. All flight instructors should sign as having read all orders at least once a year and also whenever a new order is published. All students should sign at the beginning of their flying training and whenever a new order is published thereafter until the end of the course. FTO should ensure that all instructional staff and students should familiarise themselves with the content of amended orders.
- d. The amendment policy and procedure must be stated and temporary orders or amendments catered for by use of Instructor or Student Order Books.

### **40 QUALITY SYSTEM**

- 40.1 An FTO seeking approval should establish procedures acceptable to the CAD to ensure compliance with requirements set out in this document. These procedures should include a Quality System within the organisation to readily detect any deficiencies for self-remedial action. Guidance information for assisting FTOs to develop a Quality System is given in Appendix 10.

### **41 ALTERNATIVE MEANS OF COMPLIANCE TO THEORETICAL KNOWLEDGE REQUIREMENTS AND FLYING TRAINING REQUIREMENTS**

- 41.1 This section provides an alternative means of compliance to the requirements as described in the relevant sections in this document on the approval of an integrated course of training provided by a FTO.

- 41.2 The Theoretical Knowledge (TK) requirements as described in **Appendix 11A** of this document can be considered as an alternative means of compliance to Appendix 2 Paragraphs 1 and 2 of this document. The successful completion of the TK phase of the training utilising the syllabus in **Appendix 11A** and passing the corresponding licensing examinations can also be considered as an alternative means of compliance to Part 3 Chapter 1 Paragraph 1.7, Part 3 Chapter 2 Paragraph 2.7.1, Part 3 Chapter 7 Paragraph 7.1 and Part 3 Appendix B of the document CAD54 – “*Requirements Document – Pilot Licences and Associated Ratings*” regarding the TK pre-requisites for the issue of a Hong Kong CPL(A) and an Airline Transport Pilot’s Licence (Aeroplanes) (ATPL(A)).
- 41.3 The flying training hours requirements as described in **Appendix 11B** of this document can be considered as an alternative means of compliance to Paragraphs 26.1 and 26.2 of this document.
- 41.4 The course structure for the flying training as described in **Appendix 11C** of this document can be considered as an alternative means of compliance to Appendix 1 of this document.
- 41.5 The successful completion of the flying phase of the training and flight tests fulfilling the requirements as per **Appendix 11B and 11C** can be considered as an alternative means of compliance to Part 3 Chapter 1 Paragraph 1.6 and Part 3 Chapter 10 Paragraph 10.4 of the CAD54 document regarding the flying hours conditions for the issue of a Hong Kong CPL/IR(A).
- 41.6 The MCC course
- a. Flight Simulated Training Device (FSTD) used for MCC course will have to be either certified under EASA requirements for FNPT II for MCC or a Full Flight Simulator (FFS).
  - b. MCC instructor must be an EASA qualified MCC instructor or have an equivalent qualification; or a qualified Type Rating Instructor of a multi-crew aircraft. In either case, the FTO is responsible to provide such training for MCC instructor to obtain the MCC instructor qualification and to maintain a recency of instructor in the FSTD use for training and instructor’s standardisation. All such requirements must be defined in the FTO’s operations manual. Records of instructor recency and qualifications must be maintained by the FTO.



- c. MCC training syllabus and training details must be clearly defined in the FTO's training manual and fulfill the requirement as per Appendix 11.
- d. Subject to the type of FSTD use, it is appropriate to include the UPRT elements in accordance to the ICAO Doc 10011.

## **APPENDIX 1      FLIGHT INSTRUCTION SYLLABUS FOR THE HK CPL/IR(A) INTEGRATED COURSE**

The flying instruction is divided into 4 phases:

### **Phase 1**

1. Exercises up to the first solo flight comprise a total of at least 10 hours dual flight instruction on a single-engine aeroplane including:
  - a. pre-flight operations, weight and balance determination, aeroplane inspection and servicing;
  - b. aerodrome and traffic pattern operations, collision avoidance and precautions;
  - c. control of the aeroplane by external visual references;
  - d. normal take-offs and landings;
  - e. flight at critically slow airspeeds, recognition of and recovery from incipient and full stalls, spin avoidance; and
  - f. unusual visual attitudes and simulated engine failure.

### **Phase 2**

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:
  - a. maximum performance (short field and obstacle clearance) take-offs, short-field landings;
  - b. flight reference solely to instruments, including the completion of a 180-degree turn;

- c. dual cross-country flying using external visual references, dead-reckoning and radio navigation aids, diversion procedures;
- d. aerodrome and traffic pattern operations at different aerodromes;
- e. cross-wind take-offs and landings;
- f. abnormal and emergency operations and manoeuvres, including simulated aeroplane equipment malfunctions;
- g. operations to, from and transiting controlled aerodromes, compliance with air traffic services procedures, radio telephony procedures and phraseology; and
- h. knowledge of meteorological briefing arrangements, evaluation of weather conditions for flight and use of Aeronautical Information Services (AIS).

