

**HONG KONG
CIVIL AVIATION DEPARTMENT**



CAD 34

**REQUIREMENTS AND CRITERIA
FOR THE APPROVAL OF
TYPE RATING TRAINING OFFERED
BY A TRAINING ORGANISATION**

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**REQUIREMENTS AND CRITERIA FOR THE APPROVAL OF
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FOREWORD

Article 20(11) of the Air Navigation (Hong Kong) Order 1995 [AN(HK)O], as amended, empowers the Civil Aviation Department, Hong Kong (CAD), subject to such conditions as it thinks fit, to:

- (a) approve any course of training or instruction;
- (b) authorise a person to conduct such examinations or tests as he may specify;
- (c) approve a person to provide any course of training or instruction; and
- (d) approve a person as qualified to furnish reports to him and to accept such reports.

The purpose of this document is to detail the governing policies, requirements and procedures for the issue, renewal and variation of the CAD Approval to type training course offered by a training organisation (i.e. an “Approved Training Organisation (Type Rating)” [ATO(TR)]), which offers the whole or a part of training courses leading to the grant of an aircraft type rating for turbine-engine aircraft, multi-engine aircraft, multi-crew aircraft or other aircraft type with maximum total weight authorised exceed 5,700 kg.

For overseas based training organisation which holds valid approval issued by local authorities to conduct type rating training, the provisions in this document may be varied if prior agreement and acceptance is sought from CAD.

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PART ONE

GENERAL

1. INTRODUCTION

1.1. Characteristics of an ATO(TR)

1.1.1. ATO(TR) in this document refers to a training organisation of which a full or part of a type rating training offered by such organisation for the issue of a type rating for turbine-engine aircraft, multi-engine aircraft, multi-crew aircraft or other aircraft type with maximum total weight authorised exceed 5,700 kg is approved by CAD. As a prerequisite to the approval process, this organisation will have demonstrated that it is staffed, equipped, financially resourced, and operated in a manner conducive to achieving the standards required by the CAD.

1.1.2. Though the organisational structure of an ATO(TR) will vary depending upon the complexity of its business model, the design and make-up of its structure, ATO(TR) should ensure that the delivery of training would meet and maintain compliance with the CAD requirements.

1.1.3. In all cases, ATO(TR) requires an Accountable Executive who is the final corporate authority on decisions that may impact upon the continued suitability of the organisation to deliver training to aviation personnel for aircraft type rating purpose. Furthermore, the Head of Training (HT) should receive complete information on operational and quality issues from the ATO(TR) management team. To that end, ATO(TR) should establish separate and distinct managerial positions, each of which reports directly to the HT, who has overall authority for the following areas of responsibility:

- (a) training or instructional services;
- (b) quality management for quality assurance and compliance monitoring processes; and
- (c) safety management

1.2. Purpose of this document

1.2.1. This document is intended to:

- (a) help new organisations to ensure that an application made for an initial ATO(TR) approval will satisfy the CAD requirements;
- (b) explain particular administrative arrangements;
- (c) ensure the approval process and procedures are understood by the organisations that CAD regulates, and to ensure continued compliance when there are any appropriate or necessary changes to the organisations.

1.2.2. In addition, this document must be read in conjunction with the relevant provisions of the following:

- (a) AN(HK)O;
- (b) CAD54;
- (c) CAD360; and
- (d) the requirements for “Approved Persons (AP)” (i.e. Type/Instrument Rating Instructors (TRI/IRI)), and “Authorised Examiners (AE)” (i.e. Type/Instrument Rating Examiners (TRE/IRE)) –under the Hong Kong system.

- 1.2.3. Nothing in this document is intended to conflict with the AN(HK)O, other CAD documents or associated International Civil Aviation Organisation (ICAO) requirements where applicable. Whilst every effort is made to ensure that all information is correct at time of publication, CAD reserves the right to amend this document as required to accommodate changes to the primary authority documents, to correct omissions or to reflect changes in the CAD ATO(TR) policy and best practice.

2. OBTAINING APPROVAL

2.1. Prior to Application

- 2.1.1. An ATO(TR) is normally considered to be a single organisation staffed, equipped and operated in a suitable environment offering integrated flight training, synthetic flight instruction and/or theoretical knowledge instruction for the granting of aircraft type rating.
- 2.1.2. An ATO(TR) operating in a country other than Hong Kong is also required to seek CAD approval to conduct courses for type rating to be endorsed in a Hong Kong flight crew licence. Agreement to undertake the necessary work towards the approval of non-Hong Kong based training organisations will be subject to a demonstration of need, such as a contractual arrangement to provide training to a Hong Kong operator. This ATO(TR) shall be conducted in conformity with the regulations in force in that country, and with the corresponding provisions in the AN(HK)O, CAD360, CAD54 and CAD34.
- 2.1.3. Concerned courses for ATO(TR) are:
- (a) Aeroplane Type Rating Course – with/without integrated elements of Multi-Crew Co-operation.
 - (b) Helicopter Type Rating Course – with/without integrated elements of Multi-Crew Co-operation.
- 2.1.4. CAD may approve an ATO(TR) to conduct more than one kind of aircraft type rating training course. However, CAD will require that arrangements put in place to conduct a combination of these courses are satisfactory.
- 2.1.5. Where training is conducted at multiple locations (within or outside Hong Kong), all sites will be subject to CAD oversight activities.
- 2.1.6. All costs associated with inspections, oversight activities and visits for purposes of ATO(TR) approval as deemed necessary by the CAD, will be recovered from the organisation seeking or holding an ATO(TR) approval in accordance with Hong Kong Air Navigation (Fees) Regulations (Cap. 448D).

2.2. Language

2.2.1. CAD will only approve courses prepared and delivered in the English language. All course material, including any documentation or records required, shall be in English. ATO(TR) shall ensure that students, for whom English is a second language, have a comprehensive understanding of spoken and written English before admitting them to the course.

2.2.2. Where the course is conducted in a non-English speaking country, the HT shall ensure that students/trainees are, before the commencement of the course, capable of understanding and interpreting aeronautical and other information promulgated by or on behalf of that country, concerning flight safety or related to the conduct of the course.

2.3. Contracted Activities

2.3.1. Subject to CAD's prior agreement, the ATO(TR) may decide to contract certain training activities to external organisations. However, a written agreement should exist between the ATO(TR) and the contracted organisation clearly defining the contracted activities and all applicable requirements.

2.3.2. The contracted safety related activities relevant to the agreement should be included in the ATO(TR)'s safety management, quality oversight for quality assurance and compliance monitoring programmes.

2.3.3. The ATO(TR) should ensure that the contracted organisation has the necessary approval when required, and commands the resources and competence to undertake the task.

2.3.4. Regardless of the approval status of the contracted organisation, the contracting ATO(TR) is responsible to ensure that all contracted activities are subject to hazard identification and risk management as required by a Safety Management System (SMS) and quality assurance for compliance monitoring.

2.3.5. When the contracted organisation has been allowed to carry out the contracted activities, the ATO(TR) should ensure that the approval effectively covers the contracted activities and that it is still valid.

- 2.3.6. If the ATO(TR) requires the contracted organisation to conduct an activity which exceeds the contracted organisation's terms of approval, prior agreement or approval should be sought from CAD.
- 2.3.7. The contracting organisation should ensure that the CAD is given access to the contracted organisation, to determine continued compliance with the applicable CAD requirements.

2.4. Application for Initial Approval or Variation to an Existing Approval

- 2.4.1. When making an application for an initial ATO(TR) approval, or to vary an existing approval, the training organisation should ensure that any documents provided are both complete and accurate. In addition, supporting documentation should also clearly demonstrate full compliance with all relevant type rating training and licensing requirements described in the AN(HK)O, CAD 360 and CAD54.
- 2.4.2. Supporting documentation required are listed below (Refer to Part Two – Specific Areas of Guidance and Appendices for further details):
- (a) Key Post-holder Nomination Form – DCA form 413 with Curriculum Vitae (CV) detailing relevant qualification and experience;
 - (b) Operations Manual;
Note: In the case of a small organisation, the Flying Order Book may replace the Operations Manual.
 - (c) ATO(TR) Training Manual;
 - (d) SMS Manual;
Note: Further guidance on SMS is contained in ICAO Doc 9859 – Safety Management Manual (SMM) and CAD 712 (SMS – A Guide to Implementation).
 - (e) Description of quality oversight for quality assurance and compliance monitoring procedures;
 - (f) Detailed management structure;
 - (g) List of aeroplanes or helicopters, with copies of valid Certificate of Airworthiness (C of A) to be used on the course;
 - (h) List of aerodromes/heliports/landing sites to be used for flight training;

- (i) Description of accommodation and theoretical knowledge instruction and examination facilities;
- (j) Description and location of FSTD and facilities with copies of relevant qualifications and approvals;
- (k) Description of the training programme;
- (l) Samples of documentation relating to proposed courses and the training and checking forms detailed in the Training Manual, with evidence of an updating system are to be provided;
- (m) The means of conducting theoretical knowledge examinations;
- (n) Evidence of sufficient funding.

