Singapore Air Safety Publication

Part 10

Approval of an Aviation Training Organisation

FOREWORD

Pursuant to paragraph 20(14) of the Air Navigation Order (ANO), this Singapore Air Safety Publication (SASP) contains the requirements for the approval of an Aviation Training Organisation, under paragraph 20(13)(c) of the ANO, to provide flight training to individuals who are qualifying for the issue of a Singapore flight crew licence and/or rating. Any organisation applying for or holding the Certificate of Approval granted or renewed under the ANO shall comply with these requirements and all amendments which may be made from time to time.

2   Provided for under paragraph 60 of the ANO, failure to comply with any of these requirements may result in suspension or the revocation of the approval.

3   Amendments to the SASP Part 10 will be notified through Notice of Amendment (NOA) and shall take effect from the date stipulated in the NOAs.

4   Queries pertaining to this publication should be referred to:

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AMENDMENTS

The space below is provided to keep a record of amendments.

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CHAPTER 1   AVIATION TRAINING ORGANISATION

1.1   Aviation Training Organisation (ATO) Approval

1.1.1   Introduction

1.1.1.1   Pursuant to paragraph 20(14)(d) of the Air Navigation Order (ANO), this document prescribes the requirements for an ATO approval granted by the DGCA to an organisation providing flight training for persons qualifying for the issue of a Singapore professional pilot licence and/or rating.

1.1.1.2   The ATO is further classified into Flying Training Organisation (FTO) and Type Rating Training Organisation (TRTO). The aviation training organisation seeking approval to conduct the relevant training course(s) shall comply with all the requirements applicable in this document.

1.1.1.3   The ATO shall be staffed, equipped, and operated in a suitable environment offering flying training, and/or synthetic flight instruction and, if applicable, theoretical knowledge instruction for specific flight training programs.

1.1.2   Application Process for Obtaining an ATO Approval

1.1.2.1   An application for an ATO approval shall be made in a form and manner prescribed by the DGCA and submitted with the training organisation's manuals.

1.1.2.2   The application process shall cover the approval of the following:

- Organisational structure
- Designated Accountable Mmanager
- Qualifications of instructors and key personnel
- Facilities including but not limited to classrooms, briefing rooms, operations facilities
- Maintenance facilities (where appropriate)
- List of aircraft types and/or flight simulation training devices
- Training programmes including but not limited to manuals, curricula, outlines, courseware
- Procedures, and documentation
- Availability of training equipment and facilities
- Renewal procedures
- Quality Assurance system
- Operations Manual
- Sites or airports where training flight may commonly originate
- Safety Management System (where applicable)

    Note: The Safety Management System is only applicable to organisations that are exposed to safety risks related to aircraft operations during the provision of their services.

1.1.2.3   *-deleted-*

1.1.2.4   The Certificate of Approval authorising the ATO to conduct the training course(s) will
           contain the following:

- Name of Organisation
- Location
- Training course(s)
- Terms of approval
- Date of issue and period of validity

1.1.3   Issuance of the ATO Approval

1.1.3.1   The issuance of the ATO approval to a training organisation will depend upon the
           training organisation being in compliance with the requirements contained in this
           document.

1.1.3.2   An approval granted by the DGCA shall be valid for such period as the DGCA
           determines but shall not be more than one year.

1.1.4   Renewal of the ATO Approval

1.1.4.1   The DGCA may, at any time, for the purpose of ascertaining whether the course of
           training to which an application, a certificate or an approval relates is being, or will be,
           carried out in a satisfactory manner or for any other purpose:

(a)   inspect the facilities;

(b)   observe the conduct of a course of training; or

(c)   inspect and copy any training records, authorisation sheets, technical logs,
       lecture, study notes and briefings.

1.1.4.2   The DGCA may renew an ATO approval for such period as he determines but shall not
           be more than one year.

1.1.5   Changes in the Scope of the Approval

1.1.5.1   Any changes that affect the scope of their approval, for example, inclusion of new
           training or amending an existing training programme to take advantage of new training
           equipment/ technology or facilities shall be subjected to the DGCA's approval. The
           applicant shall provide the supporting information including the justification for
           assessment.

1.1.6   Revocation, Suspension or Variation of the Approval

1.1.6.1   In accordance with paragraph 60 of the ANO, an approval issued may be revoked,
           suspended or varied if 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.

1.1.6.2   Should there be a failure to meet one or more of the approval requirements after the
           initial approval has been granted, the ATO will be formally notified of the non-
           compliance and, if necessary, the approval may be subjected to restrictions to permit the
           remedial action identified to be taken. Should the ATO fail to meet the standards

required in the time given, revocation, suspension or variation of the approval shall be considered.

1.2   Operations Manual (OPM)

1.2.1   Requirements for OPM

1.2.1.1   The ATO shall provide and maintain an approved OPM for the use and guidance of personnel concerned.

1.2.1.2   *-deleted-*

1.2.1.3   The OPM shall describe the way the organisation conducts its activities. As such it is a document which is essential for the organisation as it provides the management and line personnel with clear guidance on the policy of the organisation as well as the procedures and processes which are used to provide training. During the approval process, the OPM will be used to assess whether the way the organisation is planning to operate is in line with the regulatory requirements.

1.2.2   General Considerations

1.2.2.1   The contents of all operational documents, including the OPM, shall be consistent with each other, as well as with the regulations, manufacturer requirements and Human Factors principles. The manual shall be used consistently across all departments within the organisation.

1.2.2.2   The requirements for the design, development, maintenance or review of an OPM are spelt out in the paragraphs below.

1.2.3   Contents

1.2.3.1   The OPM shall cover the following:

(a)   a general description of the scope of training authorised under the organisation's terms of approval;

(b)   the content of training programmes offered including the courseware and equipment to be used;

(c)   a description of the organisation's facilities;

(d)   the name, duties and qualification of the person designated as responsible for compliance with the requirements of the approval;

(e)   a description of the duties and qualification of the personnel designated as responsible for planning, performing and supervising the training;

(f)   a description of the procedures used to establish and maintain the competence of instructional personnel as required;

(g)   a description of the method used for the completion and retention of the training records as required;

(h)   a description, when applicable, of additional training needed to comply with an operator's procedures and requirements; and

(i)   a description of the selection, role and duties of the personnel within the aviation training organisation authorised by the DGCA to conduct the testing required for the issuance of a licence or rating.

Note: Depending on the size and scope of training provided by the organisation, some of the elements above may be combined or subdivided further.

1.2.3.2   A suggested contents structure of an OPM for an ATO can be found in Appendix A.

1.2.4   Organising the Manual

1.2.4.1   The OPM shall be organised according to criteria relating to information, importance and use. The information shall be structured and sequenced so that operational personnel can access it easily. These principles shall help determine whether to issue the manual as a single document or in separate parts. When the OPM is organised in separate parts, it shall include a master index to help locate information included in more than one part. The master index shall be placed in the front of each document.

1.2.4.2   The manual shall be consistent with the training organisation's philosophy, policies, procedures and practices.

1.2.5   Design

1.2.5.1   The structure of the manual shall be easy to understand, appropriate for the information documented and clearly identified through headings and other formatting devices. The document structure shall be identified at its beginning by explaining organising elements such as headings, the numbering scheme, main parts of the document and other sources of coding or grouping.

1.2.5.2   Precise language shall be used wherever possible. Consistent terms for common items and actions shall be maintained throughout the manual. Terms shall be clear and easily understood.

1.2.5.3   Writing style, terminology, formatting, and use of graphics and symbols shall be consistent throughout the document. This includes the location of specific types of information and consistent use of units of measurement and codes.

1.2.5.4   The manual shall include a glossary of terms, acronyms, abbreviations and associated definitions. The glossary shall be updated on a regular basis to ensure access to the most recent terminology.

1.2.5.5   The revision process shall be considered when designing the manual for ease of amendment and distribution.

1.2.5.6   The OPM shall comply with the requirements of the training organisation's quality assurance system.

1.2.6   Validation

1.2.6.1   The OPM shall be reviewed and tested under realistic conditions before its use. The validation process shall include using the critical aspects of the information contained in the manual to verify its effectiveness.

1.2.6.2   A final review of the manual shall be carried out to ensure that all required topics have been addressed with the appropriate level of detail for users. The final review shall also confirm compliance with regulations, manufacturers' recommendations and the organisation's philosophy, policies, procedures and practices.

1.2.7   Monitoring

1.2.7.1   The training organisation shall monitor use of the OPM after its release. This shall ensure appropriate use of the manual, based on the operational environment, in a way that is operationally relevant and beneficial to the personnel for whom it is intended. This monitoring shall include a formal feedback system to obtain input from principal users of the manual and other persons who may be affected by a new or revised policy, procedure or practice.

1.2.8   Amendment

1.2.8.1   The training organisation shall develop an effective information gathering, review, distribution and revision control system to process information obtained from all sources relevant to the organisation.

> *Note: Manufacturers provide information for the operation of specific aircraft that emphasises the aircraft systems and procedures under conditions that may not fully match the requirements of the training organisation. Training organisations shall ensure that such information meets their specific needs and requirements prescribed by the DGCA.*

1.2.8.2   The training organisation shall develop an information review, distribution and revision control system to process information resulting from changes that originate within the organisation. This includes changes:

(a)   in the organisation's policies, procedures and practices;

(b)   in response to operating experience;

(c)   to the scope of training provided;

(d)   to the content of training programmes;

(e)   resulting from the installation of new equipment;

(f)   to an approval document or operating certificate; and

(g)   for the purpose of maintaining standardisation.

1.2.8.3   The OPM shall be reviewed in association with other operational documents that form the organisation's flight safety documents system:

(a)   at least once a year;

(b)   following major events including but not limited to mergers, acquisitions, rapid growth, downsizing;

(c)   following technology changes, e.g. the introduction of new equipment; and

(d)   following changes in safety regulations.

1.2.8.4   Permanent changes to the OPM shall be communicated through a formal amendment process. The training organisation shall amend or revise the OPM as necessary to ensure that the information contained is kept up to date.

1.2.8.5   Distribution of amendments and revisions shall include a tracking system. The tracking system shall include some form of log combined with a procedure to ensure that all amendments are furnished promptly to all organisations or persons to whom the manual has been issued.

1.3   Quality Assurance System

1.3.1   Purpose of a Quality Assurance System

1.3.1.1   The purpose of a quality assurance system is to ensure consistency in the training that complies with the standards set out in the ATO's manuals and the requirements prescribed by the DGCA, thus promoting continual improvement of the quality of training provided.

1.3.1.2   The ATO is required to establish standards, plan activities and document procedures to support such standards, train the personnel involved before implementing the documented procedures and to measure the outcomes of the activities to ensure that they meet standards and expected results. When non-compliance exists, corrective actions shall be taken to improve processes and procedures.

1.3.1.3   The instructions and information contained in the following paragraphs provide guidance on the quality assurance system that each ATO shall establish in accordance with the requirements prescribed by the DGCA.

1.3.2   Elements of a Quality Assurance System

1.3.2.1   The ATO shall establish a quality assurance system which shall include, as a minimum, the following elements:

(a)   organisation's training policy;

(b)   approval and maintenance of the Quality Manual;

(c)   training and flight safety standards;

(d)   allocation of responsibility;

(e)   resources, organisation and operational processes;

(f)   system to ensure conformance of training with the policy and flight safety standards;

(g)   system for identifying deviations from policy and standards and taking corrective action; and

(h)   evaluation and analysis of experiences and trends concerning policy, training and flight safety standards, in order to provide feedback into the system for the continual improvement of the quality of training.

1.3.3   The Quality Assurance System of the ATO

1.3.3.1   The ATO shall ensure the Quality Manual is approved by the DGCA and is readily available to its staff.

1.3.3.2   Details on the contents of a quality assurance system for an ATO can be found in Appendix B of this document.

1.4   Facilities

1.4.1   The training organisation shall have facilities appropriate to the size and scope of the intended operations provided in an environment conducive to learning. These shall include, as a minimum, the following:

(a)   flight operations room or area;

(b)   flight planning room or area;

(c)   adequate briefing room(s);

(d)   facilities for instructors;

(e)   classrooms;

(f)   suitable demonstration equipment;

(g)   library; and

(h)   radio telephony training and testing area (if appropriate).

1.4.2   The training organisation shall have, or have access to, the necessary information, equipment, training devices and material to conduct the courses for which it is approved.

1.5   Personnel

1.5.1   The training organisation shall nominate a person as the Accountable Manager who is responsible for ensuring that the training organisation is in compliance with the requirements for an ATO. The accountable manager shall also satisfy the DGCA that sufficient funding is available to conduct training to the approved standard.