### **Phase 3**

- 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 pilot-in-command.
- 4. The dual instruction and testing up to the VFR navigation progress test should contain the following:
  - a. repetition of exercises of Phases 1 and 2;
  - b. VFR flight at relatively critical high airspeeds, recognition of and recovery from spiral dives;
  - c. VFR navigation progress test conducted by a flight instructor not connected with the applicant's training;

## Phase 4

5. Exercises up to the CPL GFT and the instrument rating flight test (IRT) comprise:
- a. at least 100 hours instrument time, which may contain up to 50 hours of instrument ground time in an approved synthetic flight trainer which must be conducted by a flight instructor and/or an authorised synthetic flight instructor, and;
  - b. night flight including take-offs and landings as PIC;
  - c. 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;
  - d. procedures 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 to land;
  - e. in flight manoeuvres and particular flight characteristics; and
  - f. operation of a multi-engine aeroplane in the exercises of sub-paragraphs d. and e. above, including operation of the aeroplane solely by reference to instruments with one engine simulated inoperative, and engine shut down and restart; (the latter exercise at a safe altitude unless carried out in an approved synthetic flight trainer).

## APPENDIX 2 THEORETICAL KNOWLEDGE SYLLABUS FOR THE HK CPL/IR(A) INTEGRATED COURSE

1. The course of training must give the student a sound basic knowledge of the subjects shown in the CPL(A) and IR(A) examination syllabi in CAD 54.
2. The theoretical knowledge instruction must comprise at least 625 hours of instruction, which should include classroom work, interactive video, slide/tape presentation, learning carrels, computer based training, and other media as accepted by the CAD, but excluding student private study. The hours should broadly be allocated as follows:

<i>Subject</i>	<i>Instructional Hours</i>
Aviation Law, Flight Rules and Procedures	60
Flight Planning	50
Navigation	135
Instruments	30
Radio and Radar Aids	30
Meteorology	70
Radiotelephony/Communications	30
Signals	20
Principles of Flight	30
Engines	30
Electrics and Automatic Flights	25
Airframe Systems	20
Performance	60
Loading	10
Human Performance and Limitations	25
	<hr/>
	625
	<hr/>

3. Adequate time should be allocated to practical work, classroom exercises, progress tests, revision, demonstrations, films etc. It is estimated that this may amount to some 40% of the total time. The actual balance between total hours, lectures, practical work, revision etc, must be made by the FTO.

## **APPENDIX 3      GUIDANCE FOR APPROVAL OF FLIGHT PROCEDURES TRAINERS**

### **1      MINIMUM REQUIREMENTS FOR FLIGHT PROCEDURES TRAINERS TO BE USED FOR TEACHING BASIC INSTRUMENT FLIGHT AND RADIO NAVIGATION PROCEDURES**

- 1.1      The trainer should provide an enclosed flight deck environment typical of any single or multi-engine aeroplane.
- 1.2      All relevant instrument indication required for basic instrument flight should respond automatically to control movements at the correct rate and in the correct sense. Flight instruments must include artificial horizon, air speed indicator, 2 altimeters (with correctly functioning sub-scale), vertical speed indicator, turn and slip indicator or turn co-ordinator, compass, directional gyro and clock. The standard layout for main flight instruments should be used. Representative lag should be included where appropriate. Provision should be made for simulation of Limited Panel and Partial Panel conditions.
- 1.3      The trainer should be programmed so that the effects of aerodynamic changes for various combinations of thrust and drag normally encountered in flight are representative of those experienced in flight in the type/class of aeroplane on which the simulation is based. If the simulation is based on a multi-engined aeroplane, the effects of asymmetric thrust should also be represented.
- 1.4      Engine controls, including anti-ice controls and instrumentation, should function normally.
- 1.5      Typical flight control feel should be simulated.
- 1.6      Communication systems and navigation systems (VOR/ILS, ADF, 75 MHz marker, DME and Transponder) should be provided whereby R/T, navigation, airways and approach procedures can be practised and radio aids identified.

- 1.7 It should be possible to insert wind velocities into the simulation and the flight instruments should appear to respond to selectable light to moderate turbulence. It is recommended that consideration be given to the installation of a simple motion system to improve simulation of turbulence.
- 1.8 An instructor station must be provided from which training exercises can be adequately monitored and controlled.

