



ICAO

# Doc 9841

## Manual on the Approval of Training Organizations

Third Edition



Approved by and published under the authority of the Secretary General

INTERNATIONAL CIVIL AVIATION ORGANIZATION





| ICAO

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## AMENDMENTS

Amendments are announced in the supplements to the *Products and Services Catalogue*; the Catalogue and its supplements are available on the ICAO website at [www.icao.int](http://www.icao.int). The space below is provided to keep a record of such amendments.

### RECORD OF AMENDMENTS AND CORRIGENDA

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## FOREWORD

The purpose of this document is to provide information and guidance to the Licensing Authority on the implementation of the Standards of Annex 1 — *Personnel Licensing* related to the approval of training organizations, as well as the associated provisions in the *Procedures for Air Navigation Services — Training* (PANS-TRG, Doc 9868). The first edition of Doc 9841 was developed by the Flight Crew Licensing and Training Panel in 2004 and focused exclusively on flight training entities. The second edition was significantly expanded in scope and dealt with the approval of training organizations which provide training services for the issue of an aviation personnel licence or rating. The third edition aligns the guidance material with Amendment 5 to the PANS-TRG and introduces an alternative approval process for foreign approved training organizations. This manual should be used in conjunction with Annex 1.

Comments on this manual would be appreciated. They will be taken into account in the preparation of subsequent editions. Comments concerning the manual should be addressed to:

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# GLOSSARY

When the following terms are used in this manual, they have the following meanings:

**Accountable executive.** The individual who has corporate authority for ensuring that all training commitments can be financed and carried out to the standard required by the civil aviation authority, and any additional requirements defined by the approved training organization (ATO).

*Note.— The accountable executive is normally the head of training and may delegate to another person within the organization the day-to-day management functions but not the overall approval management responsibility. In complex corporate structures, the accountable executive may be responsible for several different ATOs, each with its own head of training.*

**Adapted competency model.** A group of competencies with their associated description and performance criteria adapted from an ICAO competency framework that an organization uses to develop competency-based training and assessment for a given role.

**Alternate means of compliance.** A pre-approved manner of achieving regulatory compliance that has been determined to be an acceptable substitute to the regulatory requirements.

*Note 1.— An example of alternate means of compliance would be the civil aviation authority's acceptance of reduced training time for personnel undergoing a specific air operator's approved aircraft type-rating training programme rather than the training time requirements traditionally prescribed for approved programmes of a more generic nature leading to the same aircraft type-rating.*

*Note 2.— This definition is introduced to ensure that the reader understands the difference between an "alternate means of compliance" (a term used by some States) and an "alternative means of compliance" (a term used by ICAO). The concept of "alternate means of compliance" is not relevant to the guidance provisions of this manual.*

**Alternative means of compliance.** An approved alternative to prescribed approaches, which has been demonstrated to consistently achieve or exceed the desired outcomes as intended through regulation.

**Approved maintenance organization (AMO).<sup>†</sup>** An organization approved by a Contracting State, in accordance with the requirements of Annex 6, Part I, Chapter 8 — Aeroplane Maintenance, to perform maintenance of aircraft or parts thereof and operating under supervision approved by that State.

*Note.— Nothing in this definition is intended to preclude that the organization and its supervision be approved by more than one State.*

**Approved maintenance organization.<sup>††</sup>** An organization approved by a Contracting State, in accordance with the requirements of Annex 8, Part II, Chapter 6 – Maintenance Organization Approval, to perform maintenance of aircraft, engine, propeller or parts thereof and operating under supervision approved by that State.

*Note.— Nothing in this definition is intended to preclude that the organization and its supervision be approved by more than one State.*

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† Applicable until 4 November 2020.

†† Applicable as of 5 November 2020.

**Approved training.** Training conducted under special curricula and supervision approved by a Contracting State.

**Approved training organization (ATO).** An organization approved by and operating under the supervision of a Contracting State in accordance with the requirements of Annex 1 to perform approved training.

*Note.— The Contracting State is required to ensure that the ATO is included in the State’s ongoing safety oversight programme.*

**Baseline CAA.** The authority whose approval establishes the baseline for the alternative approval process of a foreign ATO.

**Checking.** See definition of **testing**.

**Competency.** A dimension of human performance that is used to reliably predict successful performance on the job. A competency is manifested and observed through behaviours that mobilize the relevant knowledge, skills and attitudes to carry out activities or tasks under specified conditions.

**Competency-based training and assessment.** Training and assessment that are characterized by a performance orientation, emphasis on standards of performance and their measurement, and the development of training to the specified performance standards.

*Note.— This training process is derived from a job and task analysis and is focused on the achievement of well-defined benchmarked standards of performance as opposed to training programmes simply focused upon the acquisition of prescribed levels of experience.*

**Competency standard.** A level of performance that is defined as acceptable when assessing whether or not competency has been achieved.

**Compliance.** The state of meeting those requirements mandated through regulation.

**Conditions.** Anything that may qualify a specific environment in which performance will be demonstrated.

**Conformity.** The state of meeting established criteria, standards, specifications and desired outcomes.

**Evaluator.** A generic term used in the context of an approved training organization (ATO) to describe a person who is qualified, authorized and assigned to carry out specific assessment, checking, testing and/or auditing duties to determine that all required standards of performance have been satisfactorily achieved.

*Note 1.— These standards of performance may be obligated as an end-state objective or be required to be met on a continuous basis. In either case, the evaluator is responsible for making a determination of the actual standards attained and any recommendations for immediate remediation.*

*Note 2.— Evaluator functions may be assigned to suitable ATO instructors for the continuous evaluation of students in a competency-based training programme and for progress checks at the end of a phase of training. Evaluator functions, associated with the role of an examiner for the Licensing Authority, may also be assigned to ATO instructors for the final examination at the completion of the training programme, either through a civil aviation authority (CAA) designation or under an ATO process approved by the CAA.*

**Finding.** A finding is a conclusion by the operator’s or by the *civil aviation authority’s* audit personnel that demonstrates either non-compliance with a regulation or non-conformity with a specific standard.

**Foreign ATO.** An approved training organization (ATO) located outside of the State or outside of the territory of the States of the regional safety oversight organization.

**Hazard.** A condition or an object with the potential to cause injuries to personnel, damage to equipment or structures, loss of material, or reduction of ability to perform a prescribed function.

**Head of training.** The individual responsible for the organization's activities, policies, practices and procedures while ensuring the continued maintenance of the training organization's approval status.

*Note.— The head of training is normally the accountable executive; however, in complex corporate structures it may be possible that the accountable executive is located at company headquarters and oversees the operation of several different ATOs. In this case, the head of training is designated by the accountable executive.*

**ICAO competency framework.** A competency framework, developed by ICAO, with a selected group of competencies for a given aviation discipline. Each competency has an associated description and observable behaviours.

**Instructional services manager.** The manager responsible for the day-to-day delivery of training services that consistently meet regulatory requirements and organizational objectives.

*Note.— The head of training is generally the instructional services manager except when the delivery of training services may spread over several locations or over several specialities, with dedicated instructional services managers.*

**Instructional systems design (ISD).** A formal process for designing training which includes analysis, design and production, and evaluation.

**Licensing Authority.** The Authority designated by a Contracting State as responsible for the licensing of personnel.

*Note.— In the provisions of Annex 1, the Licensing Authority is deemed to have been given the following responsibilities by the Contracting State:*

- a) *assessment of an applicant's qualifications to hold a licence or rating;*
- b) *issue and endorsement of licences and ratings;*
- c) *designation and authorization of approved persons;*
- d) *approval of training courses;*
- e) *approval of the use of flight simulation training devices and authorization for their use in gaining the experience or in demonstrating the skill required for the issue of a licence or rating; and*
- f) *validation of licences issued by other Contracting States.*

**Maintenance manager.** The manager responsible for the day-to-day provision of aircraft maintenance activities and the continuing airworthiness of all aircraft released for flight operations.

**Observable behaviour (OB).** A single role-related behaviour that can be observed and may or may not be measurable.

**Performance criteria.** Statements used to assess whether the required levels of performance have been achieved for a competency. A performance criterion consists of an observable behaviour, condition(s) and a competency standard.

**Policy.** A document containing the organization's position or stance regarding a specific issue.

**Process.** A set of interrelated or interactive activities which transform inputs into outputs.

**Quality.** The totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs.

**Quality assurance (QA).** All the planned and systematic actions necessary to provide adequate confidence that all training activities satisfy given standards and requirements, including the ones specified by the approved training organization in relevant manuals.