1.5.2   The training organisation shall employ the necessary personnel to plan, perform and supervise the training to be conducted. Depending on the size and scope of the training organisation, combination of some of the key positions may be permitted by the DGCA. Key positions include:

(a)   Accountable Manager

(b)   Head of Training/ Chief Instructor

(c)   Chief Flight Instructor (If applicable)

(d)   Chief Ground Instructor

(e)   Instructors – ground, flight and synthetic

(f)   Maintenance Manager

(g)   Quality Manager

1.5.3   The competence of instructional personnel shall be established in the ATO's OPM and shall be to a level acceptable to the DGCA.

1.5.4   The training organisation shall ensure that all instructional personnel receive initial and continuation training appropriate to their assigned tasks and responsibilities. The training programme established by the training organisational shall include training in knowledge and skills related to human performance.

1.6   Requirements for Entry to Training

1.6.1   A student/ trainee shall meet the requirements of the relevant Singapore Air Safety Publications (SASPs) before he is accepted into the training organisation.

1.6.2   The requirements for entry to training would include, but are not limited to, the stipulated minimum age and medical requirements.

1.7   Records

1.7.1   Accurate and complete record-keeping is an important aspect of complying with the approval. It is also an essential tool for the ATO to ensure the continuity and consistency of its training. Detailed records on the following shall be maintained:

(a)   student/ trainee qualifications, training, and checking/ testing;

(b)   qualifications and training of instructional and examining staff, where appropriate; and

(c)   key personnel changes.

1.7.2   The records required by 1.7.1(a) shall be kept for a minimum period of five years after completion of the training. The records required by 1.7.1(b) shall be retained for a minimum period of five years after the instructor or examiner ceases to perform his function for the training organisation. The records required by 1.7.1(c) shall be kept for a minimum period of five years after the change comes into effect.

1.7.3   The record keeping system of an ATO shall have the following characteristics:

(a)   Completeness: The records kept by the training organisation shall be sufficient to provide documentary evidence of each training action and allow the reconstruction of the training history of each student/ trainee or instructor in the organisation.

(b)   Integrity: It is important to maintain the integrity of records in ensuring that they are not removed or altered. A backup system of the records is also necessary to ensure continuity in case of a major disaster.

1.7.4   Each training organisation shall also establish procedures acceptable to the DGCA on archiving personal records that are non-active.

1.8   Evaluation and Checking

1.8.1   **Authorised Flight Examiner**

1.8.1.1   The ATO shall ensure that sufficient Authorised Flight Examiners (AFEs) are appointed to conduct flight tests. The ATO may nominate its staff, who is appropriately qualified in accordance with SASP 7, to the DGCA to be appointed as AFEs.

1.8.2   Should the evaluation function for the purpose of the issue of a licence or rating be carried out by an AFE, there shall be appropriate procedures in place to avoid situations where the person giving the instruction is also responsible for evaluating the student/ trainee on completion of the instruction.

1.8.3   The AFE requirements are published in the SASP Part 7.

1.9   Safety Management System

1.9.1   The aviation training organisation that is exposed to safety risks during the provision of its services shall implement a safety management system acceptable to the DGCA that:

(a)   Identifies safety hazards;

(b)   Ensures the implementation of remedial action necessary to maintain agreed performance;

(c)   Provides for continuous monitoring and regular assessment of the safety performance; and

(d)   Aims at a continuous improvement of the overall performance of the safety management system.

1.9.2   The framework for the implementation and maintenance of a safety management system must include, as a minimum, the elements as listed on Appendix H.

1.9.3   A safety management system shall clearly define lines of safety accountability throughout the training organisation, including a direct accountability for safety on the part of senior management.

1.9.4   The safety management system shall commensurate with the size and complexity of the ATO's operations.

CHAPTER 2   FLYING TRAINING ORGANISATIONS

2.1   Flying Training Organisation (FTO) Approval

2.1.1   Introduction

2.1.1.1   A Flying Training Organisation (FTO) is an organisation staffed, equipped and operated in a suitable environment, which offers instruction in theoretical knowledge and flying training for specific training programmes that lead to the issuance of a professional pilot licence and/or endorsement of ratings such as Aircraft Rating, Instrument Rating and Flying Instructor Rating for aircraft types certificated for single-pilot operation.

2.1.1.2   Any organisation who wishes to provide such courses of training or instruction is required to hold the FTO approval. This chapter sets out the additional requirements and procedures for the issue and renewal of an approval of a training course and the training staff of a FTO.

2.1.2   Obtaining Approval

2.1.2.1   A FTO seeking the DGCA's approval for its proposed course shall apply to CAAS Licensing Section of the Safety Policy & Licensing Division. The application shall be accompanied by an Operations Manual, Quality Manual, Training Manual and Flying Order Book together with an outline set of student study notes and a full description of the Training Programme.

2.1.2.2   After consideration of the application and associated documents, the FTO will be inspected to ensure it meets the requirements set out in this document. Subject to the inspection meeting the requirements, the approval granted to the FTO to conduct the course shall be valid for a maximum period of one year.

2.1.2.3   *-deleted-*

2.1.2.4   Renewal of the approval will be considered following annual inspection visits. During these inspections the FTO shall be required to show that the necessary standards have been maintained throughout the approval period. The emphasis shall change from the initial inspection's primary concern regarding the organisation, appointments and provision of facilities, to checking the quality of the instruction being given and of flight operations as conducted. Besides checking that the required facilities continue to be provided, the inspection shall also cover the safety of flight operations and the day-to-day conduct of training.

2.1.2.5   If a FTO wishes to change the conditions under which the approval was granted, the DGCA's approval shall be obtained in advance before the changes are brought into effect and further inspections may be necessary to ensure that the approval can continue under the revised arrangements. A FTO need not, however, inform on minor changes.

2.1.3   Operations Manual (OPM), Training Manuals (TM) and Flying Order Book (FOB)

2.1.3.1   A FTO applying for approval shall be required to prepare the OPM, TM and FOB 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 FTO shall make available to staff and, where appropriate, to students the information

contained in the OPM, TM and FOB. The amendment procedure shall be stated and amendments properly controlled.

2.1.3.2   In addition to the OPM requirements in Chapter 1, the OPM shall also provide relevant information to particular groups of staff including but not limited to flight instructors, synthetic flight instructors, ground instructors, operations and maintenance staff. The information to be included in the OPM may be found in Appendix A.

2.1.3.3   The TM shall define the flying, synthetic flight and ground training syllabi. It shall also state the standards, objectives and training goals for each phase of training that the students are required to comply with and shall also include the items listed in Appendix C.

2.1.3.4   The FOB shall provide essential safety related operational information designed for everyday use by instructors and students. The contents of the FOB shall not be used for the dissemination of general information, but shall consist of specific instructions. Guidance on content and layout is given in Appendix D.

2.1.3.5   All instructors and students shall be aware of the existing orders and be informed of subsequent revisions.

2.1.4   Management and Staffing

2.1.4.1   A management structure shall ensure supervision of all grades of staff by persons having the experience and qualities necessary to ensure the maintenance of the highest professional standards in aviation flight training. Details of this management structure, indicating individual responsibilities, shall be included in the OPM.

2.1.4.2   The FTO shall satisfy the DGCA that an adequate number of full-time staff is employed and inform on all changes of training staff.

2.1.4.3   Chief Instructor (CI)

2.1.4.4   The FTO shall appoint a Chief Instructor (CI) acceptable to the DGCA. The CI shall be responsible for the co-ordination of the ground and flying training ensuring satisfactory incorporation of flying, synthetic flight and ground training as well as supervising the progress of individual students. He shall also be responsible for monitoring staff standards and performance. In addition to having extensive experience in pilot training and possessing a sound managerial capability, the CI shall:

(a)   hold a valid Singapore ATPL or CPL/IR with ATPL knowledge;

(b)   hold a valid Flight Instructor Rating appropriate to the aircraft types used on the course;

(c)   hold current aircraft type ratings for all aircrafts to be used on the course;

(d)   have at least 3,000 hours as a pilot-in-command (PIC);

(e)   have at least 1,000 hours on ab-initio flying instructional duties, including at least 100 hours on instrument instructional duties on both single and multi-engine aircraft types.

2.1.5   Training

2.1.5.1   Training Programme

2.1.5.2   The FTO shall develop a training programme covering all aspects of the course and the FTO shall obtain DGCA's approval for the programme prior to implementation. The programme shall include a breakdown of flying, synthetic flight and ground training in a week-by-week or phase presentation, a list of standard exercises and a syllabus summary.

2.1.5.2A The FTO shall conduct the training in accordance with the approved training programme. The FTO shall obtain the DGCA's approval for any changes to the approved training programme prior to implementing the changes.

2.1.5.3   Flying Training and Synthetic Flight Training

2.1.5.4   The flying and synthetic flight training are to include sufficient hours for the students to meet the requirements specified in the SASP for licence and rating issue and is to be incorporated with ground training. The incorporation of flying, synthetic flight and ground training shall be approved by the DGCA. The minimum hours to be spent on particular aspects of training are specified in Appendix E.

2.1.5.5   Synthetic flight training shall be incorporated with flying and ground training in a manner which shall ensure that, as the various flying training exercises are carried out, the students shall be able to apply the knowledge gained from the synthetic flights. Arrangements shall be made so that problems encountered during flying training can be resolved during subsequent synthetic flight training.

2.1.5.6   The flying and synthetic flight training is to be so arranged that students do not receive instruction from multiple flying/ synthetic flight instructors at any one time to ensure consistency in the delivery of instruction.

2.1.5.7   Flight authorisation is required for all flights made for the purposes of the course. For such flights, Technical Log/ Flight Authorisation shall be used to record pre-flight and post-flight details. The Technical Log/ Flight Authorisation shall include, as a minimum, the following:

(a)   the date of the flight;

(b)   the aircraft registration mark;

(c)   the names of the instructor and student;

(d)   the detail 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 flight;

(g)   the intended duration of the flight;

(h)   the elapsed time of flight;

(i)   fuel and oil states;

(j)   post flight recording of any divergence from the intended exercise;

(k)   post flight recording of any aircraft defects and subsequent recording of the rectification or deferring of these defects.

2.1.5.8   Ground Training

2.1.5.9   Ground training may be given in the form of lectures, practical demonstrations or other means of delivery acceptable to the DGCA, supported by up-to-date student study notes and lesson plans. The study notes shall be written specifically to cater to an ab-initio student pilot. The Chief Ground Instructor (CGI) is required to anticipate the necessary preparation well in advance of the projected date of approval. "Directed Study" in lieu of formal training shall not be accepted. Students are to be prepared for ground examinations prescribed by the DGCA in accordance with Appendix F and the approved syllabus.

2.1.5.10   Abridged Courses of Training

2.1.5.11   If a student with previous flying experience or other relevant credentials wishes to apply for an abridged course of training, he shall seek approval from the DGCA in accordance with the SASP Part 2 requirements. He will be provided with an assessment on the flying and ground training required. The CI shall then formulate an abridged syllabus to meet the SASP Part 2 requirements.

2.1.6   Training Records and Logbooks

2.1.6.1   Administrative staff shall be employed to maintain a personal record for every student and instructor. The format of the students' training records shall be specified in the OPM. The personal record shall include:

(a)   personal particulars of the student;

(b)   a copy of the licence, the expiry date of the medical certificate;

(c)   records of any assessment for an abridged course;

(d)   records of students' academic achievements before and during the course;

(e)   detailed records of ground, flying and synthetic flight training given to individual students;

(f)   for each training flight, the date; the aircraft registration; the flight time; the exercises carried out; the instructor's name and written comments by the instructor on the student's performance; progress and other factors such as attitude and manner;

(g)   training in aircraft emergency procedures, to be recorded separately and displayed prominently;

(h)   progress tests, summary reports and the results of tests and examinations prescribed by the DGCA; (for all progress tests, students shall sign the report, acknowledging the debrief of the contents of the progress test carried out);

(i)   detailed and regular progress reports, based on individual reports from instructors, progress flight tests and ground examinations;

(j)   records of instructors' recurrent training and competency checks.

2.1.6.2   Similar records are to be maintained for synthetic flight training and ground training. All records are to be kept for a minimum of five years. Computer based records are to be backed up periodically.

2.1.6.3   Student pilots' log books shall, in addition to being kept in accordance with the ANO, clearly identify approved course flying from other flying and the exercises carried out on each flight shall be certified as being correct at the end of each course by the CI or Chief Flying Instructor (CFI).