## **2 INFORMATION REQUIRED PRIOR TO ON-SITE EVALUATION**

- 2.1 The following information has to be submitted to the CAD prior to an on-site evaluation to enable the Authorised Inspector to assess and compare it to the type or class of aeroplane being represented:
  - a. manufacturer's name and year of manufacture;
  - b. type or class of aeroplane represented;
  - c. diagrams of the flight deck layout, flight instruments and controls (suitably sized photographs may meet this requirement);
  - d. a description of the ground station data provided in the simulation and an indication of the procedure necessary for making changes when data alters.

## **3 EVALUATION**

- 3.1 An on-site evaluation by the Authorised Inspector will consist of an evaluation of the handling and performance of the trainer as compared to the generic type or class of aeroplane it represents. Also checked will be compliance with all relevant requirements of this document, examination of the training establishment and facilities, and an assessment of the instructional standards being maintained. Instructor(s) will be observed by the Authorised Inspector whilst conducting a training exercise or exercises.

- 3.2 On completion of a satisfactory evaluation, the Authorised Inspector will approve the use of the flight procedures trainer for the HK CPL/IR(A) integrated course.
- 3.3 The CAD must be advised of any hardware or software modifications made since a previous evaluation; this will include changes to ground station data.



## **APPENDIX 4 FINANCIAL EVALUATION OF THE FTO – EVIDENCE OF SUFFICIENT FUNDING**

### **1 OBJECTIVE**

1. The objective of this Appendix is to serve as guidance notes for the CAD to be satisfied that the FTO has sufficient funding available to conduct training to the approved standards. However, it is not intended to be a consumer protection provision. The grant and renewal of an approval cannot therefore be construed as a guarantee of the underlying financial soundness of the FTO. It is an indication, on the basis of financial information provided, that the approved FTO can provide sufficient facilities and qualified staff such that flying training can be, or can continue to be, provided in accordance with the requirements set out in this document.

### **2 APPLICATION FOR GRANT OR RENEWAL OF APPROVAL**

- 2.1 Any application for initial grant or renewal of approval 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 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.

2.2 The plan submitted in support of an application for initial grant or renewal of approval is to be accompanied by a Financial Statement from the applicant's (FTO'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 HK CPL/IR(A) approved courses. Should the applicants wish to extend their activities in addition to those described in the plan, an appropriately revised Financial Statement will be required to be submitted to the CAD for consideration.

### 3 ONGOING FINANCIAL MONITORING

3.1 After approval has been granted, if the CAD has reason to believe that the necessary course standards are not being met or may not be met due to an apparent lack of financial resources, the CAD 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 CAD. Any such submission is to be accompanied by a further Financial Statement signed by the approved organisation's bankers or auditors.

3.2 The CAD may also require a Financial Statement if it appears to the CAD that operation of the approved course(s) is significantly at variance with the proposals contained in the application.

## **APPENDIX 5      REQUIREMENTS FOR AEROPLANES TO BE USED ON HK CPL/IR(A) INTEGRATED COURSES**

### **1      DOCUMENTATION AND CERTIFICATION**

1.1 All aeroplanes for use on an integrated course for HK CPL/IR(A) must have a valid Certificate of Airworthiness (C of A) in the Transport Category (Passenger) or the equivalent in accordance with the State requirements.

1.2 All aeroplanes must be maintained in accordance with the appropriate maintenance schedule and the following documentation must be available for inspection by the CAD Inspection Team:

- a. Aircraft, Engine and Propeller Log Books as appropriate;
- b. Certificates of Airworthiness and Registration;
- c. Weight and Balance Schedules;
- d. Certificates of Maintenance Release or equivalent;
- e. Radio Licences and Radio Installation Approvals or equivalent;
- f. Flight Manuals.

1.3 In addition to the items at paragraph 1.2 above, the record of hours and days remaining to the next maintenance check and the record of rectification or deferring or previously reported defects must be readily available for scrutiny by pilots before each flight.

### **2      AIRCRAFT REQUIREMENTS**

2.1 All aeroplanes to be used on the course must first be approved by the State Authority for training purposes and must also be acceptable to the CAD. The minimum requirements of the CAD are as follows:

- 2.2 Each aeroplane must be fitted with duplicated primary flying controls for use by the instructor and the student. Swing-over flight controls are not acceptable.
- 2.3 All flight, engine and associated ancillary instruments, as required by the AN(HK)O 1995, HKAR-1 and Airworthiness Notices must be fitted. These instruments must be readily visible to both the instructor and the student when sitting normally in their customary seats with seat belts and diagonal shoulder straps or safety harness fastened.
- 2.4 Trim controls, wheel brakes, flap controls, undercarriage controls (if applicable), all engine controls, fuel controls and cabin fire extinguisher must be either duplicated or positioned so that they are accessible to both the instructor and student when sitting normally in their customary seats with seat belts and diagonal shoulder strap or safety harness fastened. Some single-engined aeroplanes with fuel controls fitted on the port side and not readily accessible to the instructor may be acceptable.
- 2.5 Each aeroplane must be equipped with a VHF Transceiver with 760 channels at 25 kHz spacing, controllable from the student's and the instructor's stations. However, aeroplanes used for the Instrument Rating Test must be fitted with two VHF Transceivers. Two-way electrical intercommunication must be fitted which permits the monitoring from one station of RTF communication made from the other, for use by the instructor and the student. All in-flight communications must be carried out using headsets. All radio apparatus must satisfy the requirements of ICAO Annex 10, Vol. 1, Part 1 and any current national requirements.
- 2.6 In addition to meeting the provisions of the HKAR-1, each single-engined aeroplane must be equipped in accordance with AN(HK)O 1995 Schedule 5 Scales A, B (i ), C, F (i ) (ii) (iii) and must have a turn and slip indicator (or turn co-ordinator and slip indicator), a gyroscopic bank and pitch indicator, a gyroscopic direction indicator and a sensitive pressure altimeter adjustable for changes in barometric pressure.
- 2.7 Aeroplanes used for stall/spin awareness and avoidance must be equipped in accordance with AN(HK)O 1995 Schedule 5 Scale B(iii) unless exempted.

- 2.8 In addition to meeting the provisions of the HKAR-1, each twin-engined aeroplane must be equipped in accordance with the AN(HK)O 1995 Schedule 5 Scales A, B, C, D, E and F (i) (ii) (iii) with E(iv) duplicated and in accordance with the AN(HK)O 1995 Schedule 6 Scales A, C, D, E, F and G. The signals from the 75 MHz receiver must be audible as well as visible and a separate ON/OFF switch should normally be readily available to the instructor. If no ON/OFF switch is available then a suitable means of obscuring the marker lights and removing the audio signal should be provided.
- 2.9 A stopwatch readily available for use by the student in flight must be provided. This may be part of the aeroplane equipment, failing which a stop watch holder must be provided.
- 2.10 A means of screening the student from external reference must be provided to simulate instrument flying (IF) conditions. Head-worn visors or similar devices are not normally acceptable. Screening should meet the following requirements:
- a. permit visual take-off;
  - b. preclude the use by the student of any external reference when in simulated IF conditions within an arc of 60 degrees either side of the student's straight ahead view;
  - c. allow both the student and the instructor unimpeded access to all controls and an unrestricted view of the instruments, especially the magnetic compass;
  - d. be angled to ensure minimum interference to the all-round lookout from the normal seating position of the instructor;
  - e. be simple to erect and remove in flight and be constructed of a frangible but durable material.

- 2.11 Devices for blanking-off the Artificial Horizon/Attitude Indicator and the heading reference indicators must be provided for limited panel IF training. These screens must be angled to provide the instructor with full panel reference.

### **3 AIRCRAFT INSPECTION**

- 3.1 The aircraft will be inspected for condition and compliance with this Appendix for the purpose of approval. Aircraft may be subject to routine inspections during the course of, or for renewal of, approvals. Approval will be withdrawn if aeroplanes fail to meet the requirements of this Appendix.

## APPENDIX 6 TYPICAL INFORMATION TO BE INCLUDED IN TRAINING MANUALS

Training Manuals for use at an FTO conducting approved integrated CPL/IR(A) courses should be divided into sections, as necessary, containing the following information:

### PART 1 - THE TRAINING PLAN

The aim of the course	A statement of what the student is expected to be able to do as a result of the training, the level of performance to be achieved, and the training constraints to be observed.
Pre-entry requirements	Minimum age Education requirements (including language) Medical requirements
Credits for previous flying experience	To be obtained from the CAD before training begins.
Customer requirements	A full statement of any additions to the minimum approval requirements
Training syllabi	The flying syllabus (single-engine) The flying syllabus (multi-engine) The synthetic flight training syllabus The theoretical knowledge training syllabus
The time 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) eg 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 sorties 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) Requirements before first solo day/night/navigation etc
Tests and examinations	Flying (a) Progress checks (b) Qualifying tests Theoretical knowledge (a) Progress tests (b) Qualifying examinations Rules concerning refresher training before retest Test reports and records
Training effectiveness	Individual responsibilities. General assessment. Liaison between departments. Identification of unsatisfactory progress (individual students). Action 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.
Air exercise reference list	An abbreviated list of the above exercise giving main and sub- titles only for quick reference, and preferably in flip-card form to facilitate daily use by flight instructors.
Course structure - phases of training	A statement of how the course will be divided into phases, indicating 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, state the syllabus hours for each phase and for groups of exercises within each phase 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 requirement	The requirement for student progress including 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. Also, minimum experience requirements in terms of hours, satisfactory exercise completion, etc as necessary before the commencement of significant exercises, eg night flying.
Instructional methods	The FTO 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 Qualifying test report forms FTO certificates of experience, competence etc, as required.