**Quality audit.** A systematic and independent examination to determine whether quality activities and related results comply with planned arrangements and whether these arrangements are implemented effectively and are suitable to achieve objectives.

**Quality inspection.** That part of quality management involving quality control. In other words, inspections accomplished to review a document or observe events/actions, etc., in order to verify whether established operational procedures and requirements are being fulfilled during the accomplishment of the event or action, and whether the required standard is being achieved.

*Note.— Student stage checks and skill tests are quality inspections, and they are also quality control functions.*

**Quality management.** A management approach focused on the means to achieve product or service quality objectives through the use of its four key components: quality planning; quality control; quality assurance; and quality improvement.

*Note.— This definition is specific to this manual.*

**Quality manager.** The manager responsible for the quality monitoring function and for requesting remedial action.

*Note.— The quality manager is responsible directly to the head of training. In the event the approved training organization's (ATO's) head of training is not the accountable executive, reporting mechanisms should be instituted to ensure that the accountable executive is aware of all issues impacting the quality of the training services being provided by the affected ATO.*

**Quality manual.** The document containing the relevant information pertaining to the approved training organization's quality system.

**Quality of training.** The outcome of the training that meets stated or implied needs within the framework of defined standards.

**Quality system (QS).** The aggregate of all the organization's activities, plans, policies, processes, procedures, resources, incentives and infrastructure working in unison towards a total quality management approach. It requires an organizational construct complete with documented policies, processes, procedures and resources that underpins a commitment by all employees to achieve excellence in product and service delivery through the implementation of best practices in quality management.

*Note.— This definition is specific to this manual.*

**Safety management system (SMS).** A systematic approach to managing safety, including the necessary organizational structures, accountabilities, responsibilities, policies and procedures.

*Note 1.— A safety management system, consisting of documented policies, processes and procedures designed to manage risks, integrates operations and technical systems with the management of financial and human resources to ensure aviation safety and the safety of the public.*

*Note 2.— The requirement to adopt SMS practices is restricted to only those entities whose activities directly impact upon the safe operation of aircraft.*

**Safety manager.** The manager responsible for providing guidance and direction for the planning, implementation and operation of the organization's safety management system.

*Note.— The safety manager is directly responsible to the head of training. In the event that the approved training organization's (ATO's) head of training is not the accountable executive, reporting mechanisms should be instituted to ensure that the accountable executive is aware of all issues impacting the safety programme of the affected ATO.*

**Testing.** The comparison of the knowledge about a task or the skill to perform a task against an established set of criteria to determine that the knowledge or skill observed meets or exceeds, or does not meet, those criteria.

*Note.— The use of the words testing or checking depends on the civil aviation authority's preference because they are very similar in meaning, and their use may be dependent on the outcome of the event, e.g. a step towards a licence issuance, a recurrent evaluation of competency.*

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## LIST OF ACRONYMS

AAP	Alternative approval process
ADDIE	Analyse, design, develop, implement and evaluate
AMO	Approved maintenance organization
AQP	Advanced qualification programme
ATO	Approved training organization
ATQP	Alternative training and qualification programme
CAA	Civil aviation authority
FCLTP	Flight Crew Licensing and Training Panel (ICAO)
FSTD	Flight simulation training device
ISD	Instructional systems design
IWG	International working group
LMS	Learning management system
MPL	Multi-crew pilot licence
PANS-TRG	Procedures for Air Navigation Services — Training
PDCA	Plan–do–check–act
QA	Quality assurance
QS	Quality system
RA	Risk assessment
RSOO	Regional safety oversight organization
SMS	Safety management system



# PUBLICATIONS

(referred to in this manual)

*Convention on International Civil Aviation (Doc 7300)*

## Annexes

*Annex 1 — Personnel Licensing*

*Annex 6 — Operation of Aircraft*

*Part I — International Commercial Air Transport — Aeroplanes*

*Part III — International Operations — Helicopters*

*Annex 19 — Safety Management*

## Procedures for Air Navigation Services (PANS)

*Training (PANS-TRG, Doc 9868)*

## Manuals

*Human Factors Training Manual (Doc 9683)*

*Manual of Criteria for the Qualification of Flight Simulation Training Devices (Doc 9625)*

*Manual of Evidence-based Training (Doc 9995)*

*Manual of Procedures for Establishment and Management of a State's Personnel Licensing System (Doc 9379)*

*Manual on the Competencies of Civil Aviation Safety Inspectors (Doc 10070)*

*Safety Management Manual (SMM) (Doc 9859)*

*Safety Oversight Manual (Doc 9734)*

*Part B — The Establishment and Management of a Regional Safety Oversight Organization*



# Chapter 1

## APPROVED TRAINING ORGANIZATION (ATO) — INTRODUCTION

### 1.1 CHARACTERISTICS

1.1.1 An ATO is an organization that is approved by the Licensing Authority to deliver specific approved training programmes to aviation personnel for licensing purposes. As a prerequisite to the approval process, this organization will have demonstrated that it is staffed, equipped, financially resourced and operated in a manner conducive to achieving the required standards. Its approved programmes may from time to time take advantage of the reduced experience requirements provided for in both Annex 1 and the applicable national regulations for certain licences and ratings.

1.1.2 Annex 1, 1.2.8.3, 1.2.8.4 and 1.2.8.5 (including Amendment 175 for remotely piloted aircraft system licences) state that “approved training for flight crew and air traffic controllers” for the issuance of an Annex 1 licence or rating and “competency-based approved training for remote flight crew, and aircraft and remotely piloted aircraft system maintenance personnel shall be conducted within an ATO”. Although not falling under the criteria of training specifically for the issue of a licence or a rating, flight crew undergoing approved training for the maintenance of competency or for gaining an operational qualification that does not fall under the training criteria outlined in Annex 6 — *Operation of Aircraft, Part I — International Commercial Air Transport — Aeroplanes*, Chapter 9, 9.3, or Part III — *International Operations — Helicopters*, Section II, Chapter 7, 7.3, should receive such training from an ATO.

1.1.3 ATOs are distinguished from non-approved training organizations by the approval process and the ongoing oversight provided by the Licensing Authority.

### 1.2 ORGANIZATIONAL STRUCTURE

1.2.1 The organizational structure of an ATO will vary depending upon the scope and complexity of its business model. The design and make-up of its structure should ensure that the delivery of training meets the client’s needs and expectations, while maintaining compliance with the applicable regulatory requirements. Therefore, ATOs need to have a management structure that is designed around best quality management practices. Chapter 4, 4.1, defines the objective of those practices.

1.2.2 In all cases, ATOs require an accountable executive who is the final authority on decisions that may impact upon the continued suitability of the organization to deliver training to aviation personnel for licensing purposes. Since accountable executives may not have a day-to-day awareness of the training activity, they must rely heavily upon the performance and advice of key personnel within the ATO. As a result, the qualifications and competencies of ATO personnel must be maintained to a very high standard. See 1.3.2 for additional information on ATO staffing requirements.

*Note.— Appendix C provides several recommended organizational structures for consideration.*

### 1.3 MANAGEMENT AND STAFFING

1.3.1 The composition of the management team will depend on the organizational needs and the applicable national regulations. Some ATOs may require a complex management structure as they are approved to provide training for multiple occupations within the aviation industry.

1.3.2 Each ATO should have an accountable executive and key managerial personnel. Typical key positions include:

- a) accountable executive (who may also be head of training);
- b) head of training;
- c) instructional services manager;
- d) quality manager;
- e) maintenance manager, if applicable; and
- f) safety manager, if applicable.

*Note 1.— A maintenance manager is required if the ATO operates devices for which the civil aviation authority (CAA) regulations mandate a maintenance programme (e.g. aircraft, qualified simulation training devices or air traffic control equipment).*

*Note 2.— If a safety management system (SMS) is required by Annex 19 — Safety Management or national regulations, Annex 19 states that the ATO “shall appoint a safety manager who is responsible for the implementation and maintenance of an effective SMS”.*

1.3.3 Depending on the size and scope of the ATO and the requirements of the Licensing Authority, some of the key positions may be supplemented by subordinates as illustrated in the organizational charts in Appendix C. Small and less complex ATOs may wish to combine some key positions when it becomes clear that the resulting position's roles and responsibilities would not be adversely affected by such a decision.