2.1.6.4   Student logbooks shall also contain an accurate and separate record of synthetic flight training clearly identifying the exercises completed during each session and shall be certified as being correct by either the CI, CFI or Chief Synthetic Flight Instructor (CSFI) at the end of the course.

2.1.6.5   Instructors' logbooks shall include a monthly summary of all flying time which clearly distinguishes approved course instructional flying from other flying.

2.1.6.6   The FTO shall submit training records and reports as and when required.

2.1.7   Facilities

2.1.7.1   Aerodrome

2.1.7.2   The aerodrome where the FTO is based at and its environment shall be suitable in every way for the course and aircraft types to be used on the course. An Air Traffic Control (ATC) Service shall be available at the aerodrome except where, with the DGCA's approval, the training requirements may be satisfied safely by other means of air/ground communications.

2.1.7.3   Flight Operations Accommodation

2.1.7.4   The operational accommodation for course approval shall be of a scale appropriate to the population of instructors and students. The following flight operations 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)   Notice to Airmen (NOTAM);

(iii)   current Aeronautical Information Services (AIS) information;

(iv)   current meteorological information;

(v)   maps showing standard cross-country routes;

<blockquote>

(vi)   current charts showing Prohibited, Danger and Restricted areas; and

(vii)   any other flight safety related materials.

</blockquote>

(c)   lecture rooms of adequate size relative to the maximum student capacity, including a white board and model aircrafts with working controls;

(d)   sufficient number of individual briefing rooms/ enclosed cubicles, to contain at least a table, 2 chairs and a white board;

(e)   suitable offices for the supervisory staff which allow flying instructors to write reports on students, complete records, etc;

(f)   furnished crew-rooms for instructors and students;

(g)   a machine room for synthetic flight training; and

(h)   lavatory and washing facilities.

2.1.7.5   All operational and training rooms are to be suitably equipped and furnished with proper provision for heating, lighting and ventilation and may not be combined with any accommodation used continuously for the purpose of administering the FTO.

2.1.7.6   Medical equipment shall be available to all staff and students during emergencies.

2.1.7.7   Ground Training Facilities

2.1.7.8   The ground training facilities shall, if applicable, be co-located with the flying training facilities of the FTO.

2.1.7.9   Adequate classroom accommodation for the current student population shall be provided.

2.1.7.10   Suitable demonstration equipment shall be available to support the ground instruction. The equipment is to include sectioned components and instruments, appropriate wall diagrams, transparencies, slides, models, systems demonstration equipment and mock-ups.

2.1.7.11   Wherever possible, a radiotelephony (R/T) training and testing facility is to be provided for the students. In the absence of any R/T training and testing facilities, practical training on the aircraft shall be carried out in lieu of the unavailability of such facilities.

2.1.7.12   A reference library shall be available containing publications giving coverage of the syllabus.

2.1.7.13   There shall be a suitable office for the ground instructional staff and their course materials.

2.1.7.14   Adequate heating, or air-conditioning, ventilation and lighting shall be provided in all classrooms, which shall be shielded from external noise and distractions.

2.1.8   Operational Publications

2.1.8.1   The following operational publications shall be made immediately available to students and staff and, where applicable, kept current by amendments:

(a)   Singapore Air Navigation Order (ANO);

(b)   Aeronautical Information Publication and NOTAM including Aeronautical Information Circulars and AIP supplements;

(c)   Singapore Air Safety Publications (SASPs);

(d)   Flight Manuals, Owner's Manuals or Pilot's Operating Handbooks for the aircrafts used on the course;

(e)   Customs Documents (specimen or actual);

(f)   ATC Flight Plans;

(g)   Standard meteorology report and forecast documentation;

(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 DGCA, e.g. AERAD, Jeppesen.

2.1.8.2   A copy of the Flight Manual, Owner's Manual or Pilot's Operating Handbook or approved extract of these documents and an approved Check List shall be made available to each student. Extracts from the Flight Manual, Owner's Manual or Pilot's Operating Handbook produced by the FTO shall not be in conflict with the requirements of these documents.

2.2   Commercial Pilot Licence (CPL) Training Course

Unless applicants for the CPL have gained the minimum flying experience specified in SASP Part 2, or are otherwise exempted, they are required to complete a full-time course of training at a FTO providing approved training courses. A FTO wishing to offer such training shall obtain prior approval for its course, instructional staff and training equipment subject to such conditions as the DGCA deems necessary. The requirements for a CPL training course are as follows.

2.2.1   Flying Instructional Staff

2.2.1.1   Chief Flying Instructor (CFI)

2.2.1.2   The FTO shall appoint a Chief Flying Instructor (CFI) who is acceptable to the DGCA. The CFI shall:

(a)   hold a valid Singapore CPL/IR;

(b)   hold a valid Flight Instructor Rating appropriate to the aircraft types used on the course;

(c)   hold current aircraft type ratings for all aircrafts to be used on the course;

(d)   have at least 2,000 hours as a pilot-in-command (PIC); and

(e)   have at least 1,000 hours on ab-initio flying instructional duties, including at least 100 hours on instrument instructional duties on both single and multi-engine aircraft types.

2.2.1.3   The CFI shall be responsible to the CI for all flying training and for flight safety standards. (The latter function may be delegated to a Standards Instructor).

2.2.1.4   Standards Instructor(s)

2.2.1.5   Standards Instructor(s) shall assist the CFI in reviewing and ensuring the conformance of training to the flight standards. He shall:

(a)   hold a valid CPL/IR;

(b)   hold a valid Flight Instructor Rating appropriate to the aircraft types used on the course;

(c)   hold the appropriate aircraft type rating(s) in which instruction shall be given; and

(d)   have at least 500 hours on ab-initio flying instructional duties at an approved CPL/IR FTO.

2.2.1.6   Flying Instructor(s)

2.2.1.7   Sufficient approved Flying Instructors shall be employed to ensure the proper continuity of flying training on both single and multi-engine aircraft types for all students attending the course. The staff ratios at paragraph 2.2.1.12 shall be observed. Flying Instructors shall be acceptable to the DGCA and shall:

(a)   hold a valid CPL/IR;

(b)   hold a valid Flight Instructor Rating appropriate to the aircraft types used on the course; and

(c)   hold the appropriate aircraft type rating(s) in which instruction shall be given.

2.2.1.8   Notwithstanding paragraph 2.2.1.7, in the case of an FTO operating outside Singapore, flying instructors who hold non-Singapore professional licences may be employed for this purpose. Such instructors shall:

(a)   hold at least a valid CPL, issued by the national aviation authority which contains valid Instrument and Flight Instructor Ratings;

(b)   hold the relevant rating(s) for the aircraft type(s) in which instruction shall be given; and

(c)   pass a competency check on their instructional and aircraft handling skills conducted by either the CI or CFI.

2.2.1.9   The flying instructors shall pass an annual competency check on their instructional and aircraft handling skills conducted by either the CI or CFI.

2.2.1.10   The maximum number of students undergoing flying training shall not exceed 6 per flying instructor. A student who has entered flying training having completed full-time ground school shall be included in the ratio calculation until he has completed the approved course.

2.2.2   Synthetic Flight Instructional Staff (If applicable)

2.2.2.1   Chief Synthetic Flight Instructor (CSFI)

2.2.2.2   The FTO may appoint a Chief Synthetic Flight Instructor (CSFI) acceptable to the DGCA. The CSFI shall be responsible to the CI for all synthetic flight training including the monitoring of synthetic flight training standards, synthetic flight training incorporation and student records. The CSFI shall:

(a)   hold, or have held, a CPL/IR(A) or ATPL(A);

(b)   hold, or have held, a Flight Instructor Rating or other equivalent instructional experience acceptable to the DGCA, for example, have at least two years' experience as a Synthetic Flight Instructor (SFI) at a FTO approved to conduct courses for the Instrument Rating or equivalent;

(c)   pass a competency check carried out by the CI or CFI which shall include synthetic flight instructional knowledge and technique with regards to the type(s) of Flight Simulation Training Device (FSTD) used in the course and in respect of giving instruction for the Instrument Rating.

2.2.2.3   Synthetic Flight Instructors (SFIs)

2.2.2.4   Sufficient SFIs shall be employed to ensure the proper continuity of synthetic flight training for all students attending the course. The DGCA's agreement shall be obtained before full-time or part-time SFIs are employed. The SFIs shall:

(a)   hold, or have held, a CPL/IR(A) or ATPL(A);

(b)   have suitable civil or military instructional experience, acceptable to the DGCA, in both basic and procedural instrument flying and complete a course of instruction on the type(s) of FSTD to be used on the course, to cover the operation of the FSTD and the instruction to be given as per the synthetic flight training syllabus;

(c)   pass a competency check carried out by either the CI, CFI or CSFI which shall include a synthetic flight instructional knowledge and technique with regards to the type(s) of FSTD to be used in the course and in respect of giving instruction for the Instrument Rating.

Note: Flying Instructors may carry out the functions of a SFI.

2.2.2.5   SFI approvals shall be revalidated annually. For revalidation, synthetic flight instructors shall have conducted one part of a complete synthetic flight instrument rating course or

received sufficient refresher training as an SFI to the satisfaction of either the CI, CFI or CSFI;

2.2.2.6   SFIs shall not normally instruct for more than 1,000 hours in any 12-month period.

2.2.3   Ground Instructional Staff

2.2.3.1   Chief Ground Instructor (CGI)

2.2.3.2   The FTO shall appoint a Chief Ground Instructor (CGI) acceptable to the DGCA. The CGI shall be responsible for the supervision of all ground instructors, standardisation of all ground training, maintenance of training records and the programming of student ground exams.

2.2.3.3   The CGI shall have a practical background in aviation and have undergone a course of training in instructional techniques or have had extensive previous experience in giving ground instruction.

2.2.3.4   Ground Instructors

2.2.3.5   Ground Instructors teaching ground examination subjects prescribed by the DGCA shall have appropriate experience in aviation and shall, before appointment, demonstrate their competency by giving a test lecture based on materials they have developed for the subject(s) they are to teach. The ground examination subjects are listed in Appendix F.

2.2.3.6   Sufficient ground instructors, including the CGI, shall be employed. Classes in subjects involving a high degree of supervision of practical work or extensive use of demonstration equipment shall normally not exceed 20 students.

2.2.3.7   Ground instructors shall not exceed 23 teaching hours in any one week or an average of 18 teaching hours per week in any continuous 12-month period. In the context of ground instructors taking part in courses outside the teaching curriculum, the teaching hours committed to the course shall be proportionally reduced.

2.2.3.8   The agreement of the DGCA shall be obtained before dedicated ground instructors are employed on ancillary courses and before part-time staff instructs in the ground examination subjects.

2.2.4   Training Equipment

2.2.4.1   Training Aircraft

2.2.4.2   All training aircraft used for flight training and tests shall:

(a)   have a valid Singapore Certificate of Airworthiness or a Certificate of Airworthiness used by the State in which the aircraft is based; and

(b)   be acceptable to the DGCA.

2.2.4.3   A sufficient number of training aircraft shall be provided by the FTO to achieve proper continuity of flying training for the number of students attending the course. The requirement for routine maintenance shall be taken into account in determining fleet size.

2.2.4.4   Detailed information on aircraft and equipage requirements is found in Appendix G.

2.2.4.6   Flight Simulation Training Devices (FSTD)

2.2.4.7   If the use of Flight Simulation Training Devices (FSTD) exists, they shall be certified according to requirements prescribed by the DGCA and their use shall be approved to ensure they are appropriate to the task. Requirements on FSTD evaluation and certification are published in SASP Part 11.

2.3   Multi-crew Pilot Licence Training Course

2.3.1   An FTO intending to offer MPL training shall obtain the DGCA's approval for its course, instructional staff and training equipment. The FTO shall develop the course in partnership with a Singapore Air Operator Certificate (AOC) holder. The detailed requirements for a MPL(A) training course are as set out in Appendix I.

2.3.2   Flying Instructors

2.3.2.1   The FTO shall ensure that there are sufficient Flying Instructors to enable the proper continuity of flying training for all students attending the course. The Flying Instructors nominated to instruct in the MPL(A) training course shall be approved by the DGCA.

2.3.3   Simulator Flying Instructors (SFIs)

2.3.3.1   Subject to approval by the DGCA, the FTO may nominate one or more SFIs to carry out simulator flight instruction, within the relevant aircraft category, for the MPL training course in the basic, intermediate and advanced phases. The privileges of the SFI shall be restricted toFTD 2/3 or the FFS of the aircraft type for which the SFI is qualified. These privileges may be extended to other FSTDs representing further types of the same category of aircraft when the SFI has:

(a)   satisfactorily completed the simulator content of the relevant type rating course; and

(b)   conducted on a complete type rating course at least 3 hours of simulator flight instruction related to the duties of an SFI on the applicable type under the supervisionof a Flying Instructor approved by the DGCA for this purpose.