### **PART 3 - SYNTHETIC FLIGHT TRAINING**

Structure generally as for Part 2 and to include lesson plans.

### **PART 4 – THEORETICAL KNOWLEDGE INSTRUCTION**

Structure generally as for Part 2 but with a training specification and objectives for each subject. Lesson plans should be available and should include mention of the specific training aids available for use.

## **APPENDIX 7 TYPICAL INFORMATION TO BE INCLUDED IN OPERATIONS MANUALS**

Operations Manuals for use at an FTO conducting approved integrated CPL/IR courses should include the following information:

### **OPERATIONS MANUAL (GENERAL)**

- a. A list and description of all volumes in the Operations Manual
- b. Administration (function and management)
- c. Responsibilities (all management and administrative staff)
- d. Student discipline and disciplinary action
- e. Approval/authorisation of flights
- f. Preparation of flying programme (restriction of numbers of aeroplanes in poor weather)
- g. Command of aeroplane - responsibilities of aircraft commander
- h. Carriage of passengers
- i. Aircraft documentation
- j. Retention of documents
- k. Flight crew qualification records (licences and ratings)
- l. Revalidation (medical certificates, licences and ratings)
- m. Flying duty period and flight time limitations (flying instructors)
- n. Flying duty period and flight time limitations (students)
- o. Rest periods (flying instructors)
- p. Rest periods (students)
- q. Pilot's log books
- r. Flight planning (general)
- s. Aeroplane maintenance and technical logs
- t. Aeroplane to be maintained to Public Transport standards
- u. Safety (general) - equipment, radio listening watch, hazards, accidents and incidents (including reports), safety pilots etc.

### **OPERATIONS MANUAL (TECHNICAL)**

- a. Aeroplane descriptive notes
- b. Aeroplane handling (including checklists, limitations, aircraft maintenance and technical logs, etc)
- c. Emergency procedures
- d. Radio and radio navigation aids
- e. Allowable deficiencies

### **OPERATIONS MANUAL (ROUTE)**

- a. Performance (legislation, take-off route, landing etc)
- b. Flight planning (fuel, oil, minimum safe altitude, navigation equipment etc)
- c. Loading (loadsheets, weight, balance, limitations)
- d. Weather minima (flying instructors)
- e. Weather minima (students - at various stages of training)
- f. Training routes/areas

### **OPERATIONS MANUAL (STAFF TRAINING)**

- a. Appointments of persons responsible for standards/competence of flying staff
- b. Initial training
- c. Refresher training
- d. Standardisation training
- e. Proficiency checks
- f. Upgrading training/tests
- g. FTO staff standards evaluation

## **APPENDIX 8 TYPICAL INFORMATION TO BE INCLUDED IN FLYING ORDERS**

### Notes:

1. Orders must not conflict with the AN(HK)O 1995. They should not simply require observance of the law, but may require reading of/familiarity with the law's provision.
2. The format below need not be followed precisely but all orders should be written as such and not merely for information.
3. Each flying order is to be individually signed and dated by the HT his designated representative.
4. An Index to Sections in the Flying Orders should be included.

### **SECTION I – AUTHORISATION AND DOCUMENTATION**

1. Flight authorisation and authorisation sheets.
2. Completion of technical log and notification of defects.
3. Requirements for solo flying.
4. Possession of current licence.
5. Regulations for carriage of passengers.
6. Compilation of pilot's log books.

## **SECTION II – AIRCRAFT HANDLING ORDERS**

1. Aircraft checks before flight – those not included in standard check lists.
2. Precautions when starting engines.
3. Running up procedures.
4. Turns after take-off.
5. Unusual manoeuvres (and spinning if included in the course).
6. Practice forced landing.
7. Low flying regulations.
8. Instrument flying – actual and simulated.
9. Go-around action.
10. Refueling procedure.
11. Practice asymmetric flights.

## **SECTION III – GENERAL FLYING ORDERS**

1. Minimum altitude/flight levels for training (stalling and spinning if in the course).
2. Weather minima for local flying and cross country flights including maximum wind and cross-wind limitations – dual and solo.
3. Preparation for cross country exercises and navigation flights.
4. Safety Altitude.