1.3.4 In all cases, the Licensing Authority should expect the head of training to receive, from the ATO management team, candid and complete information on operational and quality issues. To that end, ATOs should establish separate managerial positions, directly reporting to the head of training, for the following areas of responsibility:

- a) training or instructional services; and
- b) quality management processes.

1.3.5 The ATO is expected to provide the number of qualified and competent instructors and evaluators appropriate to the size and scope of the intended operations, who hold appropriate licences, certificates, qualifications and ratings or authorizations as deemed necessary by the Licensing Authority.

1.3.6 Instructors and evaluators will be expected to undergo initial training and recurrent training at intervals that the Licensing Authority deems necessary, as well as update training relevant to the most recent technology and training methodologies appropriate to the competencies for which the students are being trained and examined.

1.3.7 The ATO is expected to ensure that sufficient trained and competent personnel are available for the continued effectiveness of its quality system.

## 1.4 TRAINING OR INSTRUCTIONAL SERVICES

1.4.1 Annex 1 requires that ATOs have all their services authorized under the terms of their approval. The content of each approved training programme, including the courseware and equipment used, needs to be documented. Paragraph 2 of Appendix 2 to Annex 1 details this requirement while describing the content of the training and procedures manual.

1.4.2 An increasing number of ATOs offer training services to holders of foreign-issued licences. Consequently, national CAAs may be called upon to collaborate with their counterparts in other Contracting States to establish mutually beneficial oversight practices. Chapter 2, 2.3, and Chapter 11 address this issue in greater detail.

## 1.5 EMERGING ISSUES

### 1.5.1 Competency-based training and assessment

*Note.— The Procedures for Air Navigation Services — Training (PANS-TRG, Doc 9868) provides a generic methodology to design competency-based training and assessment (in Amendment 5, applicable on 5 November 2020 but already available for use as per State letter AN 12/48-17/86).*

1.5.1.1 There is growing recognition of the benefits associated with competency-based training and assessment. For instance, early results from multi-crew pilot licence (MPL) training programmes are providing powerful evidence that well-designed competency-based training can yield significant improvements in performance levels over more traditional training approaches.

1.5.1.2 Traditional aviation training programmes are designed predominately for meeting and maintaining the qualification requirements of a licence, rating or privilege. These requirements are embedded in Annex 1 Standards and are amplified in the applicable national regulations. The Standards are frequently expressed in quantitative terms that prescribe training programme “inputs” (e.g. required hours of study, hours of practice, etc.), and the programme design and content are further influenced by the Licensing Authority’s testing criteria and methods.

1.5.1.3 The PANS-TRG was originally developed by the Flight Crew Licensing and Training Panel (FCLTP) to introduce competency-based training methodologies and the MPL. It describes the general provisions for competency-based training and assessment practices. Successive amendments introduced ICAO competency frameworks and associated guidance for other aviation disciplines and refined the competency-based training methodology, which includes the development of adapted competency models based on the ICAO competency framework for a given discipline. The PANS-TRG is meant to complement the existing Standards in ICAO Annexes and should be referred to in that context. Part I, Chapter 2 of the PANS-TRG provides overall guidance to ATOs and Licensing Authorities on the development of competency-based training and assessment<sup>1</sup>. The oversight of competency-based training implies additional training for CAA personnel as described in Appendix E.

1.5.1.4 The cornerstone to a competency-based training programme is a detailed and accurate training needs analysis. It is from that analysis that an adapted competency model is derived, and instructional systems design (ISD) methodologies are applied to develop the training and assessment plans. The end result of this process is an integrated and “outcomes-focused” training programme aimed at providing the graduates with the competencies to be safe, efficient and highly effective in the performance of their duties.

1.5.1.5 Competency-based training demands continuous assessment of trainees against benchmarked performance standards. Additionally, ATOs need to ensure that the development and delivery of their training programmes are captured

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1. A new Chapter 2 and extensive amendments to the PANS-TRG will become applicable in November 2020.

by their quality assurance programmes. These two fundamentals can sometimes be difficult to achieve when the ATO's resources are limited. As a result, competency-based training requires significantly well-structured learning management processes to be in place.

1.5.1.6 A learning management system (LMS) is a system designed to fulfil the following training processes:

- a) courseware control;
- b) documentation and record keeping;
- c) student and instructor performance monitoring;
- d) course progression tracking;
- e) standardization of delivery; and
- f) data analysis.

1.5.1.7 LMS is most frequently known today as a software application for computers which can effectively accomplish all the processes in 1.5.1.6 and much more. Some of the more elaborate systems are web-based to permit learning from remote sites, thereby permitting students to complete lesson plans within their own schedules. Other systems can manage scheduling, messaging and even billing. Because the characteristics and capabilities of the modern-day LMS are virtually unlimited, ATOs may wish to consider these issues during the design and production stage of implementing a competency-based programme.

1.5.1.8 Effective screening and selection processes for any training programme will go a long way to ensuring a high degree of trainee success. The objective of screening and selection is to determine the candidate's suitability, capability and motivation. There are many methods to make that determination, but the method chosen must be capable of making the distinction between identified deficiencies that can be corrected through training and those deficiencies that cannot. Interestingly, competency-based training programmes are derived from a detailed job or task analysis from which an ATO can extrapolate the entry-level competencies necessary to ensure a high probability of success.

## 1.5.2 Systems-based governance models

1.5.2.1 Since the 1990s, the aviation sector has been and continues to be transformed by a variety of factors, including:

- a) growth of the industry;
- b) emerging technologies;
- c) emerging business models; and
- d) an increasing trend towards performance-based regulations.

1.5.2.2 These transformations place an enormous strain on Contracting States' ability to perform effective safety oversight and to support the aviation industry as a national economic driver.

1.5.2.3 To meet the set challenges, ICAO and its Member States have rallied to develop Standards that implement best practices in risk mitigation. The wellbeing of the aviation industry depends on governance models that support the proactive management of threats to quality and safety.



1.5.2.4 ICAO Standards require States to establish requirements for effective system-based governance models in various components of the aviation industry through national regulations. Expectations for ATOs regarding both the quality system and the safety management system are discussed in Chapters 4 and 5, and in Appendix B.

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## Chapter 2

### PROCESS TO APPROVE TRAINING ORGANIZATIONS

#### 2.1 OBTAINING APPROVAL

2.1.1 The Licensing Authority should publish procedures for obtaining approval, describing the application process and how the Authority will verify that an applicant meets the approval requirements.

2.1.2 With the application for approval, a draft copy of the proposed ATO's training and procedures manual must be submitted to the Authority. The requirements for the contents of this manual are described in Chapter 3, 3.3, and detailed guidance on this subject is provided in Appendix A.

#### 2.2 LICENSING AUTHORITY'S REVIEW AND APPROVAL PROCESS

2.2.1 The Licensing Authority should first review the application for approval. Once it is assessed as satisfactory, the Authority normally conducts a site inspection prior to final approval. Upon successful completion of the process, the Licensing Authority issues the approval. This consists of an approval certificate and additional documentation specifying the terms of the approval.

2.2.2 A State may decide to delegate the approval process to a regional safety oversight organization (RSOO) set up by a group of States to achieve greater commonality and regional integration of regulations and operating standards in a cost-effective manner. In this case, the delegated functions should be clearly defined in the agreement document establishing the RSOO. Guidance on how a joint licensing approval and certification system could work within an RSOO is contained in the *Safety Oversight Manual* (Doc 9734), Part B — *The Establishment and Management of a Regional Safety Oversight Organization* and in the *Manual of Procedures for Establishment and Management of a State's Personnel Licensing System* (Doc 9379).

#### 2.3 NATURE OF THE APPROVAL GIVEN TO A TRAINING ORGANIZATION

2.3.1 The Licensing Authority authorizes the ATO to conduct the training courses specified in the approval document.

2.3.2 Under the Convention on International Civil Aviation, States have to ensure that the documents that they issue are valid and that document holders are competent. Consequently, Licensing Authorities may restrict where their licence holders may train and what programmes are acceptable for gaining or maintaining the privileges attached to the licence that they issue.