2.3.3.2   The SFI appointment shall be valid for a period not exceeding 12 months.

2.3.3.3   A person who is nominated to be appointed as an SFI shall:

(a)   hold or have held a professional pilot licence issued by an ICAO Contracting State in the aeroplane category;

(b)   to give simulator flight instruction in the basic phase of the MPL training course, hold or have held a flying instructor rating endorsed on his licence by that ICAO Contracting State;

(c)   to give simulator flight instruction in the intermediate or advance phase of the MPL training course, fulfil the requirements for a Flying Instructor instructing in an MPL training course as specified in Chapter 3 of SASP 3.

(d)   have completed the simulator content of the applicable type rating course at a TRTO;

(e)   have at least 1 500 hours flying experience as a pilot on multi-pilot aeroplanes;

(f)   have conducted on a aircraft type rating training course at least 3 hours of flight instruction related to the duties of a flying instructor for the grant of an Aircraft Type rating, on the applicable type of aeroplane under the supervision of a Flying Instructor approved by the DGCA for this purpose;

(g)   have completed within the 12 months preceding the application, a proficiency check on a flight simulator representing the applicable aircraft type; and

(h)   have completed, as a pilot or as an observer, within the 12 months preceding the application, at least:

    (i)   3 route sectors on the flight deck of the applicable aircraft type; or

    (ii)   2 line-orientated flight training-based simulator sessions conducted by qualified flight crew on the flight deck of the applicable type. These simulator sessions shall include 2 flights of at least 2 hours each between 2 different aerodromes, and the associated pre-flight planning and de-briefing.

2.3.3.4   A nominee for an SFI appointment who holds or has held an FI rating for a type rating training course for the relevant aircraft type shall be deemed to have met the requirements of an SFI.

2.3.3.5   For reappointment as an SFI, the nominee shall have within the last 12 months:

(a)   conducted one simulator session of at least 3 hours as part of a complete type rating refresher/recurrent training course; and

(b)   completed a proficiency check on a flight simulator representing the applicable aircraft type.

2.3.3.6   If the SFI appointment has lapsed, the FTO shall ensure that the nominee:

(a)   has completed the simulator content of the applicable type rating course;

(b)   has received refresher training as a SFI at the FTO;

(c)   has conducted on a aircraft type rating training course at least 3 hours of simulator flight instruction related to the duties of a flying instructor for the grant of an Aircraft Type rating, on the applicable type of aeroplane under the supervision of a Flying Instructor approved by the DGCA for this purpose; and

(d)   has completed a proficiency check on a flight simulator representing the applicable aircraft type before reappointing the SFI.

CHAPTER 3   TYPE RATING TRAINING ORGANISATIONS

3.1   Introduction

3.1.1   A Type Rating Training Organisation (TRTO) is an organisation staffed, equipped and operated in a suitable environment offering type rating training for the licence endorsement of aircraft certificated for multi crew operation or any type of helicopters. Any organisation who wishes to provide such courses of training or instruction is required to hold the TRTO approval. This chapter sets out the additional requirements and procedures for the issue and renewal of an approval of a training course and the training staff of a TRTO.

3.2   Obtaining Approval

3.2.1   A TRTO seeking the DGCA's approval for its proposed course shall apply to CAAS Licensing Section of the Safety Policy & Licensing Division. The application shall be accompanied by an Operations Manual, Quality Manual and Training Manual(s) including descriptions of its training schemes as required.

3.2.2   After consideration of the application and associated documents, the TRTO will be inspected to ensure it meets the requirements set out in this document. Subject to the inspection meeting the requirements, the approval granted to the TRTO to conduct the course shall be valid for a maximum period of one year.

3.2.3   *-deleted-*

3.2.4   Renewal of the approval will be considered following annual inspection visits. During these inspections the TRTO shall be required to show that the necessary standards have been maintained throughout the approval period. The emphasis shall change from the initial inspection's primary concern regarding the organisation, appointments and provision of facilities, to checking the quality of the instruction being given and of flight operations as conducted. Besides checking that the required facilities continue to be provided, the inspection shall also cover the safety of flight operations and the day-to-day conduct of training.

3.2.5   If a TRTO wishes to change the conditions under which the approval was granted, the DGCA's approval shall be obtained in advance before the changes are brought into effect and further inspections may be necessary to ensure that the approval can continue under the revised arrangements. A TRTO need not, however, inform on minor changes.

3.2.6   A TRTO may make training arrangements with other training organisations or make use of alternative base aerodromes as part of its overall training organisation, subject to the approval of the DGCA.

3.3   Operations Manual (OPM) and Training Manuals (TM)

3.3.1   A TRTO applying for approval shall be required to prepare the OPM and TM containing the necessary information and instructions to enable staff to perform their duties and to give guidance to trainees on how to comply with course requirements. A TRTO shall make available to staff and, where appropriate, to trainees the information contained in

the OPM and TM. The amendment procedure shall be stated and amendments properly controlled.

3.3.2   In addition to the OPM requirements in Chapter 1, the OPM shall provide relevant information to particular groups of staff including but not limited to flight instructors, synthetic flight instructors, ground instructors, operations and maintenance staff. The information to be included in the OPM may be found in Appendix A.

3.3.3   The TM shall define the flying, synthetic flight and ground training syllabi. It shall also state the standards, objectives and training goal for each phase of training that the trainees are required to comply with, including stating the entry requirements for each course, as applicable. It shall include the following:

(a)   Part 1 – The Training Plan

(b)   Part 2 – Briefing and Air Exercises

(c)   Part 3 – Synthetic Flight Training

(d)   Part 4 – Theoretical Knowledge Instruction

3.4   Management and Staffing

3.4.1   The management structure shall ensure supervision of all grades of staff by persons having the experience and qualities necessary to ensure the maintenance of high standards. Details of the management structure, indicating individual responsibilities, shall be included in the TRTO's OPM.

3.4.2   The TRTO shall satisfy the DGCA that an adequate number of full-time staff is employed and inform on all changes of training staff.

3.4.3   Head of Training (HT)

3.4.4   The TRTO shall appoint a Head of Training (HT) acceptable to the DGCA. The HT shall ensure satisfactory incorporation of flying (if applicable), synthetic flight and ground training as well as supervising the progress of individual trainees. He shall also be responsible for monitoring staff standards and performance. He shall also be responsible for the monitoring of flight training operations and flight safety standards. In addition to having extensive experience in pilot training and possessing a sound managerial capability, the HT shall:

(a)   hold a valid Singapore ATPL;

(b)   hold a valid Flight Instructor Rating (Type Rating);

(c)   hold a current aircraft type rating for one of the aircraft types used on the course; and

(d)   have at least 3,000 hours as a pilot on multi-crew aircraft types.

Note: If the TRTO is conducting only synthetic flight training, the HT shall not be required to hold a current Singapore Pilot Licence and associated ratings.

3.5 **Flying Instructional Staff (If applicable)**

3.5.1   A TRTO shall have adequate personnel necessary to accomplish the training objectives. The duties of each instructor shall be identified and documented.

3.5.2 **Flying Instructor (Type Rating)**

3.5.3   Sufficient approved Flying Instructors (Type Rating) shall be employed to ensure the proper continuity of flying training for all trainees. Flying Instructors (Type Rating) shall be acceptable to the DGCA and shall:

(a)   hold a valid ATPL with Flight Instructor (Type Rating) rating;

(b)   hold the appropriate aircraft type rating in which instruction shall be given;

(c)   successfully complete a Flight Instructor (Type Rating) course acceptable to the DGCA, for the aircraft type in which instruction shall be given;

(d)   pass the Flight Instructor (Type Rating) Rating flight test for the aircraft type used on the course;

(e)   have at least 1,500 hours flying experience as pilot on multi-crew aircraft types;

(f)   have at least 500 hours and 25 sectors on line as PIC on the specific aircraft type for which the rating is required; and

(g)   pass a competency check on their instructional and aircraft handling skills conducted normally by the HT or an appropriate AFE.

3.5.4 **For the Endorsement of a New Aircraft Type on a Flight Instructor (Type Rating) Rating**

3.5.5   The holder of the Flight Instructor (Type Rating) Rating shall exercise the privileges of the rating on only one aircraft type at any one time. Instructors who wish to be endorsed on a new aircraft type on a Flight Instructor (Type Rating) Rating shall:

(a)   successfully complete an approved type course on the aircraft;

(b)   have at least 25 sectors on line as PIC on the new aircraft type;

(c)   successfully complete an approved Flight Instructor course on the new aircraft type; and

(d)   pass the Flight Instructor (Type Rating) Rating flight test on the new aircraft type.

3.6 **Synthetic Flight Instructional Staff**

3.6.1 **Synthetic Flight Instructor (Type Rating)**

3.6.2   The SFI (Type Rating) shall only carry out synthetic flight instruction for type ratings. Sufficient SFIs (Type Rating) shall be employed to ensure the proper continuity of

synthetic flight training for all trainees attending the course. The DGCA's agreement shall be obtained before full-time or part-time SFIs are employed to instruct in the training course. The SFIs shall:

(a)   hold, or have held, an ATPL;

(b)   have at least 1,500 hours flying experience as pilot on multi-crew aircraft types;

(c)   have completed the simulator content of the applicable type rating course at an approved TRTO;

(d)   have completed an approved Type Rating Instruction course;

(e)   have conducted, on a complete type rating course, at least 3 hours of synthetic flight instruction related to the duties of a Flying Instructor (Type Rating) on the applicable aircraft type under the supervision and to the satisfaction of a Flying Instructor (Type Rating) or SFI (Type Rating) authorised by the DGCA for this purpose;

(f)   have completed within a period of 12 months preceding application for the rating, a proficiency check on a flight simulator or the applicable type;

(g)   have completed, within a period of 12 months preceding application for the rating, at least 3 route sectors as an observer on the flight deck of the applicable type or similar type as agreed by the DGCA;

        or

        have completed within a period of 12 months preceding the application, at least 2 Line Oriented Flight Training (LOFT) based simulator sessions conducted by qualified flight crew as an observer on the flight deck of the applicable type or similar type as agreed by CAAS. These simulator sessions shall include:

        (i)   flight between 2 different airports of at least 2 hours duration each, and;
        (ii)   associated pre-flight planning and de-briefing.

        Note: Flying Instructors (Type Rating) may carry out the functions of a SFI (Type Rating).

3.6.3   Extension of Authorisation to Instruct Additional Multi-Crew Aircraft Types

3.6.4   Before SFI (Type Rating) authorisation is extended to cover additional multi-crew aircraft types, the holder shall have:

(a)   successfully completed the simulator content of the relevant type rating course;

(b)   conducted, on a complete type rating course, at least 3 hours of flight instruction related to the duties of a Flying Instructor (Type Rating) on the applicable aircraft type under the supervision and to the satisfaction of a Flying Instructor (Type Rating) or SFI (Type Rating) authorised by the DGCA for this purpose.

3.6.5   Revalidation of SFI (Type Rating) Authorisation

3.6.6   SFI (Type Rating) authorisation shall be revalidated annually. To revalidate the SFI (Type Rating) authorisation, the holder shall:

(a)   conduct one simulator session of at least 3 hours as part of a complete type rating/ refresher/ recurrent training course;

(b)   have completed a proficiency check on a flight simulator of the appropriate type.

3.6.7   SFIs shall not normally instruct for more than 1,000 machine hours in any 12-month period.

3.7   Ground Instructional Staff

3.7.1   Chief Ground Instructor (CGI)

3.7.2   The TRTO shall appoint a Chief Ground Instructor (CGI) acceptable to the DGCA. The CGI shall be responsible for the supervision of all ground instructors, standardisation of all ground training, maintenance of training records and the programming of trainee ground exams.

3.7.3   The CGI shall have a practical background in aviation and have undergone a course of training in instructional techniques or have had extensive previous experience in giving ground instruction.

3.7.4   Ground Instructors

3.7.5   Ground Instructors teaching aircraft type technical examinations prescribed by the DGCA shall have appropriate experience in aviation and shall, before appointment, demonstrate their competency by giving a test lecture based on materials they have developed for the subject(s) they are to teach.

3.7.6   Sufficient ground instructors, including the CGI, shall be employed. If a high degree of supervision of practical work or extensive use of demonstration equipment is required, the class shall normally not exceed 16 trainees.