Note: All manuals should have an effectual means of document control and a list of effective pages, and amendment service.

2.4.3. Application with supporting documentation should be sent to:

Assistant Director General of Civil Aviation (Flight Standards)
Flight Standards and Airworthiness Division
Civil Aviation Department Headquarters
1 Tung Fai Road, Chek Lap Kok
Lantau, Hong Kong
Email: ops@cad.gov.hk
Fax: (852) 2362 4250

2.4.4. Applications will be processed in order of receipt, any omissions or errors in submitted documentation will delay the approval process. It is strongly recommended that training organisations intending to apply for the initial approval of ATO(TR), arrange a pre-meeting with the CAD to discuss the details of the approval process.

3. PROGRESS OF AN APPLICATION

3.1. Assigned CAD Inspector

3.1.1. When a complete application has been received, with relevant application forms, manuals and all other associated documentation, a CAD Inspector will be assigned to oversee the application process and review the relevant documentation. The assigned CAD Inspector will also be the point of contact for any items submitted in respect of the application.

3.2. Initial Inspection

3.2.1. When the CAD is satisfied that the application and associated documentation comply with the requirements, all aspects of the training organisation, including the suitability of the facilities, any aircraft and Flight Simulation Training Devices (FSTD) to be used for training, its quality oversight for compliance monitoring, and all training locations will be inspected to ensure continued compliance with the corresponding ATO(TR) requirements.

3.2.2. CAD inspector will arrange with the applicant a mutually convenient time to visit the location of the proposed training organisation. The initial inspection will focus on the following:

- (a) A pre-inspection briefing to the post-holders and the Accountable Executive. This allows the CAD Inspectors to discuss the application, and explain the scope of the inspection to the key management personnel in the proposed training organisation.
- (b) Detailed management structure of the proposed training organisation, including names and qualifications of personnel, and the adequacy of the organisation and management structure.
- (c) Staff – adequacy and qualifications.
- (d) Flight Instructors – validity of licences, certificates, ratings and logbooks.
- (e) Facilities and accommodation – including briefing offices, classroom arrangements, training aircraft and/or FSTD.
- (f) Documentation of training aircraft – Certificate of Airworthiness and maintenance records.
- (g) FSTD documentation.

- (h) Availability of other documents related to the type rating training courses such as AN(HK)O, CAD360, CAD54, CAD34, Operations Manual and Training Manual, etc.
- (i) Quality oversight for quality assurance and compliance monitoring.
- (j) Safety Management System, where applicable (see paragraph 7.1.3 for further details).

3.2.3. Depending on the locations of the training facilities, it may be necessary for the CAD to conduct more than one initial inspection, to ensure compliance of the infrastructure and sample training activities. If the training organisation has any contracted activities associated with the conduct of the training course, further inspection of the sub-contractor may also be required.

3.3. Post-Inspection

3.3.1. A post-inspection debriefing, again with the post-holders, and the Accountable Executive, during which the CAD Inspector will discuss the findings of the inspection, including any areas which do not conform to the corresponding CAD requirements. Any required remedial actions by the proposed training organisation can be discussed with the CAD Inspector at this stage.

3.4. Follow-up actions

3.4.1. Where the outcome of the Initial Inspection is deemed unsatisfactory, and the proposed training organisation has been found to be non-compliant with the associated CAD requirements in any area, then the proposed training organisation will be required to submit a Corrective Action Plan, acceptable to the CAD, to correct any non-compliant areas before the CAD Inspector can consider the recommendation of the ATO(TR) approval.

3.5. Issue of an ATO(TR) approval

3.5.1. When the outcome of the initial inspection and required remedial actions are deemed satisfactory, and the proposed training organisation has been found to be fully compliant with the CAD regulatory requirements, then the assigned CAD Inspector will recommend that the proposed training organisation to be an ATO(TR).

- 3.5.2. Nevertheless, this recommendation is subject to CAD internal checking, further action may still be requested from the proposed training organisation at this stage.
- 3.5.3. Subject to satisfactory inspection and CAD internal checking, an initial approval for ATO(TR) will normally be **issued for a period of one year**. Subsequent renewal may be granted for a maximum period of three years if no adverse findings were identified during the validity period of ATO(TR) approval and conditions of approval stipulated in Chapter 4 is complied with.

4. CONDITIONS OF APPROVAL

4.1. Continued Oversight Inspections

4.1.1. Once an ATO(TR) has been issued with the initial approval, it is subject to continued oversight by the CAD. This oversight may include interim inspections, re-inspections or unannounced inspections as appropriate, and meetings between the Accountable Executive and the CAD to ensure both parties remain informed of significant issues.

4.1.2. Interim inspections will focus on the effectiveness of the ATO(TR)'s management system, safety management system and quality oversight for compliance monitoring; it is therefore essential that key management system personnel are available during the inspection. Also, significant emphasis will be placed on the sampling of training related activities and records.

4.2. Sampling of training activities and records

4.2.1. During oversight inspections, the CAD inspector will observe actual Theoretical Knowledge (TK) instruction and aircraft or simulated flight training, including pre-flight and post-flight briefings. The CAD inspector will aim not to disrupt or cause distraction during any observation of training.

4.2.2. Training records of students and staff, and standardisation records will also be sampled during the inspection, and must be made available to the CAD Inspector.

4.3. Personnel Changes including Key Post Holders

4.3.1. The ATO(TR) must at all times ensure that they have sufficient qualified personnel for the planned tasks and activities to be performed in accordance with the CAD requirements. Where there is any significant change to numbers and availability of staff, this should be reported to the CAD as soon as practicable, to ensure continued compliance with the requirements of ATO(TR).

- 4.3.2. It will be a condition of the approval that whenever a key post-holder leaves the ATO(TR), the training organisation shall contact the CAD immediately, and no later than the time frame specified in paragraph 4.4.3 of this document, for an interim arrangement agreed by the CAD. An alternative post holder may, on occasion, be able to assume both positions for a short period of time as agreed by the CAD. However, this will only be accepted if the existing post holder is qualified to hold the other position.
- 4.3.3. Depending on the size and complexity of the training organisation, the position of HT, Chief Flight Instructor (CFI) and Chief Technical Knowledge Instructor (CTKI) may be combined and filled by one or two persons with extensive experience in the training conducted by the ATO(TR). Nevertheless, prior acceptance of these combined key post-holders must be sought from the CAD before such appointment.

4.4. Other changes to the Organisation

- 4.4.1. Where the change is in respect of the scope of the ATO(TR) or its terms of approval, the training organisation will need to apply formally for these changes to the CAD no later than the timeframe specified in paragraph 4.4.3.
- 4.4.2. Some examples of changes that may affect the terms of approval are listed below:
- (a) the name of the organisation;
 - (b) the organisation's principal place of business;
 - (c) the organisation's scope of activities;
 - (d) additional locations of the organisation;
 - (e) the Accountable Executive;
 - (f) any key post holder(s);
 - (g) the training organisation's documentation as required for the approval of ATO(TR);
 - (h) additional locations of facilities.
- 4.4.3. The application for the amendment of an ATO(TR) approval should be submitted to the CAD at least 30 days before the date of the intended changes.