2.3.3 To ensure the integrity of their aviation documents, Licensing Authorities may require foreign-based training organizations to meet their national licensing standards prior to crediting any training provided to their licence holders. This regulatory approach can sometimes pose an additional and perhaps wasteful utilization of resources. All Licensing Authorities need to be mindful of the potential impact of duplicating approval processes for these training organizations and their programmes. Therefore, whenever possible, Licensing Authorities are encouraged to establish

joint procedures for oversight and approval processes to validate that their national standards continue to be met by ATOs located in each other's territories. The approval of foreign-based ATOs is discussed further in Chapter 11.

## **2.4 RENEWAL OF THE APPROVAL**

Some States issue a training organization approval that contains an explicit period of validity while others issue an open-ended approval that remains valid as long as the conditions under which the approval has been granted are fulfilled. In this last case, appropriate surveillance by the Licensing Authority should be conducted in order to ensure that the ATO continues to meet the ATO requirements set by the Licensing Authority. The requirements contained in Annex 1 provide for the two approaches, and each State can choose the option that best fits its legal system and its administrative procedures.

## **2.5 CHANGES IN THE SCOPE OF THE APPROVAL**

2.5.1 Aviation training is a dynamic activity, and it is likely that ATOs will ask regularly for a change in the scope of their approval; for instance, they may want to provide new training or change a training programme to take advantage of new training equipment or facilities. In such a case, the applicant should provide supporting information to the Licensing Authority that will assess it using the applicable Standards of Appendix 2 to Annex 1, its national requirements and the relevant parts of this guidance material. An amendment to the approval document should be issued by the Licensing Authority after a satisfactory assessment.

2.5.2 Changes or modifications in equipment, software, facilities or key managerial personnel should be reported to the applicable Licensing Authority to ensure that any required approvals are obtained without delay.

## **2.6 CONTINUED SURVEILLANCE AFTER THE APPROVAL**

2.6.1 After receiving an approval, the ATO will be subjected to continued surveillance by the Licensing Authority to ensure that the ATO is operating within the terms of its approval and as described in its training and procedures manual.

2.6.2 Guidance on the continued surveillance to be conducted by the Licensing Authority is provided in Chapter 10.

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## **Chapter 3**

# **TRAINING AND PROCEDURES MANUAL**

### **3.1 INTRODUCTION**

3.1.1 The training and procedures manual describes the training programmes being offered and the way in which the training organization conducts its activities. It is an essential document for the training organization because it provides the management and line personnel with clear guidance on the policy of the training organization as well as the procedures and processes which are used to provide training. It is also an essential document for the Licensing Authority. During the approval process, it allows the Authority to assess whether the way in which a training organization is planning to operate is in line with existing requirements and accepted practices. Once the training organization is approved, a large part of the surveillance activities of the Licensing Authority is to ensure that the ATO is following the training and procedures manual.

3.1.2 It is important that the contents of the training and procedures manual be consistent with other operational documents, regulations and manufacturer's requirements. The manual should also be user-friendly. It is also necessary to ensure that the manual is used consistently across all departments within the ATO. This can be achieved through an integrated approach that recognizes operational documents as a complete system.

3.1.3 This chapter explains how the training and procedures manual should be developed, implemented and managed.

### **3.2 DOCUMENTATION MANAGEMENT**

3.2.1 Appendix 2 to Annex 1 provides for the training and procedures manual to be issued in separate parts should the ATO find it too cumbersome to have all the required content appear in a single document. It also mandates that these documents be maintained to ensure their continued relevancy and compliance with applicable national regulations. Practices that will assist ATOs in conforming to these Standards are discussed at some length in 3.8.

3.2.2 Appendix B to this manual details the elements of an effective quality system, a system that requires robust policies, processes and procedures for documentation management and record keeping. Since shortcomings in documentation management eventually lead to poor standardization and a diminished quality of training, civil aviation authorities should be vigilant of weaknesses in this area by including it in their safety oversight programme.

### **3.3 CONTENT**

The content of the training and procedures manual is spelled out in general terms in Appendix 2 to Annex 1. Appendix A to this manual provides a more detailed breakdown of the content of the manual and includes additional requirements for ATOs that are engaged in flight training utilizing aircraft. Depending on the size, complexity and scope of the training provided by the ATO, some of the elements contained in the list can be reduced, combined or expanded further.

### **3.4 ORGANIZATION**

3.4.1 The training and procedures manual should be organized according to criteria relating to the information, its importance and use. The information should be structured and sequenced so that operational personnel can access it easily. This principle will help determine whether to issue the manual as a single document or in separate parts. When the training and procedures manual is organized into separate parts, it should include a master index to help users locate information included in more than one part. The master index should be placed in the front of each part.

3.4.2 The manual should describe accurately the ATO's philosophies, policies, processes and procedures.

### **3.5 STRUCTURE**

3.5.1 The structure of the manual should be easy to understand, appropriate for the information and clearly identified through headings and other formatting devices. An explanation of the organizational elements such as the headings, numbering scheme, main parts of the document and other sources of coding or groupings should be provided at the beginning of the manual.

3.5.2 Precise language should be used wherever possible. Terms for common items and actions should be consistent throughout the manual and must be clear and easily understood.

3.5.3 Writing style, terminology, formatting and use of graphics and symbols should be consistent throughout the document, including the location of specific types of information and use of units of measurement and codes.

3.5.4 The manual should contain a glossary of definitions and significant terms including a list of acronyms and/or abbreviations. The glossary should be updated on a regular basis to ensure access to the most recent terminology.

3.5.5 For ease of amendment and distribution, an appropriate revision process should be defined and established when designing the manual.

3.5.6 The training and procedures manual should comply with the requirements of the ATO's quality assurance practices.

### **3.6 VALIDATION**

3.6.1 The training and procedures manual should be reviewed and tested under realistic conditions before its operational release. The validation process should include using the critical aspects of the information contained in the manual to verify its effectiveness. Routine interaction among groups within the ATO should be included in the validation process.

3.6.2 A final review of the manual should ensure that all required topics have been addressed with an appropriate level of detail for users. The final review should also confirm compliance with safety regulations, manufacturers' recommendations and the ATO's philosophy, policies, procedures and processes.

### 3.7 DEPLOYMENT AND FEEDBACK

3.7.1 The ATO should maintain and update as necessary the training and procedures manual after its initial release. This will ensure appropriate and realistic use of the manual, based on the current operational environment, in a way that is operationally relevant and appropriate for the users for whom it is intended.

3.7.2 In order to gather information for updates of the manual, a formal feedback system should be established to obtain input from principal users and others who would be affected by a new or revised policy, procedure or process.

### 3.8 AMENDMENT

3.8.1 The ATO should develop an effective information gathering and review system to process information obtained from all sources relevant to the organization, such as the Licensing Authority, safety regulators, training clients, manufacturers and equipment vendors, as well as a distribution and revision control system.

*Note.— Manufacturers provide information on the operation, handling and maintenance of specific equipment, aircraft and components thereof, which emphasizes the equipment or aircraft systems and procedures under conditions that may not fully match the requirements of the training organization. ATOs should ensure that such information meets their specific needs and those of the Licensing Authority.*

3.8.2 The ATO should also develop an information review, distribution and revision control system to process information resulting from changes that originate within the ATO. This includes changes to:

- a) the ATO's policies, processes, procedures and practices;
- b) respond to operating experience;
- c) the scope of training provided;
- d) the content of training programmes;
- e) results stemming from the installation of new equipment;
- f) an approval document or certificate requested by the ATO and issued by the Licensing Authority; and
- g) maintain standardization of training delivery and performance criteria.

3.8.3 The manual should be reviewed in association with other operational documents that form the ATO's document control system:

- a) on a regular basis (at least once a year);
- b) after major events such as mergers, acquisitions, rapid growth or downsizing;
- c) after technology changes, e.g. the introduction of new equipment;
- d) after changes to safety regulations;
- e) after changes to key operational personnel (e.g. Head of Training); and
- f) after changes to the scope of training provided.

3.8.4 Permanent changes to the training and procedures manual should be communicated through a formal amendment process.

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

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## Chapter 4

### QUALITY ASSURANCE (QA)

#### 4.1 OBJECTIVE

4.1.1 The objective of QA, as defined in Appendix 2 to Annex 1, is to ensure the achievement of results that conform to the standards set out in the ATO's manuals and in requirements and documents issued by the Licensing Authority. The effective application of QA principles will aid the ATO in meeting all regulatory requirements.