3.7.7   Ground instructors shall not exceed 25 teaching hours in any one week or an average of 20 teaching hours per week in any continuous 12-month period. In the context of ground instructors taking part in courses outside the teaching curriculum, the teaching hours committed to the course shall be proportionally reduced.

3.7.8   The agreement of the DGCA shall be obtained before dedicated ground instructors are deployed on ancillary courses and before part-time staff instructs in the aircraft type technical examinations.

3.8   Authorised Ground Examiners (If applicable)

3.8.1   Appointment of ground examiners from the TRTO to develop and produce examination questions on behalf of the DGCA is applicable only to aircraft type technical papers. The TRTO shall write in to the DGCA to request for the appointment of ground examiners. In considering candidates to develop and review examination questions, the following minimum qualifications shall be met:

(a)   have suitable experience instructing the subject in which the examination questions would be set;

(b)   complete a course approved by the DGCA pertaining to the aircraft type(s), of which the examination questions would be set; and

(c)   have appropriate education qualifications particularly English language.

3.8.2   The approved ground examiners are restricted to develop and produce examination questions only on the aircraft type they have been authorised. Any request to extend their authorisation to include another aircraft type shall be supported by producing evidence of attaining the qualification to the proposed aircraft type.

3.8.3   The TRTO shall seek the DGCA's approval with respect to developing and producing the question bank including security procedures for that paper.

3.8.4   The TRTO shall submit to a monthly examination timetable/ schedule indicating the date(s) of the aircraft type examinations and inform if any additional ad hoc requests for examinations and/or re-sits that are not projected in the monthly examination timetable/ schedule.

3.8.5   Examination questions prepared by an appropriately qualified ground examiner shall be reviewed/ vetted by another appropriately qualified ground examiner. The TRTO shall have in place a process to annually refresh the examination questions and submit a copy of all newly produced examinations, with answers.

3.8.6   Answer sheets marked by an appropriately qualified ground examiner shall be verified/ endorsed by another appropriately qualified ground examiner. A post examination analysis is required to determine if a gap in learning exists and if any ambiguity of the questions exists. The TRTO shall submit all examination results and answers sheets.

3.9   Training

3.9.1   Training Programme

3.9.2   The TRTO shall develop a training programme for each type course offered and the TRTO shall obtain DGCA's approval for each programme prior to implementation. The programme shall include a breakdown of flying (if applicable), synthetic flight and ground training in a week-by-week or phase-by-phase presentation, a list of standard exercises and a syllabus summary.

3.9.2A   The TRTO shall conduct the training in accordance with the approved training programme. The TRTO shall obtain the DGCA's approval for any changes to the approved training programme prior to implementing the changes.

3.9.3   Flying Training and Synthetic Flight Training

3.9.4   The flying and synthetic flight training are to include sufficient hours for the trainees to meet the requirements specified in the SASP for aircraft type rating endorsement and is to be incorporated with ground training. The incorporation of flying, synthetic flight and ground training shall be approved by the DGCA. The details of the type rating training programme are specified in Appendix J.

3.9.5   Synthetic flight training and theoretical knowledge instruction shall be phased in a manner as to ensure that trainees shall be able to apply to flying exercises the knowledge gained on the ground. Arrangements shall be made so that problems encountered in instruction can be resolved during subsequent training sessions.

3.9.6   *-deleted-*

3.9.7   Flight authorisation is required for all flights made for the purposes of the course. For such flights, Technical Log/ Flight Authorisation shall be used to record pre-flight and post-flight details. The Technical Log/ Flight Authorisation shall include, as a minimum, the following:

(a)   the date of the flight;

(b)   the aircraft registration mark;

(c)   the names of the instructor and trainee;

(d)   the detail 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 flight;

(g)   the intended duration of the flight;

(h)   the elapsed time of flight (take-off to touchdown);

(i)   fuel and oil states;

(j)   post flight recording of any divergence from the intended exercise;

(k)   post flight recording of any aircraft defects and subsequent recording of the rectification or deferring of these defects.

3.9.8   Ground Training

3.9.9   Ground training shall be given in the form of lectures, practical demonstrations or other means of delivery acceptable to the DGCA, supported by up-to-date study notes and lesson plans. The CGI is required to anticipate the necessary preparation well in advance of the projected date of approval.

3.10   Training Records and Logbooks

3.10.1   Administrative staff shall be employed to maintain a personal record for every trainee and instructor. The format of the trainees' personal records shall be specified in the OPM. The personal record shall include:

    (a)   personal particulars of the trainee;

    (b)   a copy of the licence, the expiry date of the medical certificate;

    (c)   records of trainee's academic achievements before and during the course;

    (d)   detailed records of ground, flying and synthetic flight training given to individual trainee;

    (e)   for each training flight, the date; the aircraft registration; the flight time; the exercises carried out; the instructor's name and written comments by the instructor on the trainee's performance; progress and other factors such as attitude and manner;

    (f)   training in emergency procedures, to be recorded separately and displayed prominently;

    (g)   progress tests, summary reports and the results of tests and examinations prescribed by the DGCA; (for all progress tests, trainees shall sign the report, acknowledging the debrief of the contents of the progress test carried out);

    (h)   detailed and regular progress reports, based on individual reports from instructors, progress flight tests and ground examinations;

    (i)   records of instructors' recurrent training and competency checks.

3.10.2   Similar records are to be maintained for synthetic flight training and ground training. All records are to be kept for a minimum of five years. Computer based records are to be backed up periodically.

3.10.3   Trainees' pilot log books shall, in addition to being kept in accordance with the ANO, clearly identify approved course flying from other flying and the exercises carried out on each flight shall be certified as being correct at the end of each course by the HT.

3.10.4   Trainees' logbooks shall also contain an accurate and separate record of synthetic flight training clearly identifying the exercises completed during each session and shall be certified as being correct by either the HT at the end of the course.

3.10.5   Instructors' logbooks shall include a monthly summary of all flying time which clearly distinguishes approved course instructional flying from other flying.

3.10.6   The TRTO shall submit training records and reports as and when required.

3.11   Facilities

3.11.1   Flight Operations Accommodation

3.11.2   The operational accommodation for course approval shall be of a scale appropriate to the population of instructors and trainees. The following flight operations 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)   NOTAM;

(iii)   current Aeronautical Information Services (AIS) information;

(iv)   current meteorological information;

(v)   maps showing standard cross-country routes;

(vi)   current charts showing Prohibited, Danger and Restricted areas; and

(vii)   any other flight safety related materials.

(c)   lecture rooms of adequate size relative to the maximum trainee capacity, including a white board and model aircrafts with working controls;

(d)   sufficient number of individual briefing rooms/ enclosed cubicles, to contain at least a table, 2 chairs and a white board;

(e)   suitable offices for the supervisory staff which allow flying instructors to write reports on trainees, complete records, etc;

(f)   furnished crew-rooms for instructors and trainees;

3.11.3   All operational and training rooms are to be suitably equipped and furnished with proper provision for heating, lighting and ventilation and may not be combined with any accommodation used continuously for the purpose of administering the TRTO.

3.11.4   Medical equipment shall be available to all staff and trainees during emergencies.

3.11.5   Ground Training Facilities

3.11.6   The ground training facilities shall, if applicable, be co-located with the flying/ synthetic flight training facilities of the TRTO.

3.11.7   Adequate classroom accommodation for the current trainee population shall be provided.

3.11.8   Suitable demonstration equipment shall be available to support the ground instruction. The equipment is to include sectioned components and instruments, appropriate wall

diagrams, transparencies, slides, models, systems demonstration equipment and mock-ups.

3.11.9   A reference library shall be available containing publications giving coverage of the syllabus.

3.11.10   There shall be a suitable office for the ground instructional staff and their course materials.

3.11.11   Adequate heating, or air-conditioning, ventilation and lighting shall be provided in all classrooms, which shall be shielded from external noise and distractions.

3.12   Training Equipment

3.12.1   Training Aircraft (If applicable)

3.12.2   All training aircraft used for flight training and tests shall:

    (a)   have a valid Singapore Certificate of Airworthiness or a Certificate of Airworthiness used by the State in which the aircraft is based; and

    (b)   be acceptable to the DGCA.

3.12.3   A sufficient number of training aircraft shall be provided by the TRTO to achieve proper continuity of flying training for the number of trainees attending the course. The requirement for routine maintenance shall be taken into account in determining fleet size.

3.12.4   Each aircraft shall be equipped as required in the training specifications concerning the approved course in which it is used.

3.12.4   Flight Simulation Training Devices (FSTD)

3.12.5   Flight Simulation Training Devices (FSTD) shall be certified according to requirements prescribed by the DGCA and their use shall be approved by the DGCA to ensure they are appropriate to the task. Requirements on FSTD evaluation and certification are published in SASP Part 11.

3.13   Operational Publications

3.13.1   The following operational publications shall be made immediately available to trainees and staff and, where applicable, kept current by amendments:

    (a)   Singapore Air Navigation Order (ANO);

    (b)   Aeronautical Information Publication and NOTAM including Aeronautical Information Circulars and AIP supplements;

    (c)   Singapore Air Safety Publications (SASPs);

    (d)   Flight Manuals, Owner's Manuals or Pilot's Operating Handbooks for the aircrafts used on the course;

(e)   Customs Documents (specimen or actual);

(f)   ATC Flight Plans;

(g)   Standard meteorology report and forecast documentation;

(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 DGCA, e.g. AERAD, Jeppesen.

3.13.2   A copy of the Flight Manual, Owner's Manual or Pilot's Operating Handbook or an approved extracts of these documents and an approved Check List shall be made available to each trainee. Extracts from the Flight Manual, Owner's Manual or Pilot's Operating Handbook produced by the TRTO shall not be in conflict with the requirements of these documents.

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APPENDIX A   CONTENTS OF THE OPERATIONS MANUAL

The Operations Manual shall include the following elements as far as they are appropriate to the type of the training to be provided.

A1   General

(a)   Preamble relating to use and authority of the manual;

(b)   Table of contents;

(c)   Amendment, revision and distribution of the manual;
- procedures for amendment
- amendment record page;
- distribution list; and
- list of effective pages;

(d)   Glossary of significant terms and definitions;

(e)   Description of the structure and layout of the manual, including:
- various parts, sections, their contents and use; and
- the paragraph numbering system.

(f)   Description of the scope of training authorised under the organisation's terms of approval

(g)   Organisation (chart of the management organisation)

(h)   Qualifications, responsibilities and succession of command of management and key operational personnel, including but not limited to:
- Accountable Manager;
- Head of Training/ Chief Instructor;
- Chief Flight Instructor (If applicable);
- Chief Ground Instructor;
- Instructors - ground, flight and synthetic;
- Maintenance Manager; and
- Quality Manager.

(i)   Organisation (chart of the management organisation)
- policy regarding approval of flights;
- responsibilities of the pilot-in-command;
- flight planning procedures - general;
- policy regarding carriage of passengers;
- operational control system;
- policy regarding safety, including hazards, accidents and incidents reporting and safety management systems;
- flying duty period and flight time limitations for flying staff and students/ trainees; and
- rest periods for flying staff and students/ trainees;

(j) Description of the facilities available, including:
- the number and size of classrooms;
- training aids provided; and
- flight simulation training devices and training aircraft.

A2 Aircraft Operating Information

(a) Certification and operating limitations;

(b) Aircraft handling, including:
- performance limitations;
- use of checklists; and
- aircraft maintenance procedures;

(c) Instructions for aircraft loading and securing of load;

(d) Fuelling procedures;

(e) Emergency procedures.

A3 Routes

(a) Performance criteria, e.g.: take-off, route, landing, etc;

(b) Flight planning procedures including:
- fuel and oil requirements;
- minimum safe altitudes; and
- navigation equipment.

(c) Weather minima for all instructional training flights during day, night, VFR and IFR operations;

(d) Weather minima for all student/ trainee training flights at various stages of training;

(e) Training routes and practice areas.

A4 Staff Training

(a) Persons responsible for standards and competency of instructional personnel;

(b) Details of the procedures to determine competency of instructional personnel

(c) Details of the training program for instructional personnel

(d) Procedures for proficiency checks and upgrade training;

A5 Training Plan for Each Course

(a) Aim of the course in the form of a statement of what the student/ trainee is expected to do as a result of the training, the level of performance, and the training constraints observed;

(b)   Pre-entry requirements, including:
- minimum age;
- medical requirements; and
- linguistic requirements.