5. REVOCATION, SUSPENSION OR VARIATION OF AN APPROVAL

5.1. Non-Compliance

- 5.1.1. In cases of any significant non-compliance with the applicable provisions in the AN(HK)O, CAD requirements for the approval of ATO(TR), training organisation's procedures or manuals, or terms and conditions of an approval, which **lowers safety or seriously hazards flight safety**, CAD will raise a **Level 1 finding** to the training organisation. Following a Level 1 finding, CAD can take immediate and appropriate action to prohibit, limit or suspend activities of an ATO(TR).
- 5.1.2. When any non-compliance is detected with the applicable provisions in the AN(HK)O, CAD requirements for the approval of ATO(TR), training organisation's procedures or manuals, or terms and conditions of an approval, which **could lower safety or hazard flight safety**, CAD will raise a **Level 2 finding** to the training organisation.
- 5.1.3. In accordance with the AN(HK)O and associated CAD provisions, an approval issued by CAD may be revoked, suspended or varied if the requirements cease to be met in part or in whole, or if the standards on which approval was granted are not maintained. Should there be a failure to meet the requirements or standards, the training organisation will be formally notified of the non-conformance(s) and remedial action will be identified and agreed to be taken within a specified time. Should the training organisation fail to meet the standards in the specified time, revocation, suspension or variation of the approval will be considered and, if appropriate, the approval will be revoked, suspended or varied.

6. RENEWAL OF AN APPROVAL

6.1. Timescales

6.1.1. Applications for the renewal of the approval should be submitted to the CAD at least 60 days before the expiry date in order to allow the CAD to determine the ATO(TR)'s continued compliance with the relevant requirements. Upon receipt of the renewal application, CAD will reassess the training organisation's maintenance of the required training standards and its compliance with the applicable requirements.

6.1.2. Renewal of the approval will normally be granted for a further period of three years, subject to the conditions described in paragraph 3.5.3.

6.1.3. Renewal requirements for lapsed approval is the same as if making an initial application for the approval.

6.1.4. A training organisation may not commence, conduct or continue training courses requiring CAD approval unless it has the relevant approval documentation in its possession.

PART TWO

SPECIFIC AREAS OF GUIDANCE

7. SAFETY MANAGEMENT SYSTEM (SMS)

7.1. General

7.1.1. An SMS is a system to assure the safe operation of aircraft and its related activities through effective management of safety risk. This system is designed to continuously improve safety by identifying hazards, collecting and analysing data and continuously assessing safety risks.

7.1.2. Where the training activities of the proposed ATO(TR) may expose direct impact upon the safe operation of aircraft, SMS is required to be in place in accordance with CAD712 “Safety Management Systems – A Guide to Implementation for Air Operators, International Non-Public Transport Operators, Maintenance Organisations and Flying Training Organisations”.

7.1.3. If the training activities of the proposed ATO(TR) only involve flight crew training using only FSTD or these activities do not directly pose a risk to the safe operation of an aircraft, then SMS may not be applicable.

7.2. Safety Manager

7.2.1. The appointed safety manager is responsible:

- (a) for the implementation and maintenance of an effective SMS; and
- (b) for advising the accountable executive and key post-holders on safety management matters; and
- (c) for coordinating and communicating safety issues within the training organisation, as well as with contracted organisations.

7.2.2. The safety manager's functions include, but are not limited to:

- (a) managing the SMS implementation plan on behalf of the accountable executive;
- (b) performing/facilitating hazard identification and safety risk analysis;
- (c) monitoring corrective actions and evaluating their results;
- (d) providing periodic reports on the training organisation's safety performance;
- (e) maintaining records and safety documentation;
- (f) planning and facilitating staff safety training;
- (g) providing independent advice on safety matters;
- (h) monitoring safety concerns in the aviation industry and their perceived impact on the training organisation's operations;
- (i) coordinating and communicating (on behalf of the accountable executive) with CAD and other organisations as necessary on issues relating to safety.

Note: Further details and guidance of SMS implementation are contained in CAD 712 "Safety Management Systems – A Guide to Implementation for Air Operators, International Non-Public Transport Operators, Maintenance Organisations and Flying Training Organisations" and ICAO Doc 9859 "Safety Management Manual".

8. QUALITY MANAGEMENT SYSTEM (QMS)

8.1. General

8.1.1. For the assurance of compliance with ATO(TR)'s operational and CAD requirements as well as safety performance, Quality Management System (QMS) is deemed as part of the element to be integrated into the training organisation's management system.

8.1.2. ATO(TR) shall ensure that the QMS includes a quality assurance programme which contains procedures designated to verify all operations are being conducted in accordance with all applicable requirements, standards and procedures.

8.1.3. The QMS should enable the training organisation to monitor compliance with the regulations and requirements, manual system, and any other standards specified by the training organisation and the CAD, to ensure safe operations.

8.1.4. The organisational set-up of the QMS should reflect the size, nature and complexity of activities conducted by the training organisation.

8.1.5. The QMS and the Quality Manager shall be acceptable to the CAD.

8.1.6. Depending on the nature and complexity of the training activities conducted by the training organisation, QMS may be combined with SMS subject to CAD's prior agreement.

8.2. Quality Policy

8.2.1. ATO(TR) shall establish a formal, written quality policy statement that is a commitment by the Accountable Executive as to what the quality system is intended to achieve. The quality policy should reflect the achievement and continued compliance with the CAD regulations and requirements in conjunction with any additional standards specified by the ATO(TR).

8.2.2. The Accountable Executive will have overall responsibility for the QMS, including the frequency, format and structure of the internal management evaluation activities.

8.3. Scope

8.3.1. The QMS should address, but are not limited to, the following:

- (a) The provisions of the regulations and requirements;
- (b) Additional standards and operating practices;
- (c) The quality policy;
- (d) ATO(TR)'s organisational structure;
- (e) Responsibility for the development, establishment and management of the QMS;
- (f) Documentation, including manuals, reports and records;
- (g) Quality procedures;
- (h) Quality assurance programme;
- (i) The required financial, material and human resources;
- (j) Training requirements; and
- (k) SMS programme, where SMS is combined with QMS.

8.3.2. The QMS should include a feedback system to the Accountable Executive to ensure that corrective actions are both identified and promptly addressed. The feedback system should also specify who is required to rectify discrepancies and non-compliance in each particular case, and the procedure to be followed if corrective action is not completed within an appropriate timescale.

8.4. Documentation

8.4.1. QMS documentation should include the following:

- (a) Quality policy;
- (b) Terminology;
- (c) Specified operational standards;
- (d) A description of the organisation;
- (e) The allocation of duties and responsibilities;
- (f) Operational procedures to ensure regulatory compliance;
- (g) The quality assurance programme, reflecting:
- (h) Schedule of the monitoring process;
- (i) Audit procedures;

- (j) Reporting procedures;
- (k) Follow-up and corrective action procedures;
- (l) Recording system;
- (m) The training syllabus; and
- (n) Document control

8.5. Quality Assurance Programme

8.5.1. The quality assurance programme should include all planned and systematic actions necessary to provide confidence that all operations are conducted in accordance with applicable requirements, standards and operational procedures.

8.5.2. The quality assurance programme should 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 timescales;
- (e) Report directly to the Quality Manager.

8.5.3. When establishing a quality assurance programme, consideration should be given to at least the following:

- (a) Quality inspection;
- (b) Audit;
- (c) Auditors;
- (d) Auditor's independence
- (e) Audit scope;
- (f) Audit scheduling;
- (g) Monitoring and corrective action; and
- (h) Management evaluation.

8.6. Quality Manager

- 8.6.1. To ensure that the training organisation continues to meet the requirements of this document and other applicable CAD requirements, the Accountable Executive should designate a Quality Manager for compliance monitoring.
- 8.6.2. The role of the quality manager is to ensure that the activities of the training organisation are monitored for compliance with the applicable CAD requirements, and any additional requirements as established by the training organisation, and that these activities are being carried out properly under the supervision of the relevant head of functional area.
- 8.6.3. The quality manager should be responsible for ensuring that the compliance monitoring programme is properly implemented, maintained and continually reviewed and improved.
- 8.6.4. The quality manager should:
- (a) have direct access to the Accountable Executive;
 - (b) not be one of the HT, CFI or CTKI;
 - (c) be able to demonstrate relevant knowledge, background and appropriate experience related to the activities of the training organisation; including knowledge and experience in QMS; and
 - (d) have access to all parts of the training organisation, and as necessary, any contracted organisation.
- 8.6.5. In the case the same person acts as Quality Manager and as Safety Manager, then the Accountable Executive, with regards to his/her direct accountability for safety, should ensure that sufficient resources are allocated to both functions, taking into account the size of the training organisation and the nature and complexity of its activities.

8.7. Quality Inspection

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

8.8. Audit

8.8.1. An audit is a systematic and independent comparison of the way in which an operation is being conducted against the way in which the published operational procedures it should be conducted.

8.8.2. Audits should include at least the following quality procedures and processes:

- (a) A statement explaining the scope of the audit;
- (b) Planning and preparation;
- (c) Gathering and recording evidence; and
- (d) Analysis of the evidence.