5. Action when uncertain of position.
6. Action when lost.
7. Landing at unauthorised or unintended destination.
8. Care of aircraft away from base.
9. Forced landing – aeroplane damaged.
10. AUW and C of G limitations and weight and performance limitations.
11. Flying over the sea.
12. Consumption of alcohol and taking of other drugs before flight.
13. State of health.
14. Night flying – supervision.
15. Wake turbulence.

#### **SECTION IV – RULES OF THE AIR AND ATC**

1. Aerodrome opening hours.
2. Taxying procedures.
3. Signals square and signals/instructions from ATC.
4. Circuit procedures.
5. Local flying area.
6. Prohibited and danger areas.

7. Look-out near and within the circuit.
8. Action after landing.
9. Use of RTF.
10. Local anti-noise requirements.
11. Night flying – ATC and emergencies.
12. Letter of agreement.
13. Requirement to abide by conditions of aerodrome licence.
14. Infringements of controlled airspace.

## **SECTION V – CHECK LISTS**

All pilots must be in possession of a copy of the handling notes and check-lists as used by the FTO and be required to abide by them. If necessary check-lists may be written into the Flying Orders under this Section. Handling notes and check lists must not contradict anything set out in the approved Flight Manual which forms part of the C of A. For legal purposes, check lists are part of the Operations Manual.

## **SECTION VI – EMERGENCY DRILLS**

1. Engine failure after take-off.
2. Crash action.
3. Fire in the air.
4. Fire on the ground.



5. Forced landing without power.
6. Forced landing with power.
7. Ditching.
8. Radio failure.

Note : All these Orders are self-explanatory and even if they are contained in Handling Notes/Check Lists it may be useful to repeat them in this section.

### **SECTION VII – ACCIDENT, INCIDENT AND AIRPROX REPORTING**

1. Reminder of the local legal requirement to report notifiable accidents.
2. Requirement to report occurrences and use of local system.
3. Requirement to report an AIRPROX.

### **SECTION VIII – LOCAL REGULATIONS**

1. Smoking prohibitions.
2. Care of flying equipment.
3. Disciplinary action for breach of local orders and regulations.
4. Indemnity for personal injury.
5. General administration.

Note: Section VIII may be placed under separate cover to cater for purely FTO rules and regulations.

## APPENDIX 9 SAFETY MANAGEMENT SYSTEM (SMS)

### I. INTRODUCTION

This appendix specifies the framework for the implementation and maintenance of a safety management system (SMS) by a FTO. An SMS is a management system for the management of safety by an organisation. The framework includes four components and twelve elements representing the minimum requirements for SMS implementation. The implementation of the framework shall be commensurate with the size of the organisation and the complexity of the services provided. This appendix also includes a brief description of each element of the framework.

1. Safety policy and objectives
  - 1.1 Management commitment and responsibility
  - 1.2 Safety accountabilities
  - 1.3 Appointment of key safety personnel
  - 1.4 Coordination of emergency response planning
  - 1.5 SMS documentation
2. Safety Risk Management
  - 2.1 Hazard Identification
  - 2.2 Safety Risk Assessment and Mitigation
3. Safety Assurance
  - 3.1 Safety Performance Monitoring and Measurement
  - 3.2 The Management of Change
  - 3.3 Continuous Improvement of the SMS
4. Safety Promotion
  - 4.1 Training and Education
  - 4.2 Safety Communication

## II. SMS COMPONENTS

### 1. Safety Policy and Objectives

#### 1.1 Management Commitment and Responsibility

The FTO shall define the organisation's safety policy which shall be in accordance with international and national requirements, and which shall be signed by the accountable executive of the organisation. The safety policy shall reflect organisational commitments regarding safety; shall include a clear statement about the provision of the necessary resources for the implementation of the safety policy; and shall be communicated, with visible endorsement, throughout the organisation. The safety policy shall include the safety reporting procedures; shall clearly indicate which types of operational behaviours are unacceptable; and shall include the conditions under which disciplinary action would not apply. The safety policy shall be periodically reviewed to ensure it remains relevant and appropriate to the organisation.

#### 1.2 Safety Accountabilities

The FTO shall identify the accountable executive who, irrespective of other functions, shall have ultimate responsibility and accountability, on behalf of the FTO, for the implementation and maintenance of the SMS. The FTO shall also identify the accountabilities of all members of management, irrespective of other functions, as well as of employees, with respect to the safety performance of the SMS. Safety responsibilities, accountabilities and authorities shall be documented and communicated throughout the organisation, and shall include a definition of the levels of management with authority to make decisions regarding safety risk tolerability.

#### 1.3 Appointment of Key Safety Personnel

The FTO shall identify a safety manager to be the responsible individual and focal point for the implementation and maintenance of an effective SMS.