(c)   Credits for previous experience, which shall be obtained from the DGCA before the training commences;

(d)   Training curricula, where applicable, including:
- flying curriculum (single engine);
- flying curriculum (multi-engine);
- synthetic flight training curriculum; and
- theoretical knowledge curriculum.

(e)   The general arrangements of daily and weekly programmes for flying training, ground training and synthetic flight training;

(f)   Training policies in terms of:
- bad weather constraints;
- maximum student/ trainee training times—flying, theoretical knowledge and synthetic flight training, per day/ week/ month;
- restrictions in respect of training periods for students/ trainees;
- duration of training flights at various stages;
- maximum student/ trainee flying hours in any day or night period;
- maximum number of student/ trainee training flights in any day or night period;
- minimum rest periods between training periods; and
- frequency of training flights in the aircraft and/or simulator.

(g)   Policy for the conduct of student/ trainee evaluation, including:
- procedures for flying progress checks and skill tests;
- procedures for knowledge progress tests and knowledge tests;
- procedures for authorisation for tests;
- procedures for refresher training before retest;
- test reports and records;
- procedures for knowledge test preparation, type of questions and assessments, and standards required for a pass;
- procedures for question analysis and review and issuing replacement exams;
- knowledge test re-write procedures.

(h)   Policy regarding training effectiveness, including:
- individual student/ trainee responsibilities;
- liaison procedures between training departments;
- procedures to correct unsatisfactory progress;
- procedures for changing instructors;
- maximum number of instructor changes per student/ trainee;
- internal feedback system for detecting training deficiencies;
- procedures for suspending a student/ trainee from training;
- requirements for reporting and documentation; and
- completion standards at various stages of training to ensure standardisation.

A6   **Tests and Checks Conducted for the Issuance of a Licence or a Rating**

When an approved training organisation has been approved the DGCA to conduct the testing required for the issuance of a licence or rating in accordance with the OPM, it shall include:

(a)   name of the personnel with testing authority and scope of the authority;

(b)   role and duties of the authorised personnel;

(c)   if the school has been given authority to appoint personnel to conduct the testing required for the issuance of a licence or rating, the minimum requirement for appointment as well as the selection and appointment procedure; and

(d)   applicable requirements such as:
   - procedures to be followed in the conduct of checks and tests; and
   - methods for completion and retention of testing records as required.

A7   **Records**

Policy and Procedures regarding:

(a)   Attendance records;

(b)   Student/ trainee training records;

(c)   Staff training and qualification records;

(d)   Person responsible for checking records and student/ trainee personal logs;

(e)   Nature and frequency of record checks;

(f)   Standardisation of record entries;

(g)   SASP requirements concerning log book entries, PIC, PIC U/S;

(h)   Instrument flight (IF) and emergency exercises;

(i)   Personal log entries; and

(j)   Security of records and documents.

A8   *-Reserved-*

A9   **Appendices**

Sample progress test forms, navigation logs, test reports and records, a copy of the approved training organisation authorising document, as required.

APPENDIX B   THE QUALITY ASSURANCE SYSTEM OF THE AVIATION TRAINING ORGANISATION

B1   Quality Policy and Strategy

B1.1   The ATO shall describe how the organisation formulates, deploys, and reviews its policy and strategy and turns it into plans and actions applicable to all levels of the organisation. A formal written quality policy statement shall be established that is a commitment by the Accountable Manager of the training organisation, as to what the quality assurance system is intended to achieve. The quality policy shall reflect the achievement and continued compliance with any additional standards specified by the ATO.

B1.2   The Accountable Manager of the training organisation shall have overall responsibility for the quality assurance system including the frequency, format and structure of the internal management review and analysis activities and may delegate the responsibility for the tasks, to a quality manager.

B2   Quality Manager

B2.1   The primary role of the quality manager is to verify, by monitoring activities in the field of training, that the standards as established by the ATO and any additional requirements of CAAS are being carried out properly.

B2.2   The quality manager shall be responsible for ensuring that the quality assurance system is properly implemented, maintained and continuously reviewed and improved.

B2.3   The quality manager shall have:

(a)   direct access to the accountable manager; and

(b)   access to all parts of the ATO's organisation.

B2.4   The quality manager shall be responsible for ensuring that personnel training relating to the quality assurance system is conducted.

B3   Quality Assurance System

B3.1   The quality assurance system of the ATO shall ensure compliance with requirements, conformance to standards and adequacy of training activities conducted.

B3.2   Every process that assists the ATO to achieve its results shall be identified and the activities and procedures documented.

B3.3   The ATO shall specify the basic structure of the quality assurance system applicable to all training activities conducted.

B4   Feedback System

B4.1   The quality assurance system shall include a feedback system to ensure that corrective actions are both identified and promptly addressed. The feedback system shall also specify who is required to rectify discrepancies and non-conformance in each particular

case, and the procedure to be followed if corrective action is not completed within an appropriate timescale.

B5   Documentation

B5.1   The ATO shall have a quality manual approved by the DGCA that includes the following:

     (a)   quality policy;

     (b)   terminology;

     (c)   specified training standards;

     (d)   a description of the organisation;

     (e)   the allocation of duties and responsibilities; and

     (f)   training procedures to ensure regulatory compliance.

B5.2   The quality assurance audit programme documentation shall reflect:

     (a)   schedule of the monitoring process;

     (b)   audit procedures;

     (c)   reporting procedures;

     (d)   follow-up and corrective action procedures;

     (e)   recording system; and

     (f)   document control.

B6   Quality Assurance Audit Programme

B6.1   The quality assurance audit programme shall include all planned and systematic actions necessary to provide confidence that all training are conducted in accordance with all applicable requirements, standards and procedures.

B7   Quality Inspection

B7.1   The primary purpose of a quality inspection is to observe a particular event/ action/ document etc, in order to verify whether established training procedures and requirements are followed during the accomplishment of that event and whether the required standard is achieved.

B7.2   The subject areas for quality inspections shall include, as a minimum, the following:

     (a)   actual flight and ground training;
     (b)   maintenance;
     (c)   technical standards; and
     (d)   training standards.

B8 Audit

B8.1   An audit is a systematic, and independent comparison of the way in which a training is being conducted against the way in which the published training procedures say it shall be conducted.

B8.2   Audits shall include at least the following quality procedures and processes:

(a)   an explanation of the scope of the audit;

(b)   planning and preparation;

(c)   gathering and recording evidence; and

(d)   analysis of the evidence.

B8.3   The various techniques that make up an effective audit are:

(a)   interviews or discussions with personnel;

(b)   a review of published documents;

(c)   the examination of an adequate sample of records;

(d)   the witnessing of the activities which make up the training; and

(e)   the preservation of documents and the recording of observations.

B9 Auditors

B9.1   The ATO shall decide, depending on the complexity of the training, whether to make use of a dedicated audit team or a single auditor. In any event, the auditor or audit team shall have relevant training and/or operational experience.

B9.2   The responsibilities of the auditors shall be clearly defined in the relevant documentation.

B10 Auditor's Independence

B10.1   Auditors shall not have any day-to-day involvement in the area of the operation or maintenance activity that is to be audited. An ATO may, in addition to using the services of full-time dedicated personnel belonging to a separate quality department, undertake the monitoring of specific areas or activities by the use of part-time auditors.

B10.2   An ATO whose structure and size does not justify the establishment of full-time auditors, may undertake the audit function by the use of part-time personnel from within its own organisation or from an external source under the terms of an agreement acceptable to CAAS.

B10.3   In all cases the ATO shall develop suitable procedures to ensure that persons directly responsible for the activities to be audited are not selected as part of the auditing team. Where external auditors are used, it is essential that any external specialist is familiar with the type of training conducted by the ATO.

B10.4   The quality assurance audit programme of the ATO shall identify the persons within the company who have the experience, responsibility and authority to:

(a)   perform quality inspections and audits as part of ongoing quality assurance;

(b)   identify and record any concerns or findings, and the evidence necessary to substantiate such concerns or findings;

(c)   initiate or recommend solutions to concerns or findings through designated reporting channels;

(d)   verify the implementation of solutions within specific time scales; and

(e)   report directly to the quality manager.

B11   Audit Scheduling

B11.1   A quality assurance audit programme shall include a defined audit schedule and a periodic review cycle. The schedule shall be flexible, and allow unscheduled audits when negative trends are identified. Follow-up audits shall be scheduled when necessary to verify that corrective action was carried out and that it was effective.

B11.2   An ATO shall establish a schedule of audits to be completed during a specific calendar period. All aspects of the training shall be reviewed within a period of twelve months in accordance with the programme.

B11.3   When an ATO defines the audit schedule, significant changes to the management, organisation, training, or technologies shall be considered, as well as changes to the standards and requirements.

B12   Monitoring and Corrective Action

B12.1   The aim of monitoring within the quality system is primarily to investigate and judge its effectiveness and thereby to ensure that defined policy and training standards are continuously complied with. Monitoring and corrective action functions fall under the responsibilities of the quality manager. Monitoring activity is based upon quality inspections, audits, corrective action and follow-up. The ATO shall establish and publish a quality procedure to monitor compliance with requirements and conformance to standards on a continuing basis. This monitoring activity shall be aimed at eliminating the causes of unsatisfactory performance.

B12.2   Any non-conformance identified shall be communicated to the manager responsible for taking corrective action or, if appropriate, the head of the training organisation (i.e. accountable manager). Such non-conformance shall be recorded, for the purpose of further investigation, in order to determine the cause and to enable the recommendation of appropriate corrective and preventive action.

B12.3   The quality assurance audit programme shall include procedures to ensure that corrective and preventive actions are developed in response to findings. These quality procedures shall monitor such actions to verify their effectiveness and that they have been completed. Organisational responsibility and accountability for the implementation of corrective action resides with the department where the finding was identified. The head of the training organisation (accountable manager) shall have the ultimate responsibility for ensuring, through the quality manager, that corrective action has re-

established conformance with the standard required by the ATO and any additional requirements specified by the DGCA.

B12.4   The ATO shall identify internal and external customers, and monitor their satisfaction by measuring and analysis of feedback.

B13   Management Review and Analysis

B13.1   Management shall accomplish a comprehensive, systematic documented review and analysis of the quality assurance system, training policies, and procedures, and shall consider:

(a)   the results of quality inspections, audits and any other indicators;

(b)   the overall effectiveness of the management organisation in achieving stated objectives; and

(c)   correcting trends, and preventing, where applicable, future non-conformities.

B13.2   Conclusions and recommendations made as a result of the review and analysis shall be submitted in writing to the responsible manager for action. The responsible manager shall be an individual who has the authority to resolve issues and take action. The head of the training organisation shall decide upon the frequency, format, and structure of internal review and critical analysis meetings.

B14   Recording

B14.1   Accurate, complete and readily accessible records documenting the result of the quality assurance audit programme shall be maintained by the ATO. Records are essential data to enable an ATO to analyse and determine the root causes of non-conformity, so that areas of non-compliance can be identified and subsequently addressed.

B14.2   The following records shall be retained for at least 3 years:

(a)   audit schedules;

(b)   quality inspection and audit reports;

(c)   responses to findings;

(d)   corrective and preventive action reports;

(e)   follow-up and closure reports; and

(f)   management review and analysis reports.

B15   Quality Assurance System Training

B15.1   Correct and thorough training is essential to optimise quality in every organisation. In order to achieve significant outcomes of such training, the ATO shall ensure that all staff understands the objectives as laid down in the quality manual.

B15.2   Those responsible for managing the quality assurance system shall receive training covering:

      (a)   concept of quality assurance and associated systems;

      (b)   quality management;

      (c)   quality manuals;

      (d)   audit techniques; and

      (e)   reporting and recording.

B16   The Functioning of the Quality System in the ATO

B16.1   Time shall be provided to train every individual involved in quality assurance and to brief the remainder of the employees. The allocation of time and resources shall be governed by the size and complexity of the operation concerned.

B17   Sources of Personnel Training

B17.1   Quality assurance courses are available from the various national or international standards institutions, and an ATO shall consider whether to offer such courses to those likely to be involved in the management of the quality assurance system. Organisations with sufficient appropriately qualified staff shall consider the possibility of carrying out in-house training.

APPENDIX C   CONTENTS OF THE FLYING TRAINING ORGANISATION TRAINING MANUAL

A Training Manual for use at a FTO conducting approved courses shall be divided into sections containing the following information:

C1   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
- Medical requirements
- Linguistic requirements

Abridged Courses
- Credits for previous flying experience.

Customer Requirements
- A full statement of any additions to the minimum approval requirements.