8.9. Audit scope

8.9.1. Typical subject areas for audits and inspections should include:

- (a) facilities;
- (b) actual flight and ground training; and
- (c) technical standards.

8.9.2. ATO(TR) should monitor training and operations manuals they have designed to ensure safe and efficient training. In doing so, they should, where appropriate, additionally monitor the following:

- (a) training procedures;
- (b) flight safety;
- (c) flight and duty time limitations, rest requirements and scheduling; and
- (d) aircraft maintenance/operations interface.

8.10. Audit Scheduling

- 8.10.1. A quality assurance programme should include a defined audit schedule and a periodic review cycle area by area. In addition, such programme should also allow unscheduled audits when trends are identified. Follow-up audits should be scheduled when necessary to verify that corrective action was carried out and that it was effective.
- 8.10.2. ATO(TR) should establish a schedule of audits to be completed during a specified calendar period. All aspects of the operation should be reviewed within every 12 month period in accordance with the programme unless an extension to the audit period is required due to unforeseeable operational reasons and accepted by the CAD. ATO(TR) may increase the frequency of audits at its discretion but should not decrease the frequency without CAD's prior agreement. In any case, audit frequency should not be decreased beyond a 24 month period interval.
- 8.10.3. When ATO(TR) defines the audit schedule, significant changes to the management, organisation, operation, or technologies should be considered as well as changes to the regulatory requirements.

8.11. Auditors

- 8.11.1. An operator should decide, depending upon the complexity of the operations, whether to make use of a dedicated audit team or a single auditor. In any event, the auditor or audit team should have relevant operational experience.
- 8.11.2. The responsibilities of the auditors should be clearly defined in the relevant documentation.

8.12. Auditor's Independence

- 8.12.1. Auditors should not have any day-to-day involvement in the area of the operation activity that is to be audited. ATO(TR) 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. When structure and/or size do not justify the establishment of full-time auditors, the audit function may be undertaken by the use of part-time personnel within its own organisation or from an external source under the terms of an agreement acceptable to CAD. In all cases, the training organisation should develop suitable procedures to ensure that persons directly responsible for the activities to be audited are not selected as part of the auditing team. Where external auditors are used, it is essential that any external specialist is familiar with the type of operation and/or maintenance conducted by the training organisation.
- 8.12.2. ATO(TR)'s quality assurance programme should identify the persons within the organisation 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 timescales;
 - (e) Report directly to the Quality Manager.

8.13. Monitoring and Corrective Actions

- 8.13.1. The aim of monitoring within the QMS is primarily to investigate and judge its effectiveness and thereby to ensure that defined policy, operational, and maintenance standards are continuously complied with. Monitoring activity is based upon quality inspections, audits, corrective action and follow-up. ATO(TR) should establish and publish a quality procedure to monitor regulatory compliance on a continuing basis. This monitoring activity should be aimed at eliminating the causes of unsatisfactory performance.

- 8.13.2. Any non-compliance identified as a result of monitoring should be communicated to the manager responsible for taking corrective action or, if appropriate, the Accountable Executive. Such non-compliance should be recorded, for the purpose of further investigation, in order to determine the cause and to enable the recommendation of appropriate corrective action.
- 8.13.3. The quality assurance programme should include procedures to ensure that corrective actions are taken in response to findings. These quality procedures should monitor such actions to verify their effectiveness and that they have been completed. Organisational responsibility and accountability for the implementation of corrective action resides with the department cited in the report identifying the finding. The Accountable Executive will have the ultimate responsibility for resourcing the corrective active action and ensuring, through the Quality Manager, that the corrective action has reestablished compliance with the standard required by the CAD, and any additional requirements defined by the organisation.
- 8.13.4. Subsequent to the quality inspection/audit, the training organisation should establish:
- (a) The seriousness of any findings and any need for immediate corrective action;
 - (b) The origin of the finding;
 - (c) What corrective actions are required to ensure that the non-compliance does not reoccur;
 - (d) A schedule for corrective actions;
 - (e) The identification of individuals or departments responsible for implementing corrective actions; and
 - (f) Allocation of resources by the Accountable Executive, where appropriate.
- 8.13.5. The Quality Manager should:
- (a) Verify that corrective action is taken by the manager responsible in response to any finding of non-compliance;
 - (b) Verify the corrective actions;
 - (c) Monitor the implementation and completion of corrective action;
 - (d) Provide management with an independent assessment of corrective actions; implementation and completion; and
 - (e) Evaluate the effectiveness of corrective action through follow-up process.

8.14. Management Evaluation

- 8.14.1. A management evaluation is a comprehensive, systematic, documented review by the management of the QMS, operational policies and procedures, and should consider:
- (a) The results of quality inspections, audits and any other indicators;
 - (b) The overall effectiveness of the management organisation in achieving stated objectives.
- 8.14.2. Management Evaluation should identify and correct adverse trends, and prevent, where possible, future non-conformities. Conclusions and recommendations made as a result of an evaluation should be submitted in writing to the responsible manager for action. The responsible manager should be an individual who has the authority to resolve issues and take action.
- 8.14.3. The Accountable Executive should decide upon the frequency, format and structure of internal management evaluation activities.

8.15. Recording

- 8.15.1. Accurate, complete and readily accessible records documenting the results of the quality assurance programme should be maintained by the ATO(TR). Records are essential data to enable the training organisation to analyse and determine the root causes of non-conformity, so that areas of non-compliance can be identified and addressed.
- 8.15.2. The following records should be retained for a period of 5 years:
- (a) Audit schedules;
 - (b) Quality inspection and audit reports;
 - (c) Responses to findings;
 - (d) Corrective action reports;
 - (e) Follow-up and closure reports; and
 - (f) Management evaluation reports.

8.16. Quality Assurance Responsibility for Sub-Contractors

- 8.16.1. Subject to CAD's prior agreement, ATO(TR) may sub-contract out certain activities to external agencies for the provision of training and services provided.
- 8.16.2. The ultimate responsibility for the training product or service provided by the sub-contractor always remains with the ATO(TR). A written agreement should exist between the ATO(TR) and the sub-contractor clearly defining the safety related services and quality to be provided. The sub-contractor's safety related activities relevant to the agreement should be included in the ATO(TR)'s quality assurance programme.
- 8.16.3. The ATO(TR) should ensure that the sub-contractor has the necessary authorisation/approval when required and commands the resources and competence to undertake the task.

8.17. Small Training Organisation

- 8.17.1. Training organisation employing 20 or less full time employees is regarded as "small" organisation. Full-time in this context means employed for not less than 35 hours per week excluding vacation periods.
- 8.17.2. Complex QMS may be inappropriate for small training organisations, and quality procedures for a complex system may stretch their resources. It is therefore accepted that such training organisation should tailor their quality systems to suit the size and complexity of their operation and allocate resources accordingly.
- 8.17.3. For small scale ATO(TR), it may be more appropriate to develop a quality assurance programme that employs a checklist. The checklist should have a supporting schedule that requires completion of all checklist items within a specified timescale, together with a statement acknowledging completion of a periodic review by top management. An occasional independent overview of the checklist content and achievement of the quality assurance should be undertaken.
- 8.17.4. Small scale ATO(TR) may decide to use internal or external auditors or a combination of the two. In these circumstances, it would be acceptable for external specialists and or qualified organisations to perform the quality audits on behalf of the quality manager.

- 8.17.5. If the independent quality audit function is being conducted by external auditors, the audit schedule should be shown in the relevant documentation.

- 8.17.6. Whatever arrangements are made, the training organisation retains the ultimate responsibility for the quality system and especially the completion and follow-up of corrective actions.

9. TRAINING MANAGEMENT

9.1. Personnel requirements

- 9.1.1. The training organisation shall appoint an Accountable Executive, who has the authority for ensuring that all activities can be financed and carried out in accordance with the corresponding CAD requirements. The Accountable Executive shall also be responsible for establishing and maintaining an effective management system.
- 9.1.2. A person or group of persons with the responsibility of ensuring that the training organisation remains in compliance with the ATO(TR) requirements, shall be nominated to CAD and be formally agreed by CAD before the appointment is made substantive. In addition, CVs of these personnel should be submitted to CAD by the proposed ATO(TR). Such personnel shall be ultimately responsible to the Accountable Executive.
- 9.1.3. An adequate number of qualified and competent personnel are to be employed for the planned tasks and activities to be performed in accordance with the ATO(TR) requirements. These personnel must be aware of the rules and procedures relevant to the exercise of their duties.
- 9.1.4. Details of the management structure, indicating individual responsibilities, should be included in the training organisation's operations manual.
- 9.1.5. The training organisation should also maintain appropriate experience, qualification and training records for all training personnel.