#### 1.4 Coordination of Emergency Response Planning

The FTO shall ensure that an emergency response plan that provides for the orderly and efficient transition from normal to emergency operations and the return to normal operations, is properly coordinated with the emergency response plans of those organisations it must interface with during the provision of its services.

#### 1.5 SMS Documentation

The FTO shall develop an SMS implementation plan, endorsed by senior management of the organisation, that defines the organisation's approach to the management of safety in a manner that meets the organisation's safety objectives. The FTO shall develop and maintain SMS documentation describing the safety policy and objectives, the SMS requirements, the SMS processes and procedures, the accountabilities, responsibilities and authorities for processes and procedures, and the SMS outputs. Also as part of the SMS documentation, the FTO shall develop and maintain a safety management systems manual (SMSM), to communicate its approach to the management of safety throughout the organisation.

### 2. **Safety Risk Management**

#### 2.1 Hazard Identification

The FTO shall develop and maintain a formal process that ensures that hazards in operations are identified. Hazard identification shall be based on a combination of reactive, proactive and predictive methods of safety data collection.

#### 2.2 Safety Risk Assessment and Mitigation

The FTO shall develop and maintain a formal process that ensures analysis, assessment and control of the safety risks in training operations.

### 3. **Safety Assurance**

#### 3.1 Safety Performance Monitoring and Measurement

The FTO shall develop and maintain the means to verify the safety performance of the organisation, and to validate the effectiveness of safety risks controls. The safety performance of the organisation shall be verified in reference to the safety performance indicators and safety performance targets of SMS.

#### 3.2 The Management of Change

The FTO shall develop and maintain a formal process to identify changes within the organisation which may affect established processes and services; to describe the arrangements to ensure safety performance before implementing changes; and to eliminate or modify safety risk controls that are no longer needed or effective due to changes in the operational environment.

#### 3.3 Continuous Improvement of the SMS

The FTO shall develop and maintain a formal process to identify the causes of substandard performance of the SMS, determine the implications of substandard performance of the SMS in operations, and eliminate or mitigate such causes.

### 4. **Safety Promotion**

#### 4.1 Training and Education

The FTO shall develop and maintain a safety training programme that ensures that personnel are trained and competent to perform the SMS duties. The scope of the safety training shall be appropriate to each individual's involvement in the SMS.

#### 4.2 Safety Communication

The FTO shall develop and maintain formal means for safety communication that ensures that all personnel are fully aware of the SMS, conveys safety critical information, and explains why particular safety actions are taken and why safety procedures are introduced or changed.

## **APPENDIX 10    QUALITY SYSTEM**

### **1        INTRODUCTION**

- 1.1    An FTO approved by the CAD to conduct integrated CPL/IR(A) courses is required to establish a quality system to readily detect any deficiencies for self remedial action.
- 1.2    The information in the paragraphs to follow is based upon principles for Quality Systems laid down in, amongst others, the International Standards Organisation (ISO) 9000 series of standards. FTOs may find it helpful to use such internationally recognised standards to help them develop their own Quality Systems.

### **2        BACKGROUND**

- 2.1    The development of a Quality System helps to formalise and clarify the complementary nature of the roles of the CAD on the one hand and the FTO on the other, in relation to safety. The CAD is and will continue to be responsible for drawing up, in concert with others, the requirements and for overall compliance surveillance with those requirements and with the law. The FTO is responsible for the safety of its operations and for compliance with the requirements and the law.

### **3        QUALITY SYSTEM CONCEPT**

- 3.1    A Quality System may be characterised as a means of ensuring that activities conform to standards specified by the organisation (which must not be less than those specified in the requirements and the law).
- 3.2    It should embrace all aspects of the organisation to which the Quality System applies including the organisational structure, responsibilities, procedures and resources for implementing quality management. In developing a Quality System consideration should be given to at least the following:
  - (a)    establishing a Quality Policy;
  - (b)    establishing Quality Plans and a Quality Manual (which may form part of the Operations Manual);
  - (c)    identifying and establishing: standards, procedures, responsibilities, processes, resources, skills and internal inspection methods and a Quality Assurance Programme;

- (d) verifying the continuing acceptability of set standards;
- (e) ensuring compliance of activities and procedures with standards set down in applicable documentation;
- (f) establishing procedures for handling non conformity;
- (g) establishing a methodology for updating procedures, quality control, quality audits/inspections and testing;
- (h) identifying and preparing quality (system) records, and;
- (i) appointing a Quality manager reporting directly to the General Manager.