Training Syllabi
- The Flying Syllabus (single/ multi-engine)
- The Synthetic Flight Syllabus
- The Theoretical Knowledge Syllabus

The Time Scale and Incorporation of Syllabi
- Projected timescale of the course incorporating all the syllabi.
- Arrangement of daily and weekly programmes for ground training, flying training and synthetic flight training.

Training Policies
- Bad weather constraints
- Programme constraints in terms of maximum student training times (theoretical, flying and synthetic) per day/ week/ month.
- Restrictions in respect of training periods for students
- Duration of training flights (dual and solo) at various stages
- Maximum flying hours (student and instructor) in any day or night period
- Maximum number of training flights in any day or night period
- Minimum rest period between training periods

Student Evaluation
- Procedures for flying progress checks and skill tests
- Flying
  (a) Progress checks
  (b) Qualifying tests
  (c) Qualifying experience

- Ground
  (a) Progress tests
  (b) Qualifying Examinations (Internal)
  (c) Qualifying Examinations (External)
- Flight Test reports and records including passes, partial passes and failed attempts
- Procedures for knowledge progress tests and knowledge tests
- Procedures for authorisation for tests
- Procedures for refresher training before retest
- Test reports and records
- Procedures for knowledge test preparation, type of questions and assessments and standards required for a pass
- Procedures for question analysis and review and issuing replacement exams
- Knowledge test re-sit procedures

Training Effectiveness

- Individual student responsibilities
- Liaison procedures between training departments
- Identification of unsatisfactory progress (individual students)
- Procedures to correct unsatisfactory progress
- Procedures for changing instructors
- Maximum number of instructor changes per students
- Internal feedback system for detecting training deficiencies
- Procedures for suspending a student from training
- Discipline
- Requirements for reporting and documentation
- General assessment and completion standards at various stages of training to ensure standardisation

Safety Training

- Individual responsibilities
- Essential exercises
- Emergency drills (frequency)
- Dual checks (frequency at various stages)
- Requirements before first solo day/ night/ navigation etc
- Certification

Standards and Standardisation

- Individual responsibilities
- Level of performance at various stages
- Standarisation requirements and procedures
- Application of test criteria

C2   Briefing and Air Exercises

Air Exercise Specification	• A detailed statement of the content specifications of all the air exercises to be taught, arranged in sequential order with main and sub-titles.
Air Exercise Reference List	• Flight lesson reference list in the form of an abbreviated list of the above exercises giving only main and sub-titles for quick reference in a form to facilitate daily use by instructors.
Course Structure Phases of Training	• A statement of how the course shall be divided into phases, indicating how they shall be arranged to ensure that completion in the most suitable learning sequences and that essential or emergency exercises are repeated at the proper frequency. • State the syllabus hours for each phase and for groups of exercises within each phase and when progress tests are to be conducted.
Course Structure Incorporation of Syllabi	• State the manner in which technical, simulator and flying training shall be incorporated so that as the flying training exercises are carried out students shall be able to apply the knowledge gained from the associated ground and simulator instruction.
Student Progress Requirement	• State the FTO requirement in this respect and include a brief but specific statement of what a student is expected to be able to do, and the standard of proficiency required before progressing from one phase of training to the next. Include minimum experience requirements in terms of hours, satisfactory exercise completion etc, as necessary before the commencement of significant exercises such as night flying.
Instructional Methods	• State the FTO requirements for instructional methods particularly with respect to pre-flight and post-flight briefing, adherence to syllabi and training specifications, the authorisation of solo flights etc.
Progress Tests	• State the instructions given to examining staff with respect to the conduct and documentation of all progress tests.
Glossary of Terms	• Define significant terms as necessary.
Appendices	• Progress test report forms • Qualifying test report forms • FTO certificates of experience, competence etc, as required

C3   Synthetic Flight Training

The syllabus for synthetic flight training shall be structured generally as in paragraph C2 of this Appendix.

C4   Theoretical Knowledge Instruction

The syllabus for theoretical knowledge instruction shall be structured generally as in paragraph C2 of this Appendix but with a training specification and objectives for each subject. Individual lesson plans shall include mention of the specific training aids available for use.

APPENDIX D   CONTENTS OF THE FLYING ORDER BOOK

Note 1:   Orders shall not conflict with the Singapore ANO. They shall not simply require observance of the law, but shall require reading of or familiarity with the law's provisions.

Note 2:   The format below need not be followed precisely but all orders shall be written as such and not merely for information.

Note 3:   Each flying order is to be individually signed and dated by the CFI.

Note 4:   An Index to Sections and Orders shall be included.

D1   Authorisation and Documentation

1.   Air Navigation Order and Rules of the Air

2.   Flight authorisation and authorisation sheets

3.   Completion of technical log and notification of defects

4.   Requirements for solo flying

5.   Requirements for mutual flying

6.   Possession of current licence

7.   Regulations for carriage of passengers

8.   Compilation of pilot's log books

D2   Aircraft Handling Orders

1.   Aircraft checks before flight - those not included in standard checklists

2.   Precautions when starting engines

3.   Running up procedures

4.   Turns after take-off

5.   Aerobatics, spinning and other unusual manoeuvres

6.   Practice forced landing

7.   Low flying regulations

8.   Instrument flying - actual and simulated

9.   Go-around action

10.   Refuelling procedure

11.   Practice asymmetric flights

D3   General Flying Orders

1.   Minimum altitude/ flight levels for training (stalling, spinning and aerobatics)

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 uncertain of aircraft's position

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 water

12.   Consumption of alcohol and taking of drugs or other psychoactive substances before flight

13.   State of health

14.   Night flying - supervision

15.   Wake turbulence

16.   Charity Flight

D4   Rules of the Air and ATC

1.   Aerodrome opening hours

2.   Taxying procedures

3.   Signals square and signals/ instructions from ATC (where applicable)

4.   Circuit procedures

5.   Local flying area

6.   Prohibited and danger areas

7.   Look-out in the vicinity of the circuit

8.   Action after landing

9.   Use of RTF

10.   Local noise restriction requirements

11.   Night flying - ATC and emergencies

12.   Requirement to abide by conditions of the aerodrome

13.   Infringements of controlled airspace

D5   Checklists

All pilots shall be in possession of a copy of handling notes and checklists as used by the FTO and be required to abide by them. If necessary, checklists may be written into the FOB under this Section. Handling Notes and Checklists shall not contradict anything set out in the approved Pilot's Operating Handbook/ Flight Manual which forms part of the C of A. Checklists for legal purposes are part of the OPM.

D6   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/Checklists, it may be useful to repeat them in this section.

D7   Accident, Incident and AIRPROX Reporting

1.   Reminder of the legal requirement to report notifiable accidents and incidents

2.   Requirement to report occurrences and use of local system

D8   Local Regulations

1.   Smoking and use of pyschoactive substance 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 E   CPL TRAINING COURSE

E1   CPL/IR(A)

E1.1   The syllabus for the CPL/IR(A) shall include at least 200 hours flying training. The training shall provide the students the operational experience to the level of performance required for the commercial pilots in the following areas:

(a)   recognise and manage threats and errors;

(b)   pre-flight operations, including mass and balance determination, aeroplane inspection and servicing, use of checklists, taxiing and pre-take-off checks;

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

(d)   control of the aeroplane by external visual reference;

(e)   flight at critically slow airspeeds; spin avoidance; recognition of, and recovery from, incipient and full stalls;

(f)   flight with asymmetrical power for multi-engine aircraft types;

(g)   flight at critically high airspeeds; recognition of, and recovery from, spiral dives;

(h)   normal and cross-wind take-offs and landings;

(i)   maximum performance (short field and obstacle clearance) take-offs; short-field landings;

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

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

(l)   abnormal and emergency procedures and manoeuvres; including simulated aeroplane equipment malfunctions;

(m)   operations to, from and transiting controlled aerodromes, compliance with air traffic services procedures;

(n)   communication procedures and phraseology;

(o)   upset prevention and recovery training (UPRT);

(p)   pre-flight procedures, including the use of the flight manual or equivalent document, and appropriate air traffic services documents in the preparation of an IFR flight plan;

(q)   procedures and manoeuvres for IFR operation under normal, abnormal and emergency conditions covering at least:

(i)   transition to instrument flight on take-off;
(ii)   standard instrument departures and arrivals;
(iii)   en-route IFR procedures;
(iv)   holding procedures;
(v)   instrument approaches to specified minima;
(vi)   missed approach procedures;
(vii)   landings from instrument approaches

(r)   in-flight instrument manoeuvres and particular flight characteristics.

E1.2   The syllabus shall include, as a minimum, the following:

	Dual (hours)	Solo (hours)
Navigation Flying Training	8	50
Night Flying Training	5	5
Flight by Sole Reference to Instruments	40	-

The 50 solo hours of cross country navigation shall include a flight totaling not less than 300nm in the course of which, full stops landing at two different aerodromes shall be made. This flight shall be completed in a single day. The remainder of the 200 hours of flying training may comprise of general aeroplane handling but shall include sufficient solo flying to allow the student to complete a total of 100 hours as pilot-in-command. The precise allocation of flying hours is to be agreed with CAAS.

E1.3   SASP Part 2 allows for a maximum of 20 hours of the required 40 hours by sole reference to instruments to be carried out in a Flight Simulation Training Device (FSTD). Up to a maximum of 10 hours of this synthetic flight training may be counted towards the 200 hours of flying training required in paragraph E1.1 provided that the FSTD has been qualified and approved for use as appropriate in accordance with the Air Navigation Order and SASP 11.

E2   CPL(A)

E2.1   The syllabus for the CPL(A) shall include at least 155 hours flying training. The training shall provide the students with the operational experience to the level of performance required for the commercial pilots as specified in paragraph E1.1 (a) to (o).

E3   PIC U/S

E3.1   The 100 hours as pilot-in-command requirement for the CPL/IR(A) course may contain not more than 15 hours as pilot-in-command under supervision (PIC U/S). In the case of a CPL(A) course, 10 hours may be used as PIC U/S.

E3.2   Crediting PIC U/S flight time is allowed only for successful FTO progress tests in the approved course syllabus or sampling flights conducted by a CAAS flight operations inspector or an Authorised Flight Examiner.

E3.3   Students claiming PIC U/S time shall:

(a)   carry out all the duties and functions of a pilot-in-command;

(b)   be responsible for flight planning including load sheet and fuel computations;

(c)   comply with all checks, drills and emergency procedures specified by the FTO;

(d)   take-off and land the aeroplane and resolve unaided all problems of air traffic procedures, communications and meteorological conditions.

E3.4   PIC U/S may not be regarded as additional dual.

E3.5   If the instructor has to influence or control any part of the flight, none of the flying time on that particular flight may be claimed as PIC U/S. A ground debriefing by the Flight Examiner or flying instructor does not affect the crediting as pilot-in-command time.

E4   LOGGING OF FLIGHT TIME

E4.1   The Instrument Flight (IF) time logged to meet the licence requirements in respect of flight as pilot by sole reference to instruments shall be less than the chock-to-chock IF instruction time by an allowance to cover ground maneuvering times and any period spent using external references between the start of the take-off run and the completion of the landing roll.

E5   FLIGHT TESTING AND SAMPLING

E5.1   Students shall undergo standard licence and rating flight tests appropriate to the CPL(A) or CPL/IR(A), namely the General Flight Test (GFT) and the Instrument Rating Test (IRT).

E5.2   When the FTO has demonstrated satisfactory training and test standards the flight tests may be delegated to FTO authorised examiners. Under this procedure students may undertake the Combined General Flight Test and Instrument Rating Test (CIRT) at the end of the course.

E5.3   The aim of the licence and rating flight test is to ensure that the student is able to:

(a)   operate the aeroplane within its limitations;

(b)   complete all maneuvers with smoothness and accuracy;

(c)   exercise good judgment and airmanship;

(d)   apply aeronautical knowledge; and

(e)   maintain control of the aeroplane at all times in a manner such that the successful outcome of a procedure or maneuver is never seriously in doubt.

E5.4   The students' progress in flight may be assessed at any stage of the course. Assessment flights may be made. They may be conducted on FTO Progress Tests (either conducted or witnessed by CAAS flight operations inspectors) or on student solo flights.

E5.5   The CAAS flight operations inspector will make arrangements for assessment flights with the CI or CFI of the FTO concerned and will observe the pre-flight briefing and post-flight debrief.

E5.6   Student training records shall be made available upon request.

E5.7   The CAAS flight operations inspector will inform the CI or CFI of any weaknesses in the student's performance revealed during the flight which is not consistent with the student's training records or standardised teaching methods.