9.2. Head of Training (HT)

- 9.2.1. The nominated HT shall have the overall responsibility for:
- (a) ensuring that the training provided is in compliance with the ATO(TR) and corresponding CAD requirements;
 - (b) ensuring the satisfactory integration of flight training in an aircraft or a FSTD, and theoretical knowledge instruction; and
 - (c) supervising the progress of individual students.

- 9.2.2. The HT acceptable to CAD shall have extensive experience as an instructor in the areas relevant for the training provided by the ATO(TR) and should possess sound managerial capability.
- 9.2.3. Apart from managerial experience, in the three years period prior to first appointment as HT, the nominated HT shall also hold or have held a professional pilot licence issued by the CAD or an authority acceptable to the CAD, with associated ratings related to the flight training courses provided.
- 9.2.4. In an ATO(TR) providing training courses for different aircraft categories, the HT should be assisted by one or more nominated deputy HT(s).

9.3. Chief Flight Instructor (CFI)

- 9.3.1. The ATO(TR) shall nominate a CFI who will be responsible for the supervision of flight and flight simulation training instructors and for the standardisation of all flight instruction and flight simulation instruction.
- 9.3.2. The nominated CFI must:
- (a) hold a current professional pilot licence issued by the CAD or an authority acceptable to the CAD, with associated ratings related to the flying training courses provided; and
 - (b) have completed a minimum of 3,000 hours of flight time as pilot-in-command (PIC) on aeroplanes or 1,000 PIC hours on helicopters. At least 2,000 hours should be instructional duties on aeroplane/FSTD or 500 hours instructional duties on helicopters; and
 - (c) hold or have held a Letter of Authority (LOA) as an Authorised Examiner (AE) – Type Rating Examiner/Instrument Rating Examiner (TRE/IRE) issued by the CAD or similar qualification issued by an authority acceptable to the CAD.

9.4. Chief Synthetic Flight Instructor (CSFI)

- 9.4.1. If the scope of training offered by the training organisation warrants (e.g. part of, or whole integrated training courses leading to the issue of an aircraft Type Rating utilising FSTD only), it may appoint a CSFI as one of the key post holders to substitute the nomination of a CFI.
- 9.4.2. Where CSFI and CFI are both appointed, the duties and responsibilities of the CFI shall be adjusted accordingly.
- 9.4.3. CSFI shall be responsible for the supervision of synthetic flight instructors and for the standardisation of all synthetic flight training instruction.
- 9.4.4. Reporting lines for both CFI and CSFI to the Head of Training shall be clearly established and reflected in the documentation required under the approval.
- 9.4.5. The CSFI shall:
- (a) hold or have held a professional pilot licence for the applicable aircraft type issued by the CAD or an authority acceptable to the CAD;
 - (b) have completed 2, 000 hours of flight time as a pilot on the applicable aircraft type; and
 - (c) have at least two years' experience as a Synthetic Flight Instructor for associated type rating training courses conducted by a training organisation approved by the CAD or an authority acceptable to the CAD.

9.5. Chief Theoretical Knowledge Instructor (CTKI)

9.5.1. The ATO(TR) providing theoretical knowledge instruction shall nominate a CTKI who shall be responsible for the supervision of all theoretical knowledge instructors and for the standardisation of all theoretical knowledge instruction.

9.5.2. CTKI shall have:

- (a) extensive experience as a theoretical knowledge instructor in the areas relevant for the training provided by the ATO(TR); and
- (b) practical background in aviation in the areas relevant for the training provided.

9.5.3. The duties and responsibilities of the CTKI shall include development of theoretical knowledge training courses, maintenance of trainee reference material, theoretical knowledge instruction records and the programming of theoretical knowledge ground examinations. In a small ATO(TR) this post may be combined with the HT, CFI or CSFI.

10. TRAINING STAFF – INSTRUCTORS

10.1. General

- 10.1.1. Sufficient instructors must be employed to ensure the proper continuity of training for all trainees attending the training courses.
- 10.1.2. The ratio of all trainees to flight instructors, excluding the HT, should not exceed 6:1.
- 10.1.3. Class numbers in theoretical knowledge or other ground subjects involving a high degree of supervision or practical work should not exceed 12 trainees. For other classes, it should not exceed 24 trainees.
- 10.1.4. Instructors shall not act in any capacity at more than one ATO(TR) except with the permission of CAD.

10.2. Flight Instructors (FI)

- 10.2.1. Flight Instructors must:
 - (a) hold a current professional pilot licence issued by the CAD or an authority acceptable to the CAD, with associated ratings related to the flight training courses provided;
 - (b) have a minimum of 2,000 hours of flight time as pilot on aeroplane or 500 hours on helicopters; and at least 500 of those are PIC hours on aeroplanes or 200 PIC hours on helicopters; and
 - (c) have a current appointment as:
 - (i) CAD Authorised Examiner or equivalent, authorised by an authority acceptable to the CAD, for the applicable type rating training courses provided; or
 - (ii) Type Rating Instructor – Simulator (TRI – Simulator) approved by the CAD or an authority acceptable to the CAD, for the applicable type rating training courses provided; or
 - (iii) Flight Instructor (FI) with associated FI rating issued by the CAD or an authority acceptable to the CAD, for the applicable type rating training courses provided; or
 - (iv) Line Training Captain; or
 - (v) other equivalent qualification acceptable to the CAD.

10.3. Synthetic Flight Instructors (SFI)

10.3.1. SFI shall:

- (a) hold or have held a professional pilot licence issued by the CAD or an authority acceptable to the CAD, with associated ratings related to the training courses provided;
- (b) have completed a minimum of 1, 500 hours flight time as a pilot on an aircraft fleet or type acceptable to the CAD; and
- (c) have had relevant instructional training experience acceptable to the CAD.

10.4. Theoretical Knowledge Instructors (TKI)

10.4.1. TKI shall have:

- (c) practical background in aviation in the areas relevant for the training provided and have undergone a course of training in instructional techniques; or
- (d) previous experience in giving theoretical knowledge instruction and an appropriate theoretical background in the subject on which they will provide theoretical knowledge instruction.

10.4.2. The theoretical knowledge instruction for type ratings should be conducted by instructors holding the appropriate type rating, or having appropriate experience in aviation and knowledge of the aircraft concerned.

10.4.3. Flight engineers or maintenance engineers could be considered as having appropriate experience in aviation and knowledge of the aircraft concerned.

10.4.4. Theoretical knowledge instructors should, before appointment, prove their competency by giving a test lecture based on material they have developed for the subjects they are to teach.

11. TRAINING STANDARDS

11.1. Requirements

- 11.1.1. The CFI shall be responsible for the supervision of flight and synthetic flight instructors and for their standardisation. The ATO(TR) Operations Manual shall describe the process and procedure to be used to achieve these requirements.
- 11.1.2. Arrangements are to be made for periodic standardisation training and checking. Such training and checking is to be recorded within the training organisation's quality management system for quality assurance and monitoring.
- 11.1.3. The CAD will need to be satisfied that instructors have been instructed on and achieved the required standard in the associated types of training to be conducted on courses, covering their operation and the instruction to be given to trainees with regards to the training programme and Training Manuals.

12. TRAINING PROGRAMME

12.1. General

- 12.1.1. A training programme shall be developed for each type of course offered by the training organisation and approved by CAD.
- 12.1.2. The training programme should include a breakdown of flight and theoretical knowledge instruction, presented in a week-by-week or phase layout, a list of standard exercises and a syllabus summary.
- 12.1.3. The training syllabi contained in the ATO(TR)'s Training Manual(s) should identify the device and reflect the number of hour's credit for each device and each course. These will be reviewed and agreed by CAD. Any changes should be submitted to CAD for approval prior to implementation.
- 12.1.4. Synthetic flight training in an FSTD and theoretical knowledge instruction should be phased in such a manner as to ensure that trainees are able to apply the knowledge gained on the ground to flight exercises. Arrangements should be made so that problems encountered during instruction can be resolved during subsequent training.
- 12.1.5. When developing the training programme for a type rating course, the ATO(TR) should comply with the CAD requirements and standards included in the Operational Suitability Data (OSD) or equivalent reference documents for the applicable aircraft type(s).
- 12.1.6. The type rating course should, as far as possible, provide for a continual process of theoretical knowledge, FSTD and flight training to enable the trainee to assimilate the knowledge and skills required to operate a specific aircraft type safely and efficiently for the grant of a type rating. The trainee's ability to do this should be determined by the demonstration of a satisfactory level of theoretical knowledge of the aircraft determined by progressive checking of knowledge and examination, progressive assessment by the training organisation during flight training and the successful completion of the offered training course.