4.1.2 Quality is an outcome of a number of processes: establishing standards; planning activities and documenting procedures to support such activities and standards; training the personnel involved before implementing the documented procedures; and measuring the outcomes of the activities to ensure that they meet the standards and expected results. If any non-conformities are found, corrective actions are taken to improve processes and procedures. It is to be emphasized that, to be truly effective in delivering the very best possible products and services, ATOs need to implement proactive as well as reactive processes. Appendix B describes proactive processes and provides guidance on how to institutionalize a quality system that incorporates QA and assists ATOs in reaching their full potential.

4.1.3 The instructions and information contained in the following paragraphs provide guidance on the QA that each ATO needs to establish in accordance with Appendix 2 to Annex 1.

#### 4.2 ELEMENTS

The following QA elements should be clearly identifiable in the training and procedures manual:

- a) the ATO's training policy (for clients as well as for its own personnel);
- b) training standards;
- c) allocation of responsibility;
- d) resources, organization and operational processes;
- e) procedures to ensure conformity of training with the training policy;
- f) procedures for identifying deviations from training policy and standards, and for taking corrective action, as necessary; and
- g) the evaluation and analysis of experiences and trends concerning policy and training standards, in order to provide feedback into the system for the continual improvement of the quality of training.

### **4.3 QA AND THE QUALITY SYSTEM OF THE ATO**

Details on the requirements for QA and the development of an overarching quality system for an ATO can be found in Appendix B.

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## Chapter 5

# SAFETY MANAGEMENT SYSTEM (SMS)

### 5.1 OBJECTIVE

5.1.1 Annex 19 — *Safety Management* states that an ATO in accordance with Annex 1 that is exposed to safety risks during the provision of its services is required to implement a safety management system (SMS) acceptable to the State(s) responsible for the organization's approval. It is important for the Licensing Authority and ATOs to realize and understand the applicability of SMS for ATOs: the requirement to adopt SMS practices is intended to be restricted to only those training entities whose activities directly impact upon the safe operation of aircraft.

5.1.2 For example, ATOs either using aircraft for flight training or involved in air traffic controller student training whereby aircraft are actually being controlled at the ATO's privately operated airfield would be required to institute an SMS programme. In the case of air traffic controller student training, the SMS requirement may be satisfied if an air navigation service provider's SMS specifically covers the training activity.

5.1.3 An example of an ATO not directly posing a risk to the safe operation of aircraft would be an ATO that provides approved flight crew training using only flight simulation training devices. Another example would be an ATO that sends its aircraft maintenance students to an approved maintenance organization (AMO) for some on-the-job training as part of the training syllabus. In this instance, the onus would be on the AMO to ensure that the students' participation in aircraft maintenance activities is captured by the AMO's SMS.

5.1.4 SMS is a management system consisting of documented policies, processes and procedures designed to manage safety risks, which integrates operations and technical systems with the management of financial and human resources to ensure aviation safety and the safety of the public.

5.1.5 SMS and quality systems (QS) (if a QS is implemented beyond the Annex 1 requirement for quality assurance (QA)) are complementary. Therefore, it may be suitable for the two systems to be integrated under a single "safety and quality" function if deemed appropriate by the ATO.

### 5.2 FRAMEWORK AND REQUIRED ELEMENTS

The framework and required elements for the implementation and maintenance of SMS are contained in Appendix 2 to Annex 19. Guidance on SMS is contained in the *Safety Management Manual* (Doc 9859).

### 5.3 THE SAFETY MANAGEMENT SYSTEM OF THE ATO

#### 5.3.1 Safety policy

5.3.1.1 Annex 19 requires all ATOs in accordance with Annex 1 that engage in activity which directly impacts the safe operation of aircraft to operate within an SMS. Doc 9859 provides detailed guidance on the history of aviation safety,

why SMS is so important in the industry's collective effort to reduce safety occurrences, and how to design and maintain an effective SMS.

5.3.1.2 Safety is defined as the state in which the possibility of harm to persons or of property damage is reduced to, and maintained at or below, an acceptable level through a continuing process of hazard identification and safety risk management. The purpose of an SMS is to provide the ATO with effective policies, processes and procedures that permit it to achieve and maintain safe operations.

5.3.1.3 The way an ATO operates is affected primarily by the decisions and actions of its management. The style of management and the approach that is taken in dealing with operational issues will profoundly influence the employees' beliefs and behaviours, and even their values. Therefore, it is essential that the ATO's senior management take an active and genuine interest in the development and maintenance of the ATO's SMS. That enthusiasm and commitment must be repeatedly conveyed to all employees through the words and actions of every single member of the management team.

5.3.1.4 The ATO's safety policy needs to be developed, documented and signed off by the accountable executive. It should be communicated and made clear to all employees. The policy is required to state the management's commitment to safety, all employee responsibilities and safety accountabilities with respect to the SMS, and to identify the key safety personnel. The policy should also reflect management's resolve to foster a robust safety reporting culture and should identify those conditions under which employees will not be subjected to punishment or retribution. The development of an SMS policy is detailed in the Doc 9859.

### **5.3.2 Safety manager**

5.3.2.1 Appendix 2 to Annex 19 requires all ATOs that operate within an SMS appoint an individual to fulfil the duties of safety manager responsible for the implementation and maintenance of the SMS. The scope of the safety manager's duties should include safety planning, safety programme implementation and the operation of the SMS.

5.3.2.2 The safety manager, like the quality manager, should report directly to the head of training. If the organizational structure is similar to the one depicted in Figure C-2 of Appendix C, then the safety manager should have a reporting capability to the accountable executive.

### **5.3.3 Safety management system**

5.3.3.1 SMS is a systems-based approach for organizations to effectively manage risk. The scope of an ATO's SMS needs to be directly commensurate with the ATO's size and the complexity of its operations.

5.3.3.2 Appendix 2 to Annex 19 outlines the framework of an SMS and describes the necessary components and elements of such a system.

5.3.3.3 Doc 9859 details the design and strategies for a phased-in implementation of SMS.

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## Chapter 6

### FACILITIES AND EQUIPMENT

#### 6.1 FACILITIES

An ATO should have access to facilities appropriate to the size and scope of the intended operations provided in an environment conducive to learning. These facilities should include:

- a) general areas which consist of sufficient:
  - 1) office space for ATO managerial, administrative and training staff;
  - 2) study and examination rooms and reference/library facilities; and
  - 3) storage areas, including secure areas for training and personnel records;
- b) classroom areas which are suitably equipped to effectively deliver the theoretical elements of the training programme in accordance with the training and procedures manual; and
- c) practical training areas which are designed and equipped to ensure the attainment of end-state competencies. These facilities should include, whenever applicable:
  - 1) operations, planning and briefing rooms;
  - 2) simulation and procedure trainer areas;
  - 3) suitable parking areas for aircraft used in training;
  - 4) workshop and aircraft hangar facilities; and
  - 5) parts, tools and material storage areas.

*Note.— The facilities listed above do not consider any arrangement required by the State's security programme, such as screening areas for persons accessing security restricted areas.*

#### 6.2 TRAINING COURSEWARE AND EQUIPMENT

As provided for in Annex 1, an ATO needs to ensure that all courseware and equipment required by the training programme, as specified in the training and procedures manual, are available and in good working order. Changes to working conditions and any temporary "work-around" solutions should be discussed with the appropriate authority prior to continuing with the scheduled training.

### 6.3 APPROVAL OF TRAINING DEVICES

6.3.1 With the rapid improvements in technology, an increasing number of simulation training devices for training licensed personnel within the aviation industry are entering the marketplace. Some training programmes even use web-based simulation to such an extent that full accreditation for successful programme completion is achieved without the trainees ever having to leave their normal place of work or, in some cases, their residence.

6.3.2 Each training device that is intended for training, testing or checking in an approved training programme and for which credit is being sought needs to be made available to the applicable Licensing Authority, prior to initial use, for determination of its suitability.

6.3.3 In addition to meeting the obligations of national regulations, the ATO should implement at least the following for all training devices:

- a) a routine maintenance programme to ensure that the training devices continue to function properly and, when applicable, continue to accurately replicate any component, system or equipment for which training, checking or testing credits are being sought; and
- b) a record-keeping process for each training device to be established and maintained, which accurately records the device's use and lists any discrepancies with respect to its functionality or intended performance characteristics that may impact training.

6.3.4 Criteria for the qualification and training suitability of flight simulation training devices that replicate aeroplanes and helicopters are detailed in the *Manual of Criteria for the Qualification of Flight Simulation Training Devices* (Doc 9625).