APPENDIX F   GROUND EXAMINATION SYLLABUS FOR THE FLYING TRAINING ORGANISATION

1.   Each theoretical knowledge course shall comprise the minimum hours stipulated in the table below:

Type of Theoretical Knowledge Course	Minimum Hours
ATPL (A), ATPL/IR (H)	750
ATPL (H)	650
CPL/IR (A), CPL/IR (H)	500
CPL (A), CPL(H)	350

2.   The following tables show the recommended instructional hours for each subject.

ATPL (A), ATPL/IR (H), ATPL (H) Theoretical Knowledge

No.	Subject	Instructional Hours
1	Air Law	40
2	Airframes, Systems and Engines	80
3	Instrumentation	
4	Mass and Balance	
5	Performance – Aeroplane/ Helicopter	90
6	Flight Planning and Monitoring	
7	Human Performance	50
8	Meteorology	60
9	General Navigation	150
10	Radio Navigation	
11	Operational Procedures	20
12	Principles of Flight – Aeroplane/ Helicopter	30

No.	Subject	Instructional Hours
13	VFR Communications	30
14	IFR Communications *[Only applicable to ATPL(A) &ATPL/IR(H)]*	

CPL/IR (A), CPL/IR (H), CPL(A), CPL(H) Theoretical Knowledge

No.	Subject	Instructional Hours
1	Air Law	40
2	Airframes, Systems and Engines	50
3	Instrumentation	
4	Mass and Balance	
5	Performance – Aeroplane/ Helicopter	60
6	Flight Planning and Monitoring	
7	Human Performance	50
8	Meteorology	40
9	General Navigation	100
10	Radio Navigation	
11	Operational Procedures	10
12	Principles of Flight – Aeroplane/ Helicopter	30
13	VFR Communications	30
14	IFR Communications *[Only applicable to CPL/IR(A) & CPL/IR(H)]*	

Note: Refer to AC FCL-7 for the learning objectives.

APPENDIX G   AIRCRAFT AND EQUIPAGE REQUIREMENTS

G1   AEROPLANE REQUIREMENTS

G1.1   All aeroplanes used by the FTO for the purpose of flight training and tests shall meet the following requirements:

(a)   For the purpose of instrument flying training and test, the aeroplane shall be equipped to permit flight under Instrument Flight Rules (IFR) within controlled airspace.

(b)   Each aeroplane shall be fitted with duplicated primary flying controls for use by the instructor and the student. Swing-over flight controls are not acceptable.

(c)   All flight, engine and associated ancillary instruments shall 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.

(d)   Trim controls, wheel brakes, flap controls, undercarriage controls (if applicable), all engine controls, fuel controls and cabin fire extinguisher shall 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-engine aeroplanes with fuel controls fitted on the port side and not readily accessible to the instructor may be acceptable.

(e)   Each aeroplane shall be equipped with a VHF Transceiver with 760 channels at 25 kHz spacing, controllable from the student's and the instructor's stations. Aeroplanes used for the Instrument Rating Test shall be fitted with two VHF Transceivers. Two-way electrical intercommunication shall 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 shall be carried out using headsets. All radio apparatus shall satisfy the requirements of ICAO Annex 10, Vol 1, Part 1.

(f)   Each single-engine aeroplane shall 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.

(g)   Aeroplanes used for basic training shall be capable of spins. However, spinning may be carried out in a different type of aeroplane but it shall satisfy all the requirements stated in the above sub-paragraphs. Aeroplanes used for spinning and stall/ spin awareness and avoidance shall be appropriately equipped.

(h)   Aeroplanes used for aerobatics training shall be appropriately equipped and be certified as capable of performing loops, barrel rolls, slow rolls, stall turns, half rolls, half rolls off the top of loops and spinning.

(i)   The signals from the 75 MHz receiver shall be audible as well as visible and a separate ON/OFF switch shall 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 shall be provided.

(j)   A stop watch readily available for use by the student in flight shall be provided. This may be part of the aeroplane equipment, failing which a stop watch holder shall be provided.

G1.2   Means of screening the student from external reference shall be provided to simulate instrument flight (IF) conditions. Screening shall 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; and

(e)   be simple to erect and remove in flight and be constructed of a frangible but durable material.

G1.3   Devices for blanking-off the Artificial Horizon / Attitude Indicator and the heading reference indicators shall be provided for limited panel IF training. These screens shall be angled to provide the instructor with full panel reference.

G2   AIRCRAFT INSPECTION

G2.1   The aircraft shall be inspected for condition and compliance with this Appendix for the purpose of approval. The aircraft may be subject to routine inspections during the course of or for renewal of, approvals. The approval shall be withdrawn if the aircraft fail to meet the requirements of this Appendix.

APPENDIX H   SAFETY MANAGEMENT SYSTEM FRAMEWORK ELEMENTS

The framework for the implementation and maintenance of a safety management system shall include, as a minimum, the following 4 components and 12 elements:

Safety Policy and Objectives

    (a)   Management commitment and responsibility

    (b)   Safety accountabilities

    (c)   Appointment of key safety personnel

    (d)   Coordination of emergency response planning

    (e)   SMS documentation

Safety Risk Management

    (f)   Hazard identification

    (g)   Safety risk assessment and mitigation

Safety Assurance

    (h)   Safety performance monitoring and measurement

    (i)   The management of change

    (j)   Continuous improvement of the SMS

Safety Promotion

    (k)   Training and education

    (l)   Safety communication

Note: Refer to AC 1-3 for guidance materials on SMS. Reference may also be made to ICAO SMM Document 9859 for any additional guidance where appropriate.

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APPENDIX I   MPL TRAINING COURSE

I1   GENERAL

I1.1   The aim of the MPL(A) course is to train pilots to the level of proficiency necessary to enable them to operate as co-pilot of a multi-engine turbine-powered air transport aeroplane certificated for operation with a minimum crew of at least two pilots under VFR and IFR and to obtain an MPL.

I1.2   Approval for an MPL(A) training course will only be given to an approved ATO having a specific arrangement with a Singapore Air Operator Certificate (AOC) holder.

I1.3   An applicant wishing to undertake an MPL(A) integrated course shall complete all the instructional stages in one continuous course of training at an ATO. The training shall be competency based and conducted in a multi-crew operational environment.

I1.4   An applicant shall be admitted to training as an ab-initio entrant only

I1.5   The course shall comprise:

(a)   theoretical knowledge instruction to the ATPL(A) knowledge level;
(b)   visual and instrument flying training;
(c)   training in MCC and TEM for the operation of multi-pilot aeroplanes; and
(d)   type rating training.

I2   THEORETICAL KNOWLEDGE

I2.1   The MPL(A) theoretical knowledge course shall prepare the student for knowledge at the ATPL(A) level, as well as the hours required for theoretical knowledge instruction for the relevant type rating.

I3   FLYING TRAINING

I3.1   The flying training shall comprise a total of at least 240 hours, composed of hours as Pilot Flying and Pilot Monitoring, in actual and simulated flight, and covering the following 4 phases of training:

(a)   Phase 1 — Core flying skills
Specific basic single pilot training in a single-engine aeroplane. The ATO shall arrange for the applicants to undergo a PPL(A) flight test conducted by a safety inspector or an Authorised Flight Examiner as part of this phase.

(b)   Phase 2 — Basic
Introduction of multi-crew operations and instrument flight.

(c)   Phase 3 — Intermediate
Application of multi-crew operations to a multi-engine turbine aeroplane.

(d)   Phase 4 — Advanced
Type rating training within an airline oriented environment. This training phase shall include upset prevention and recovery training.

I3.2   Flight experience in actual flight shall include at least the experience requirements for a PPL(A) holder as stipulated in SASP 1, upset prevention and recovery training, night flying, flight solely by reference to instruments and the experience required to achieve the relevant airmanship. MCC and TEM requirements shall be incorporated into the relevant phases above.

I3.3   Each phase of training in the flight instruction syllabus shall be composed of both instruction in the underpinning knowledge and in practical training segments.

I3.4   The training course shall include a continuous evaluation process of the training syllabus and a continuous assessment of the students following the syllabus.

I3.5   The evaluation by the ATO shall ensure that:

(a)   the competencies and related assessment are relevant to the task of a co-pilot of a multi-pilot aeroplane; and

(b)   the students acquire the necessary competencies in a progressive and satisfactory manner.

I3.6   The training course shall include a sufficient number of take-offs and landings to ensure competency, which shall not be less than six. These take-offs and landings shall be performed under the supervision of a CAAS flight operations inspector or an Authorised Flight Examiner in an aeroplane for which the type rating shall be issued.

I4   COMPETENCY UNITS

I4.1   The course shall include a continuous assessment of the students in terms of competency in the following 9 competency units:

(1)   apply human performance principles, including principles of threat and error management;

(2)   perform aeroplane ground operations;

(3)   perform take-off;

(4)   perform climb;

(5)   perform cruise;

(6)   perform descent;

(7)   perform approach;

(8)   perform landing; and

(9)   perform after landing and aeroplane post-flight operations.

I5   SIMULATED FLIGHT

I5.1   All FSTD used for MPL training shall meet the standards specified for the appropriate phase of MPL training, as stipulated in the latest edition of ICAO Doc 9625. Devices which exceed these standards may be used, subject to approval by the DGCA as being appropriate to the training level envisaged.

(a)   Phase 1— Core flying skills
E-training and part tasking devices approved in accordance with SASP Part 11 that meets the requirements of a Type I device

(b)   Phase 2 — Basic
An FSTD approved in accordance with SASP Part 11 that represents a generic multi-engine multi crew turbine-powered aeroplane.

(c)   Phase 3 — Intermediate
An FSTD approved in accordance with SASP Part 11 that represents a multi-engine turbine-powered aeroplane required to be operated with a co-pilot with enhanced daylight visual system and equipped with an autopilot.

(d)   Phase 4 — Advanced
An FFS approved in accordance with SASP Part 11 which is equivalent to a Type VII device, in compliance with Annex 1, Appendix 3, paragraph 4, and to the FFS used by the specific Singapore operator indicated in paragraph 2, for the conduct of their Aircraft rating flight tests.

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APPENDIX J   TYPE RATING TRAINING PROGRAMME

J1   GENERAL

J1.1   The aim of the type rating training programme is to train pilots to the level of proficiency necessary to enable them to operate specific helicopter types or specific aircraft types certificated for multi-crew operation.

J2   TRAINING PROGRAMME CONTENT

J2.1   The training programme submitted for approval shall, as a minimum, cover the prerequisites and training exercises provided by the aircraft manufacturer. The DGCA may impose additional requirements as he deems fit.

J2.2   The ATO shall ensure the training programme includes the following:

- Normal flight procedures and manoeuvres during all phases of flight;

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

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

- For aeroplane type rating training, upset prevention and recovery training (UPRT).

J2.3   For aeroplane type rating training, in addition to training the pilots to be able to operate the specific aircraft type under Visual Flight Rules (VFR) conditions, the trainees shall also be trained to the level of proficiency necessary to enable them to operate under Instrument Flight Rules (IFR) as they would be qualifying for a type specific Instrument Rating (IR).

J2.4   For helicopter type rating training, it is not mandatory to qualify for a type specific IR. However, where the type specific IR is sought, the ATO shall ensure the training programme includes at least:

Where the trainee already holds an IR(H)
(i)   2 hours by sole reference to instruments in the specific helicopter type. The training may be completed in the aircraft or an approved Flight Simulation Training Device (FSTD).

Where the trainee is qualifying for an initial IR(H)
(ii)   5 hours by sole reference to instruments in the specific helicopter type gained only in flight.

J2.5   The ATO shall include the following in the training programme:

- **Prerequisites**
  Clear prerequisites shall be stated for entry to the course.

- **Theoretical Knowledge Training**
  Appropriate theoretical training, which can be in the form of computer based training, shall be provided to ensure the trainees have the required theoretical knowledge on the specific aircraft type. Trainees are required to pass the Aircraft Type Technical Examination unless otherwise exempted.

- **Cockpit Procedural Training**
  The ATO may conduct cockpit procedural training in a simulator. For such training, the simulator does not need to be qualified and approved for such use. Instead, the use of the simulator will be approved through the training programme.

- **Simulator/ Aircraft Training**
  Where FSTDs are used for type rating training, they shall meet the SASP 11 requirements. Aeroplane type rating training shall be conducted in a Type VII FSTD unless otherwise allowed by the DGCA.

  Before any training is conducted in the aircraft, the ATO shall ensure that the trainees have been briefed and where possible, trained to competency to operate the aircraft type. Simulation of any emergency manoeuvres or procedures in flight is not permitted.