12.1.7. The type rating course should be conducted as a single, full-time course of study and training. However, some elements of the theoretical knowledge course conducted by self-study may be undertaken while the student continues to fly the current aircraft type.

12.2. Aircraft Type Variants

12.2.1. Familiarisation training: Where an aircraft type rating also includes variants of the same aircraft type requiring familiarisation training, the additional familiarisation training may be included in the theoretical knowledge training of the initial type rating course. Flight training should be conducted on the corresponding aircraft type.

12.2.2. Differences training: Where an aircraft type rating also includes variants of the same aircraft type for which “differences training” is required, the initial training course should be directed towards a single variant. Additional training to operate other variants within the same type rating should only be completed after successful completion of the initial type rating course.

12.3. Programme of Theoretical Knowledge and Flight Training

12.3.1. The training programme should specify the time allocated to theoretical knowledge training, synthetic flight training and, if not approved for zero flight-time training (ZFTT), flight training. For the first type rating on a multi-pilot aircraft, the course should also provide for consolidation and type-specific training in those elements of basic Multi-Crew Cooperation (MCC) training relevant to the type or variant.

12.3.2. If the training organisation wishes to provide a training course that includes credit for previous experience on similar types of aircraft, such as those with common systems or operating procedures with the new type, the entry requirements to such courses should be specified by the training organisation. Reference shall be made to CAD requirements for defining the minimum level of experience and qualification required for flight crew members.

12.4. Theoretical Knowledge Instruction Syllabus

12.4.1. The theoretical knowledge syllabus should provide for the trainee to gain a thorough understanding of the operation, function and, if appropriate, abnormal and emergency operation of all aircraft systems. This training should also include those systems essential to the operation of the aircraft.

12.4.2. The theoretical knowledge instruction training should meet the general objectives of, but not be limited to, giving the trainee:

- (a) a thorough knowledge of the aircraft structure, powerplant and systems, and their associated limitations, including mass and balance, aircraft performance and flight planning considerations;
- (b) a knowledge of the positioning and operation of the cockpit controls and indicators for the aircraft and its systems;
- (c) an understanding of system malfunctions, their effect on aircraft operations and interaction with other systems; and
- (d) the understanding of normal, abnormal and emergency procedures.

Note: Further details of required theoretical knowledge are given in CAD360 Part One and CAD54.

12.5. Computer-Based Training (CBT)

12.5.1. CBT provides a valuable source of theoretical instruction, enabling the trainees to progress at their own pace within specified time limits. Many such systems ensure that syllabus subjects are fully covered and progress can be denied until a satisfactory assimilation of knowledge has been demonstrated. Such systems may allow self-study or distance learning, if they incorporate adequate knowledge testing procedures. When CBT is used as part of the theoretical knowledge instruction phase, the trainee should also have access to a suitably qualified instructor able to assist with areas of difficulty for the trainee.

12.6. Self-study and Distance Learning

12.6.1. Elements of the theoretical knowledge syllabus may be adequately addressed by distance learning, if accepted by the CAD, or self-study, particularly when utilising CBT. Progress testing, either by self-assessed or instructor-evaluated means should be included in any self-study programme. If self-study or distance learning is included in the theoretical knowledge training, the course should also provide for an adequate period of supervised consolidation and knowledge testing.

12.7. Progress tests and final theoretical knowledge examination

12.7.1. The theoretical knowledge training programme should provide for progressive testing of the assimilation of the required knowledge. This testing process should also provide for retesting of syllabus items so that a thorough understanding of the required knowledge is assured. This should be achieved by intervention by a qualified instructor or, if using CBT with a self-testing facility, and by further testing during the supervised consolidation of the theoretical knowledge phase.

12.7.2. The final theoretical knowledge examination should cover all areas of the theoretical knowledge syllabus. The final examination should be conducted as a supervised written or computer-based knowledge test without reference to course material. Minimum pass mark of 75% assumes the achievement of satisfactory levels of knowledge during the progressive phase tests of the course. The trainee should be advised of any areas of lack of knowledge displayed during the examination and, if necessary, given remedial instruction. A successful pass of the theoretical knowledge course and final examination should be a pre-requisite for progression to the synthetic flight training and flight training phase of the type rating course.

12.8. Flight Training Programme with the use of Flight Simulation Training Device (FSTD) – Aeroplanes

- 12.8.1. A type rating course for a multi-crew aeroplane shall include FSTD training.
- 12.8.2. The amount of training required when using FSTDs will depend on the complexity of the aeroplane concerned, and to some extent on the previous experience of the pilot. A minimum of 32 hours of FSTD training should be programmed for a crew of a Multi-Pilot Aircraft (MPA), of which at least 16 hours should be in an FFS as operating crew. FFS time may be reduced if other qualified FSTDs used during the flight training programme accurately replicate the cockpit environment, operation and aircraft response. Such FSTDs may typically include Flight Management Computer (FMC) training devices using hardware and computer programmes identical to those of the aeroplanes.
- 12.8.3. Subject to prior acceptance by CAD, the minimum training hours requirement in 12.8.2 may be reduced for the following types of training:
- (a) training courses that give credit for previous experience, such as Cross Crew Qualification (CCQ);
 - (b) type rating training for an aircraft type variant; or
 - (c) other training as accepted by CAD.

12.9. Flight Training Programme without the use of FSTD – Aeroplanes

- 12.9.1. Flight training conducted solely in an aeroplane without the use of FSTDs cannot cover the Crew Resource Management (CRM) and MCC aspects of MPA flight training, and for safety reasons cannot cover all emergency and abnormal aircraft operation required for the training and skill test. In such cases, the ATO(TR) should demonstrate to CAD that adequate training in these aspects can be achieved by other means.
- 12.9.2. For training conducted solely on an MPA where two pilots are trained together without the use of an FSTD, a minimum of 8 hours of flight training as pilot flying (PF) for each pilot should normally be required.

12.9.3. Aeroplane training normally involves an inherent delay in achieving an acceptable flight situation and configuration for training to be carried out in accordance with the approved syllabus. These could include ATC or other traffic delay on the ground prior to take-off, the necessity to climb to height or transit to suitable training areas and the unavoidable need to physically reposition the aircraft for subsequent or repeat manoeuvres or instrument approaches. In such cases, it should be ensured that the training syllabus provides adequate flexibility to enable the minimum amount of required flight training to be carried out.

12.10. Flight Training Programme with the use of FSTD – Helicopters

12.10.1. The level of qualification and the complexity of the FSTD type will determine the amount of practical training that may be accomplished in an FSTD, including completion of the skill test. Prior to undertaking the skill test, the trainee pilot should demonstrate competency in the skill test items during the practical training.

12.10.2. The amount of flight training time proposed to CAD should be adequate for the completion of the skill test. These amounts should be regard as the minimum requirement and documented in the ATO(TR) Training Manual.

12.11. Flight Training Programme without the use of FSTD – Helicopters

12.11.1. Whenever a helicopter is used for practical flight training, the amount of flight time practical training should be adequate for the completion of the skill test. The amount of flight training will depend on the complexity of the helicopter type involved and, to some extent, on the previous experience of the trainee pilot.

12.11.2. These amounts should be in agreement with CAD and documented as the minimum requirement in the ATO(TR) Training Manual.

12.12. Skill Test

- 12.12.1. Upon completion of the flight training, the trainee pilot will be required to undergo a skill test with a CAD Authorised Examiner (AE) or Flight Examiner to demonstrate adequate competency of aircraft operation for issue of the type rating. The skill test should be separate from the flight training syllabus, and provision for it cannot be included in the minimum requirements or training hours of approved flight training programme.
- 12.12.2. The HT, or a nominated representative, should certify that all training has been carried out before a trainee pilot undertakes a skill test for the type rating to be included in the pilot's licence.
- 12.12.3. Skill Test items for various aircraft type ratings are detailed in DCA526 and DCA528 forms, where applicable. Further information and requirements are stipulated in CAD54.