3.3 The Quality System should be an integral part of the organisation. However, to ensure objective monitoring of the quality system the Quality Manager should be independent of the normal organisational structure. This applies also to any personnel assigned to assist the Quality Manager on a permanent or temporary basis.

3.4 This independence relates to:

- Direct line reporting;
- The authority given to the Quality Manager and personnel assigned to him;
- Access to all parts of the organisations.

3.5 The Quality Manager should monitor the procedures specified in the Training and Operations Manual/Flying Orders to ensure compliance with the law, requirements and the organisations own additional standards.

3.6 At the completion of quality audit/inspections, reports should be produced and should include details of non-compliance with requirements, standards and procedures.

3.7 The quality system should include a feedback system to the Head of Training 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 remedial action is not completed within an appropriate time scale.

#### **4. TERMS**

##### **4.1 Quality Inspection**

An inspection is the act of observing a particular event or action to ensure that correct procedures and requirements are followed during the accomplishment of that event.

##### **4.2 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.

##### **4.3 Quality Manager**

The manager responsible for the monitoring function and for requesting remedial actions.

##### **4.4 Quality System**

The organisational structure, responsibilities, procedures and resources for implementing quality management.

##### **4.5 Quality Policy**

The overall quality intentions and direction of a company as regards quality, as formally expressed by the accountable manager.

##### **4.6 Quality Manual**

The document containing the relevant information pertaining to the operator's quality system and quality assurance programme.

##### **4.7 Quality Assurance**

All those planned and systematic actions necessary to provide adequate confidence that a product or service will satisfy given requirements for quality.

## APPENDIX 11A ALTERNATIVE MEANS OF COMPLIANCE TO THE THEORETICAL KNOWLEDGE REQUIREMENTS

1. 750 hours of instruction including classroom work, interactive video, slide or tape presentation, learning carrels, computer-based training, and other media as so approved, in suitable proportions.
2. The 750 hours of instruction should be divided in such a way that in each subject the minimum hours are:
  - a. Air law - 40 hours
  - b. Aircraft general knowledge - 80 hours
  - c. Flight performance and planning - 90 hours
  - d. Human performance and limitations - 50 hours
  - e. Meteorology - 60 hours
  - f. Navigation - 150 hours
  - g. Operational procedures - 20 hours
  - h. Principles of flight - 30 hours
  - i. Communications - 30 hours

### Remarks:

- (i) The syllabi of the TK subjects are the same as the European Aviation Safety Agency (EASA) syllabus for the issue of Airline Transport Pilot Licence (Aeroplane) (ATPL(A)). Details can be found in Subpart D Section (a) of the EASA Acceptable Means of Compliance and Guidance Material to Part-FCL (Annex to ED Decision 2011/016/R).
- (ii) The Flying Training Organisation concerned is required to submit an analysis on the differences between the EASA syllabus and the Hong Kong syllabus on air law, aircraft technical and flight Performance for CAD's consideration.

- (iii) Depending on the analysis as required by point (ii) above and any special course arrangements accepted by the CAD prior to the commencement of the training, candidates may still need to complete some theoretical knowledge examinations with syllabi as described in the current edition of CAD54 document.
- (iv) The alternative mean of compliance stated in this Appendix will only be accepted with the alternative examination arrangements agreed by CAD.

## **APPENDIX 11B ALTERNATIVE MEANS OF COMPLIANCE TO THE FLYING TRAINING REQUIREMENTS**

1. The flying 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:-
  - 1.1 95 hours of dual instruction, of which up to 55 hours may be instrument ground time;
  - 1.2 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;
  - 1.3 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. The cross-country flight time as SPIC shall only be counted as PIC flight time up to a maximum of 20 hours;
  - 1.4 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;
  - 1.5 115 hours of instrument time comprising, at least:
    - 1.5.1 20 hours as SPIC;
    - 1.5.2 15 hours MCC, for which an FFS or FNPT II may be used (the MCC course shall also include at least 25 hours of theoretical knowledge instruction and exercises);
    - 1.5.3 50 hours of instrument flight instruction, of which up to:
      - 1.5.3.1 25 hours may be instrument ground time in a FNPT I; or
      - 1.5.3.2 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.
  - 1.6 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.

## APPENDIX 11C ALTERNATIVE MEANS OF COMPLIANCE TO THE FLYING TRAINING STRUCTURE

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 single-engined 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.

### 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.

### 3. 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.
  - (H) in-flight manoeuvres and specific flight characteristics;

- (I) operation of an multi-engined 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).

**4. Phase 5:**

- (i) instruction and testing in MCC comprise the relevant training requirements;
- (ii) if a type rating for multi-pilot aeroplanes is not required on completion of this part, the applicant will be provided with a certificate of course completion for MCC training.