6.3.5 ICAO has not published qualification criteria for simulation training devices other than flight simulation training devices. Consequently, a Licensing Authority has the responsibility to establish criteria for the determination of the suitability of a simulation training device, which is not covered by the guidance of Doc 9625, for any approved training programme. For that, the Licensing Authority would consider the training tasks proposed to be conducted utilizing the device the related credit sought and the capability of the device to achieve the desired training outcome.

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## **Chapter 7**

### **THIRD-PARTY PROVIDERS (OUTSOURCING)**

#### **7.1 COURSEWARE**

7.1.1 As training programme design becomes more sophisticated, an increasing number of ATOs are outsourcing the development of courseware. This is particularly true with competency-based programmes that require a relatively short-term increase in manpower during the development phase.

7.1.2 Whether or not an ATO engages outside assistance in designing and providing courseware, the Licensing Authority needs to hold the ATO accountable for the quality and suitability of its courseware. The work being performed by the third-party provider should therefore be subjected to the same quality assurance (QA) practices that the ATO is expected to apply to its own work.

#### **7.2 FACILITIES AND EQUIPMENT**

7.2.1 Frequently the aviation training industry runs in cycles, during which ATOs may be operating below capacity for long periods of time only to suddenly find themselves inundated by demands that exceed their ability to deliver. An ATO may also need equipment for some parts of the training which may not be economically viable to own. To mitigate the impact of not being able to effectively respond and thus potentially lose valued clients, ATOs frequently have standing agreements with other institutions to lease facilities and equipment.

7.2.2 The temporary use of another organization's facilities and equipment can present challenges in terms of the QA processes of the ATOs. Under these circumstances, a breakdown in vigilance can cause serious damage to the integrity and quality of the training. To mitigate this, ATOs should develop contingency plans in their quality manual for instances when training levels are such that the use of another institution's facilities and equipment is required.

#### **7.3 PERSONNEL**

7.3.1 The most frequent outsourcing practice of ATOs is the hiring of temporary instructional personnel. It is during these times in particular that a robust quality system will protect the integrity and quality of an ATO's training programmes and the ATO's reputation for delivering quality products and services.

7.3.2 Despite their best intentions and qualifications, temporary employees elevate the risk of non-standardized delivery of training and of a decrease in the level of service provided to the ATO's clients. Detailed, documented policies, processes and procedures that are easy to understand and uniformly applied, combined with initial indoctrination training, will go a long way to mitigating this risk.

7.3.3 Besides training its regular staff, ATOs should ensure that refresher training is implemented on a scheduled basis for part-time or temporary instructional personnel prior to commencing their duties after a specified period of inactivity. Re-familiarization with the ATO's quality system and expected levels of service should be included in this training scheme. Besides the contingency plan mentioned in 7.2, the ATO's quality manual should include policies, processes and procedures for the employment of temporary instructional staff.

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## Chapter 8

### RECORD KEEPING

8.1 Keeping accurate and complete training records is an important aspect of complying with the approval requirements. It is also an essential tool for the ATO to ensure the continuity and consistency of its training. The qualifications required for training personnel and trainees should be recorded in the record-keeping system to ensure that those qualifications are monitored and current.

8.2 The record-keeping system of an ATO should have the following characteristics:

- a) *Completeness*. The records kept by the ATO should be sufficient to provide documentary evidence of each training action and allow the reconstruction of the training history of each student or instructor in the ATO.
- b) *Integrity*. It is important to maintain the integrity of records, ensuring that they are not removed or altered. A backup of the records is also necessary to ensure continuity in case of a major disaster.
- c) *Accessibility*. Records of both instructional personnel and trainees should be readily accessible.

8.3 Each ATO should also establish rules for archiving personal employment and training records that are non-active. The rules for archiving records should also be consistent with the national requirement and the requirements contained in Appendix 2 to Annex 1, 7.3.



## Chapter 9

### OVERSIGHT EXERCISED BY THE LICENSING AUTHORITY

9.1 Oversight is the responsibility of the Licensing Authority. It consists of the approval process of an ATO and the continued surveillance of the ATO's training delivery after approval. The purpose of the surveillance activities is to ensure that the ATO is operating within the terms of its approval and as described in the training and procedures manual. It includes a review of the ATO's quality assurance (QA) system, its administrative, technical and training records and its operational activities. Surveillance is an ongoing function that may also include consideration of records held by the Licensing Authority, for example, flight test and examination results, in addition to on-site inspections, audits and other surveillance activities.

9.2 The main elements of the ATO activities that are subject to the Licensing Authority's oversight include, as applicable, the following:

- a) staff adequacy in terms of number and qualifications;
- b) validity of instructors' licences, certificates, ratings and authorizations;
- c) logbooks;
- d) appropriate and adequate facilities for the training and for the number of students;
- e) documentation process (e.g. the review and update of the training and procedures manual), with particular emphasis on course documentation, including records of updates, training/operations manuals, etc.;
- f) training delivery in the classroom and in simulation devices and, if applicable, flight instruction or on-the-job training, including briefing and de-briefing;
- g) instructor training;
- h) QA practices;
- i) safety management system (SMS) functionality;
- j) training, examination and assessment records;
- k) evaluation and checking;
- l) equipment serviceability;
- m) aircraft registration, associated documents and maintenance records; and
- n) training device qualification and approval.

9.3 A State may decide to delegate the approval and/or continued surveillance processes to a regional safety oversight organization (RSOO) set up by a group of States to achieve greater commonality and regional integration of regulations and operating standards in a cost-effective manner. In that case, the delegated functions should be clearly defined in the agreement document establishing the RSOO.

*Note.— Guidance on how a joint licensing approval and surveillance system could work within an RSOO is contained in the Safety Oversight Manual (Doc 9734), Part B — The Establishment and Management of a Regional Safety Oversight Organization, and in the Manual of Procedures for Establishment and Management of a State's Personnel Licensing System (Doc 9379).*

9.4 In case where a CAA has approved a foreign ATO using the alternative approval process described in Chapter 11, CAAs may find it desirable to rely, to a certain extent, on the surveillance system of the baseline CAA to supplement their efforts.

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## Chapter 10

### **AUTHORIZED EVALUATIONS AND CHECKS CARRIED OUT BY THE ATO**

10.1 Licensing Authorities will normally issue separate guidance on evaluation and checking of trainees. The Licensing Authority is responsible for ensuring that appropriate procedures are in place for the conduct of licensing and rating tests or checks. Situations where the person giving the instruction is also responsible for evaluating the student on completion of the instruction should be avoided. Ideally, the evaluation function for the purpose of the issue of a licence or rating should be carried out by evaluators who are independent from the ATO that conducts the training.

10.2 At the discretion of the Licensing Authority, it may be appropriate for the ATO to designate evaluators for the conduct of licensing and rating tests or checks in accordance with criteria approved by the Licensing Authority. Such an arrangement should be considered only when the ATO can demonstrate that it is capable of consistent compliance with the standards prescribed by the Licensing Authority.

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## Chapter 11

### APPROVAL OF A FOREIGN ATO

*Note.— For the purpose of this chapter, the civil aviation authority (CAA) is the authority issuing the approval of a foreign ATO. The baseline CAA is defined in the glossary.*

#### 11.1 NEED FOR APPROVAL

There is often a need for a Licensing Authority to approve an ATO that is located outside its national territory. This is sometimes driven by cost considerations or simply because the national market is not sufficient to support locally certain types of specialized aviation training.

#### 11.2 APPROVAL PROCESS

11.2.1 In principle, there is no difference between the approval of training organizations based abroad and those based in-country. The principles and procedures that are described in this document fully apply to foreign-based ATOs.

11.2.2 In practice, Licensing Authorities should leverage the approval and surveillance system of the baseline CAA to supplement their own efforts. Whenever possible, CAAs are therefore encouraged to set up jointly agreed-to procedures to minimize the likelihood of duplication of approval activities which would impose an unnecessary burden on the Licensing Authorities and industry. Such jointly agreed-to procedures may be achieved through either an informal alternative approval process between the concerned authorities or by entering into a more formal bilateral approval agreement between two or more States.

#### 11.3 ALTERNATIVE APPROVAL PROCESS

11.3.1 The alternative approval process aims at developing efficiencies by reducing the regulatory burden while expanding aviation training capabilities for authorities and States.