12.13. Aircraft Base Training (ABT) and Simulator Base Training (SBT)

- 12.13.1. ABT and SBT may only be commenced after the trainee pilot has completed the FSTD initial or conversion training and has successfully undertaken the skill test.
- 12.13.2. Detailed requirements for ABT and SBT are provided in DCA526, DCA528 forms and CAD360 Part One, Chapter 5.

13. RECORDS

13.1. Responsibility

13.1.1. The HT or the nominated deputy shall be responsible for ensuring that all training records are maintained in respect of the flight, theoretical knowledge and synthetic flight training undertaken.

13.2. Record-keeping System

13.2.1. Proportionate to the size and complexity of the ATO(TR), adequate administrative staff should be provided to accomplish the routine administration of training courses provided.

13.2.2. The record-keeping system should ensure that all training records are accessible whenever needed within a reasonable time. These records should be organised in a way that ensures traceability and retrievability throughout the required retention period.

13.2.3. Training records should be kept in paper form or in electronic format or a combination of both. These records should remain legible throughout the required retention period. The retention period starts when the record has been created or last amended.

13.2.4. Paper systems should use robust material which can withstand normal handling and filing. Computer systems should have at least one backup system which should be updated within 24 hours of any new entry. Computer systems should include safeguards against the ability of unauthorised personnel to alter the data.

13.2.5. All computer hardware used to ensure data backup should be stored in a different location from that containing the working data and in an environment that ensures they remain in good condition. When hardware or software changes take place, special care should be taken that all necessary data continues to be accessible.

13.3. Content of Records

- 13.3.1. The form and content of records appropriate to the training courses conducted, should be specified in the ATO(TR) Training Manual and be acceptable to the CAD.
- 13.3.2. The following records shall be kept for a period of at least 2 years after the completion of the training:
- (a) details of ground, flight, and simulated flight training given to individual trainees;
 - (b) detailed and regular progress reports from instructors including assessments, and regular progress flight tests;
 - (c) theoretical knowledge examinations; and
 - (d) information on the licences and associated ratings and certificates of the trainees, including the expiry dates of medical certificates and ratings.

13.4. Course Completion Certificates

- 13.4.1. On satisfactory completion of the training course, the trainee is to be given a Course Completion Certificate signed by the HT, CTKI, or nominated deputy. An example of the certificate is to be included in the ATO(TR) Training Manual. Persons within an ATO(TR) who are authorised to sign Course Completion Certificates should be named in the ATO(TR) Operations Manual.
- 13.4.2. If an ATO(TR) only provides modular training (i.e. theoretical knowledge instruction training and/or the training in an FSTD), the ATO(TR) should issue such a certificate confirming the completion of the corresponding training module.

13.5. Personal Flying Log

- 13.5.1. Pilots' logbooks must be kept in accordance with the provisions of Article 22 in the AN(HK)O.

14. OPERATIONS MANUAL AND FLYING ORDERS

14.1. General requirements

- 14.1.1. The ATO(TR) shall establish and maintain an Operations Manual containing information and instructions to enable personnel to perform their duties and to give guidance to trainees on how to comply with course requirements.
- 14.1.2. The proposed ATO(TR) established within an organisation that holds a valid AOC will already have furnished an Operations Manual (OM) to the CAD as required by the AN(HK)O and CAD 360 Part One. If the conduct of type rating training is only under its own AOC requirements, such furnished OM may be accepted as fulfilling the requirements described in paragraph 14.1.1 above. Otherwise, a separate ATO(TR) operations manual is required.
- 14.1.3. Where the size of the training organisation does not warrant the production of an Operations Manual and subject to CAD's prior agreement, essential safety related operational information may be provided in the form of specific instructions called Flying Orders.
- 14.1.4. Each flying order shall be written as a positive order/instruction issued and signed by the HT with an issued or amended date.
- 14.1.5. All instructional staff involved in the conduct of the training course(s) shall sign as having read these flying orders at least once a year and whenever a flying order is published or amended. All trainees shall sign at the beginning of the course and whenever the Flying Order is amended or a new Flying Order is published thereafter until the end of the course. Arrangements are to be put in place to ensure that all instructional staff and trainees familiarise themselves with the content of amended or newly published Flying Orders.

14.2. Contents

- 14.2.1. The OM shall provide relevant information to particular groups of personnel, as flight instructors, flight simulation training instructors, theoretical knowledge instructors, operations and maintenance personnel, and shall include general, technical, route and staff training information.
- 14.2.2. Typical information to be included in the Operations Manual for use at an ATO(TR) conducting integrated or modular type rating training courses are listed in **Appendix 1**.

15. TRAINING MANUAL

15.1. Objectives

15.1.1. The training manual should state the standards, objectives and training goals for each phase of training that the trainees are required to comply with and shall at least address the following subjects:

- (a) training plan;
- (b) briefing and air exercises, if applicable;
- (c) flight training in an FSTD, if applicable; and
- (d) theoretical knowledge instruction.

15.1.2. ATO(TR) offering training courses for both aeroplanes and helicopters should produce separate Training Manuals for each course. Training organisation offering modular training courses are recommended to produce separate Training Manuals for each modular course, so that candidates are not presented with material that does not relate to their course of training.

15.1.3. ATO(TR) established within an organisation that holds a valid AOC will already have furnished an Operations Manual Part D (OM-D) to the CAD as required by the AN(HK)O and CAD 360 Part One. If the conduct of type rating training is only under its own AOC requirements, such furnished OM-D may be accepted as fulfilling the requirements described in paragraph 15.1.1 above. Otherwise, a separate ATO(TR) Training Manual is required.

15.1.4. Training organisations should note that the format and content of AOC operator's OM-D is not necessarily compatible with the ATO(TR) Training Manual. It is therefore recommended that a separate ATO(TR) Training Manual be produced which addresses type rating training only. Not all areas that are covered in the OM-D should be included in the ATO(TR) Training Manual.

15.1.5. Typical information to be included in the ATO(TR) Training Manual can be found at **Appendix 2**.

15.2. Requirements for entry to training

15.2.1. Training organisation providing training for associated aircraft type ratings should establish entrance requirements for candidates in their procedures. The entrance requirements should ensure that the students have enough academic knowledge, to be able to follow the courses.

15.2.2. These pre-requisites should be documented in the ATO(TR) Training Manual.

16. FACILITIES

16.1. Theoretical knowledge Instruction Facilities

16.1.1. The ATO(TR) should provide adequate facilities for classroom instruction and have available appropriately qualified and experienced instructors. Training aids should enable students to gain practical experience of the operation of systems covered by the theoretical knowledge syllabus and, in the case of multi-pilot aircraft, enable such practical application of the knowledge to be carried out in a multi-crew environment. Facilities should also be made available for student self-study outside the formal training programme.

16.2. Flight Simulation Training Devices

16.2.1. All Flight Simulation Training Devices (FSTD) utilised for the conduct of aircraft type rating training under the scope of CAD453 – Flight Simulator Qualification, must be approved by the CAD or other civil aviation authorities acceptable to the CAD.

16.2.2. The ATO(TR) should use an adequate fleet of training aircraft and/or FSTDs appropriate to the courses of training provided.

16.2.3. The ATO(TR) should only provide training in FSTDs when it demonstrates to the CAD that:

- (a) the adequacy between the FSTD specifications and the related training programme;
- (b) the FSTDs used comply with the relevant requirements in CAD453;
- (c) in the case of Full Flight Simulators (FFSs), that the FFS adequately represents the relevant type of aircraft; and
- (d) it has put in place a system to adequately monitor changes to the FSTD and to ensure that those changes do not affect the adequacy of the training programme.

16.2.4. Each FSTD should be equipped as required in the training specifications concerning the course in which it is used.

17. TRAINING AIRCRAFT

17.1. General

17.1.1. The ATO should use an adequate fleet of training aircraft or FSTDs appropriate to the courses of training provided.

17.1.2. When the course of training includes training conducted on aircraft, a fleet of training aircraft must be provided which will ensure the proper continuity of flying training for the number of students attending the course(s). The requirement for routine maintenance must be taken into account in determining fleet size.

17.2. Aircraft Requirements

17.2.1. All training aircraft used on an ATO(TR) course must reflect the corresponding aircraft type for the issue of aircraft type rating.