11.3.2 The main objective of the approach is to streamline the foreign ATO approval process and eliminate duplication of the approval/acceptance of the baseline CAA approval if certain conditions are met. This process will improve compliance with regulatory requirements for the training of licensed personnel, and require ATOs to demonstrate continued compliance and a common understanding of the differences between the regulations of the Licensing Authorities involved. In this context, Licensing Authorities may consider, if appropriate, aligning their approval and licensing requirements with the baseline CAA regulations or aligning their approval and licensing requirements within a region, where applicable, prior to establishing an alternative approval process.

11.3.3 The Licensing Authorities and training organizations should conduct the foreign ATO approval activities in accordance with the procedures defined within the alternative approach process in Appendices F, G, H and I.

11.3.4 The process defined for this alternative approach may be used as the basis for developing the implementation procedures for a bilateral agreement.

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## Appendix A

### CONTENT OF THE TRAINING AND PROCEDURES MANUAL

This appendix supplements the information in Appendix 2 to Annex 1. Part I of this appendix covers the content requirements for the training and procedures manual of all ATOs. Part II deals with the additional content requirements for ATOs that provide flight training utilizing aircraft.

#### Part I — Content requirements for all ATOs

The training and procedures manual should include the elements in paragraphs 1 to 8 of this appendix as far as they are appropriate to the type of training to be provided.

#### 1. GENERAL

- 1.1 Preamble relating to the use and applicability of the manual.
- 1.2 Table of contents.
- 1.3 Amendment, revision and distribution of the manual:
  - a) procedures for amendment;
  - b) record of amendments page;
  - c) distribution list; and
  - d) list of effective pages.
- 1.4 Glossary of definitions and significant terms, including a list of acronyms and/or abbreviations.
- 1.5 Description of the structure and layout of the manual, including:
  - a) the various parts and sections, as well as their contents and use; and
  - b) the numbering system for headings and paragraphs.
- 1.6 Description of the scope of training authorized under the ATO's terms of approval.
- 1.7 Organization (chart of the ATO's management organization — see Appendix C, Figures C-1, C-2 and the names of the post holders).

1.8 Qualifications, responsibilities and succession of command of management and key operational personnel, including but not limited to:

- a) accountable executive;
- b) head of training;
- c) instructional services manager;
- d) quality manager;
- e) maintenance manager, if applicable;
- f) safety manager, if applicable;
- g) instructors; and
- h) evaluators, including those with examiner functions, and auditors.

1.9 Policies dealing with:

- a) the ATO's objectives, including ethics and values;
- b) the selection of ATO personnel and the maintenance of their qualifications;
- c) the training programme design and development, including the need for programme validation and review in accordance with Chapter 3, 3.6 and 3.8 of this manual, as well as the outsourcing of training programme development to third-party providers in accordance with Chapter 7 of this manual;
- d) the evaluation, selection and maintenance of training material and devices;
- e) the maintenance of the training facilities and equipment;
- f) the development and maintenance of a quality system (QS) governance model (see Appendix B); and
- g) the development and maintenance of a culture focused on safety in the workplace, including, when applicable, implementation of a safety management system (SMS) governance model (see Chapter 5).

1.10 Description of the facilities and equipment available, including:

- a) general-use facilities, including offices, stores and archives, and library or reference areas);
- b) the number and size of classrooms, including installed equipment; and
- c) the type and number of training devices, including their location if other than at the main training site.

## **2. STAFF TRAINING**

2.1 Identification of persons or positions responsible for the maintenance of the standards and performance criteria of the training, and for ensuring the competency of personnel.

- 2.2 Details of the procedures to validate the qualifications and determine the competency of instructional personnel as required by paragraph 6.3 of Appendix 2 to Annex 1.
- 2.3 Details of the initial and recurrent training programmes for all personnel as required by paragraph 6.4 of Appendix 2 to Annex 1, including awareness training with respect to their responsibilities within the ATO's system governance processes (see Appendix B and Chapter 5 for details on QS and SMS respectively).
- 2.4 Procedures for proficiency checks and upgrade training.

### 3. CLIENT TRAINING PROGRAMMES

Client training programmes cover each individual training programme conducted by the ATO for its clients and consist of a training plan, a practical training syllabus and, if applicable, a theoretical knowledge syllabus as described below.

#### 3.1 Training plan

- 3.1.1 The aim of the course in the form of a statement of what the student is expected to be able to do as a result of the training, the level of performance and the training constraints to be observed.
- 3.1.2 Pre-entry requirements, including (as applicable):
- a) minimum age;
  - b) education or qualification requirements;
  - c) medical requirements; and
  - d) linguistic requirements.
- 3.1.3 Credit for previous knowledge, experience or other qualifications, proof of which should be obtained from the Licensing Authority before the training commences.
- 3.1.4 Training curricula, including:
- a) theoretical training (knowledge);
  - b) practical training (skills);
  - c) training in the domain of human factors;
- Note.— Guidance material to design training programmes on human performance can be found in the Human Factors Training Manual (Doc 9683).*
- d) assessment and examinations; and
  - e) monitoring of the training process, including assessment and examination activities.

3.1.5 Training policies in terms of:

- a) restrictions regarding the duration of training periods for students and instructors; and
- b) if applicable, minimum rest periods.

3.1.6 Procedures for the conduct of student evaluation, including for:

- a) conditions to be met before tests;
- b) procedures for remediation training before retest and for re-writing knowledge tests;
- c) test reports and records;
- d) skill progress checks and skill tests;
- e) knowledge progress tests and knowledge tests, including knowledge test preparation, types of questions and assessments, and standards required for a pass; and
- f) question analysis and review and issuing of replacement exams (applicable to knowledge tests).

3.1.7 Policy and procedures regarding training effectiveness, including for:

- a) coordination between training services;
- b) requirements for reporting and documentation;
- c) internal feedback for detecting training deficiencies;
- d) interim performance or competency standards at various stages of training to ensure standardization;
- e) individual student duties;
- f) correcting unsatisfactory progress;
- g) changing instructors;
- h) the maximum number of instructor changes per student; and
- i) suspending a student from training.

## **3.2 Syllabi for non-competency-based training programmes**

### **3.2.1 *Practical training syllabus***

3.2.1.1 A statement of the phases of the course and how the phases will be arranged to ensure completion in the most suitable learning sequence, and that exercises will be repeated at the appropriate frequency.

3.2.1.2 The syllabus hours for each phase and for groups of lessons within each phase, and when progress tests are to be conducted.

3.2.1.3 A statement of the interim competency standards required before progressing from one phase to the next to include minimum experience requirements and satisfactory exercise demonstration.

3.2.1.4 Requirements for instructional methods, particularly with respect to adherence to syllabi and training specifications.

3.2.1.5 Instruction for the conduct and documentation of all progress checks.

3.2.1.6 Instruction, where applicable, given to all examining staff regarding the conduct of examinations and tests.

### **3.2.2 Theoretical knowledge syllabus**

The syllabus for theoretical knowledge instruction should be structured generally as outlined in this section but with a training specification and objective for each subject.

## **3.3 Syllabus for competency-based training programmes**

3.3.1 Ideally, training programmes should be competency-based.

3.3.2 Competency-based training programmes are based upon a training needs analysis to define the competencies required to perform a job, an activity or a task. Such programmes use an integrated approach in which the training in the underlying knowledge to perform a task is followed by practice of the task so that the trainee acquires the competencies and the underlying knowledge, skills and attitudes related to the task in a holistic way. At the end of the course, trainees must demonstrate that they have acquired the competencies necessary to perform a task and met the performance criteria identified for the job.

3.3.3 As a result, the syllabus is structured as a single document that is organized around milestones and subdivided into modules containing a training objective and the same information as in 3.2.1, but applied to both the theoretical knowledge and practical training delivered by the module.

3.3.4 The oversight by the CAA of competency-based training programmes will require additional training for CAA personnel as described in Appendix E.

## **4. TESTS AND CHECKS CONDUCTED BY THE ATO FOR THE ISSUANCE OF A LICENCE OR A RATING**

When a State has authorized an ATO to conduct the testing required for the issuance of a licence or rating in accordance with the training and procedures manual, the manual should include:

- a) the name(s) of the personnel with testing authority and the scope of the authority;
- b) the role and duties of the authorized personnel;
- c) if the ATO has been given authority to appoint personnel to conduct the testing required for the issuance of a licence or rating, the minimum requirements for appointment as well as the selection and appointment procedure; and

- d) the applicable requirements established by the Licensing Authority, such as:
  - 1) the procedures to be followed in the conduct of checks and tests; and
  - 2) the methods for completion and retention of testing records as required by the Licensing Authority.