17.2.2. Training aircraft must have a valid Certificate of Airworthiness (C of A), Certificate of Registration (C of R) and other documents that are required by the State of Registry or the State of Operator. The aircraft must also be maintained in accordance with the continuing airworthiness requirements of the State of Registry or the State of Operator.

17.3. Changes to the Fleet

17.3.1. ATO(TR) should notify CAD in advance regarding any proposed changes to the fleet of training aircraft.

18. OPERATIONAL PUBLICATIONS

18.1. Required Publication

18.1.1. The following publications should be readily available to students and staff and, where applicable, with updated amendments:

- (a) ATO(TR) Operations Manual;
- (b) ATO(TR) Training Manual(s);
- (c) ATO(TR) Safety Management System Manuals;
- (d) CAD34 – Requirements and Criteria for the Approval of Type Rating Training Offered by A Training Organisation – ATO(TR);
- (e) Air Navigation (Hong Kong) Order 1995;
- (f) Aeronautical Information Publication;
- (g) CAD54 – Requirements Document – Pilot Licenses and Associated Ratings;
- (h) Aeronautical Information Circulars;
- (i) Flight Manuals for the aircraft used on the course(s);
- (j) ICAO ATC Flight Plans;
- (k) Standard meteorology reports and forecasts (in document or computer based formats); and
- (l) Flight planning documents including flight guide supplements, radio navigation charts. Arrival/departure charts and aerodrome Instrument Approach procedures charts. These documents may be in proprietary flight guides acceptable to the CAD, e.g. AERAD, Jeppesen.

APPENDIX 1

TYPICAL INFORMATION TO BE INCLUDED IN OPERATIONS MANUAL

A1.1 Typical information to be included in Operations manuals for use at an ATO(TR) conducting integrated or modular type rating training are:

Part 1 -General

- (a) A list and description of all volumes in the operations manual;
- (b) Administration (function and management);
- (c) Responsibilities (all management and administrative staff);
- (d) Trainee discipline and disciplinary action;
- (e) Approval or authorisation of flights;
- (f) Preparation of flying programme (restriction of numbers of aircraft in poor weather);
- (g) Command of aircraft;
- (h) Responsibilities of the PIC;
- (i) Aircraft documentation;
- (j) Retention of documents;
- (k) Flight crew qualification records (licences and ratings);
- (l) Revalidation (medical certificates and ratings);
- (m) Flight duty period and flight time limitations (flight instructors);
- (n) Flight duty period and flight time limitations (trainees);
- (o) Rest periods (flight instructors);
- (p) Rest periods (trainees);
- (q) Pilots' log books;
- (r) Flight planning (general);
- (s) Safety (general): equipment, radio listening watch, hazards, accidents and incidents (including reports), safety pilots etc.

Part 2 -Technical

- (a) Aircraft descriptive notes;
- (b) Aircraft handling (including checklists, limitations, maintenance and technical logs, in accordance with relevant requirements, etc.);
- (c) Emergency procedures;
- (d) Radio and radio navigation aids.

Part 3 -Route

- (a) Performance (legislation, take-off, route, landing etc.);
- (b) Flight planning (fuel, oil, minimum safe altitude, navigation equipment etc.);
- (c) Loading (load sheets, mass, balance and limitations);
- (d) Weather minima (planning and actual);
- (e) Training routes or areas.

Part 4 -Personnel Training

- (a) Appointments of persons responsible for training standards;
- (b) Initial training;
- (c) Refresher training;
- (d) Standardisation training;
- (e) Proficiency checks;
- (f) ATO(TR) personnel standards evaluation.

APPENDIX 2

TYPICAL INFORMATION TO BE INCLUDED IN ATO(TR) TRAINING MANUAL

A2.1 Training manuals for use at an ATO(TR) conducting integrated or modular flight training courses should include the following:

Part 1 - The Training Plan

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| (1) The aim of the course | (i) A statement of what the trainee 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. |
| (2) Pre-entry requirements | (i) Minimum age;
(ii) Education (including language);
(iii) Medical requirements. |
| (3) Training syllabi | (i) The flying syllabus (as applicable), the flight simulation training syllabus and the theoretical knowledge training syllabus. |
| (4) The time scale, in weeks, for each syllabus | (i) Arrangements of the course and the integration of syllabi time. |
| (5) Training programme | (i) The general arrangements of daily and weekly programmes for flying, theoretical knowledge training and training in FSTDs, if applicable;
(ii) Weather constraints;
(iii) Programme constraints in terms of maximum student training times, (flying, theoretical knowledge, on FSTDs), for example per day, week or month;
(iv) Restrictions in respect of duty and rest periods for trainees;
(v) Duration of flights and/or FSTD at various stages;
(vi) Maximum flying hours in any day or night;
(vii) Minimum rest period between duty periods. |

- (6) Training records
 - (i) Rules for security of records and documents;
 - (ii) Attendance records;
 - (iii) The form of training records to be kept;
 - (iv) Persons responsible for checking records and students' log books;
 - (v) The nature and frequency of record checks;
 - (vi) Standardisation of entries in training records;
 - (vii) Rules concerning log book entries.

- (7) Safety training
 - (i) Individual responsibilities;
 - (ii) Essential exercises;
 - (iii) Emergency drills.

- (8) Tests and examinations
 - (i) Flying and/or FSTD:
 - a. progress checks;
 - b. skill tests;
 - (ii) Theoretical knowledge:
 - a. progress tests;
 - b. theoretical knowledge examinations;
 - (iii) Rules concerning refresher training before retest;
 - (iv) Test reports and records.

- (9) Training effectiveness
 - (i) Individual responsibilities;
 - (ii) General assessment;
 - (iii) Liaison between departments;
 - (iv) Identification of unsatisfactory progress (individual students);
 - (v) Actions to correct unsatisfactory progress;
 - (vi) Procedure for changing instructors;
 - (vii) Maximum number of instructor changes per student;
 - (viii) Internal feedback system for detecting training deficiencies;
 - (ix) Procedure for suspending a student from training;
 - (x) Discipline;
 - (xi) Reporting and documentation.

- (10) Standards and level of Performance at various stages
 - (i) Individual responsibilities;
 - (ii) Standardisation;
 - (iii) Standardisation requirements and procedures;
 - (iv) Application of test criteria.

Part 2 – Course Structure

- (1) Phase of training A statement of how the course will be divided into phases, indication of how the various exercises will be divided between the phases and how they will be arranged to ensure that they are completed in the most suitable learning sequence and that essential (emergency) exercises are repeated at the correct frequency. Also, the syllabus hours for each phase and for groups of exercises within each phase should be stated and when progress tests are to be conducted, etc.
- (2) Integration of syllabi The manner in which theoretical knowledge and flight training in an aircraft or an FSTD will be integrated so that as the flying training exercises are carried out trainees will be able to apply the knowledge gained from the associated theoretical knowledge instruction and flight training.
- (3) Trainee progress The requirement for trainee progress and include a brief but specific statement of what a student is expected to be able to do and the standard of proficiency he/she must achieve 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 significant exercises.
- (4) Instructional methods The ATO(TR) requirements, particularly in respect of pre-session and post-session briefing, adherence to syllabi and training specifications.
- (5) Progress tests The instructions given to examining staff in respect of the conduct and documentation of all progress tests.
- (6) Glossary of terms Definition of significant terms as necessary.
- (7) Appendices
 - (i) Progress test report forms;
 - (ii) Skill test report forms;
 - (iii) ATO(TR) certificates of experience, competence, etc. as required.

Part 3 - Flight Training in FSTD only

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

Part 4 - Theoretical Knowledge Instruction

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| (1) Structure of the theoretical knowledge course | A statement of the structure of the course, including the general sequence of the topics to be taught in each subject, the time allocated to each topic, the breakdown per subject and an example of a course schedule. Distance learning courses should include instructions of the material to be studied for individual elements of the course. |
| (2) Lesson plans | A description of each lesson or group of lessons including teaching materials, training aids, progress test organisation and inter-connection of topics with other subjects. |
| (3) Teaching materials | Specification of the training aids to be used (for example study materials, course manual references, exercises, self-study materials, demonstration equipment). |
| (4) Trainee progress | The requirement for trainee progress, including a brief but specific statement of the standard that must be achieved and the mechanism for achieving this, before application for theoretical knowledge examinations. |
| (5) Progress testing | The organisation of progress testing in each subject, including topics covered, evaluation methods and documentation. |
| (6) Review procedure | The procedure to be followed if the standard required at any stage of the course is not achieved, including an agreed action plan with remedial training if required. |