## **5. RECORDS**

Procedures regarding:

- a) attendance records;
- b) student training records;
- c) staff training and qualification records;
- d) persons responsible for checking records and student personal logs;
- e) nature and frequency of record checks;
- f) standardization of record entries;
- g) personal log entries; and
- h) security of records and documents.

## **6. SAFETY MANAGEMENT SYSTEM (IF APPLICABLE)**

The requirement to adopt SMS practices is intended to be restricted to only those training entities whose activities directly impact on the safe operation of aircraft. Should that requirement apply to the ATO, the training and procedures manual, as stated in paragraph 1.9 of this appendix, must address the ATO's SMS by reference to a separate manual or including the SMS practices in the training and procedures manual.

## **7. QUALITY ASSURANCE (QA)**

Provide a brief description of the QA practices, as required by paragraph 4 of Appendix 2 to Annex 1, by reference to a separate quality manual or including the QA practices in the training and procedures manual (refer to Appendix B, paragraph 9).

## 8. APPENDICES

As required:

- a) sample progress test forms;
- b) sample logs, test reports and records; and
- c) a copy of the ATO's approval document.

### Part II — Additional content for flight training organizations (utilizing aircraft)

The training and procedures manual for ATOs that provide flight training utilizing aircraft should include additional elements to those indicated in Part I, as outlined below.

## 9. FLIGHT TRAINING — GENERAL

9.1 Qualifications, responsibilities and succession of command of management and key operational personnel (in addition to those listed in 1.8 of this appendix), including but not limited to:

- a) chief flight instructor; and
- b) chief ground instructor.

9.2 Policies and procedures (in addition to those listed in 1.9 of this appendix) dealing with:

- a) approval of flights;
- b) responsibilities of the pilot-in-command;
- c) flight planning procedures — general;
- d) carriage of passengers;
- e) operational control system;
- f) reporting of safety hazards, incidents and accidents (see Chapter 5 for more details);
- g) duty periods and flight time limitations for flying staff members and students; and
- h) minimum rest periods for flying staff members and students.

9.3 Description of the facilities and equipment available (in addition to those listed in 1.10 of this appendix), including:

- a) flight simulation training devices and training aircraft;
- b) maintenance facilities and apron parking areas for training aircraft;

- c) computer-based classrooms; and
- d) dispatch control and briefing areas.

## **10. AIRCRAFT OPERATING INFORMATION**

- 10.1 Certification and operating limitations.
- 10.2 Aircraft handling, including:
  - a) performance limitations;
  - b) use of checklists;
  - c) standard operating procedures; and
  - d) aircraft maintenance procedures.
- 10.3 Instructions for aircraft loading and securing of load.
- 10.4 Fuelling procedures.
- 10.5 Emergency procedures.

## **11. ROUTES**

- 11.1 Performance criteria, e.g. take-off, en-route and landing.
- 11.2 Flight planning procedures including:
  - a) fuel and oil requirements;
  - b) minimum safe altitudes;
  - c) planning for contingencies (e.g. emergency or diversion scenarios); and
  - d) navigation equipment.
- 11.3 Weather minima for all instructional training flights during day, night, VFR and IFR operations.
- 11.4 Weather minima for all student training flights at various stages of training.
- 11.5 Training routes and practice areas.



## 12. FLIGHT TRAINING PLAN

12.1 Training curricula (in addition to curricula listed in 3.1.4 of this appendix), including, as applicable:

- a) single-engine flights;
- b) multi-engine flights;
- c) theoretical knowledge for flights; and
- d) flight simulation.

12.2 The general arrangements of daily and weekly programmes for flying training, ground training and flight simulation training.

12.3 Training policies (in addition to paragraph 3.1.5 of this appendix) in terms of:

- a) weather constraints;
  - b) maximum student training times for flight, theoretical knowledge and flight simulation training, per day/week/month;
  - c) restrictions in respect of training periods for students;
  - d) duration of training flights at various stages;
  - e) maximum individual student flying hours in any day or night period;
  - f) maximum number of individual student training flights in any day or night period; and
  - g) minimum rest periods between training periods.
-



## Appendix B

# QUALITY ASSURANCE AND THE QUALITY SYSTEM OF THE ATO

### 1. QUALITY POLICY AND STRATEGY

1.1 The ATO needs to describe how it performs the organization and management of its training operations in order to ensure it operates in conformity with the training and procedures manual and as approved by the licensing authority. A formal, written quality policy should be prepared, establishing a commitment by the accountable executive of the ATO to achieve and maintain the highest possible standards of training. The quality policy should reflect the achievement of, and continued compliance with, relevant parts of Appendix 2 to Annex 1, together with all applicable national regulations and any additional standards specified by the ATO.

1.2 The accountable executive of the ATO will have the overall responsibility for the standard of quality including the frequency, format and structure of the internal management review and analysis activities and may delegate to a quality manager the responsibilities described in Section 2 of this appendix. Depending on the size and scope of the ATO and the requirements of the Licensing Authority, the accountable executive and quality manager may interact in different ways as illustrated in Appendix C, Figures C-1, C-2 and C-3.

### 2. QUALITY MANAGER

2.1 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 the Licensing Authority are being carried out properly.

2.2 The quality manager should be responsible for ensuring that the quality system (QS) is properly documented, implemented, maintained and continuously reviewed and improved (see Section 17 of this appendix).

2.3 The quality manager should:

- a) report directly to the head of training; and
- b) have unencumbered access to all parts of the ATO.

*Note.— When the head of training is not the accountable executive, reporting mechanisms should be instituted to ensure that the accountable executive is aware of all issues impacting the quality of the training services being provided by the affected ATO (see Appendix C, Figure C-2).*

2.4 The quality manager should be responsible for ensuring that personnel training related to the QS is conducted.

### 3. QUALITY ASSURANCE

3.1 The term “quality assurance” (QA) is frequently misunderstood to mean the testing and checking of products and services. ATOs that only do checking and testing activities are merely applying “quality control” measures, which are designed to catch product and service defects but not necessarily prevent them. For example, an ATO that administers exams at the end of the training syllabus, only to discover that a large proportion of the students have failed to meet the required standard, has only identified a deficiency in expected results. The implication could be that there is a problem with the training programme or the instructor or even the student selection criteria. In this instance the ATO has no idea what the real problem is or what to do about it. Quality control, by itself, provides limited value without the suite of complementary activities that comprise QA.

3.2 QA, on the other hand, attempts to improve and stabilize the training process and to identify and avoid, or at least minimize, issues that lead to problems in the first place. It continuously verifies that standards are adhered to throughout the training process by introducing various checkpoints and controls. It further introduces a system of audits to ensure that documented policies, processes and procedures are consistently followed. It is the “assurance” part of quality management.

3.3 A QA plan for an ATO should encompass well-designed and documented policies, processes and procedures for at least the following activities:

- a) monitoring of training services and process controls;
- b) monitoring of assessment and testing methods;
- c) monitoring of personnel qualifications and training;
- d) monitoring of training devices and equipment qualification, calibration and functionality, as applicable;
- e) conduct of internal and external audits;
- f) development, implementation and monitoring of corrective and preventive actions and associated reporting systems (see Section 8 of this appendix); and
- g) utilize appropriate statistical analysis to identify and respond appropriately to trends.

3.4 An effective QA plan will aid significantly in the ATO's compliance with requirements, its conformity with the standards and the adequacy of its training activities. To take the ATO's performance to a higher level requires a structure that ensures that the combined QA effort of the employees reaches its full potential.

*Note.— Annex 1 requires ATOs only to establish and implement QA policies, processes and procedures acceptable to the Licensing Authority granting the approval, which ensures that training and instructional practices comply with all relevant requirements.*

3.5 QA plans by themselves are subject to breakdowns in human performance and therefore are in need of robust organizational structures that underpin the QA efforts of individuals. It is for this reason that ATOs and States should embrace the QS governance model described in this appendix.

### 4. QUALITY SYSTEM FOR THE ATO

4.1 A QS is the aggregate of all the ATO's activities, plans, policies, processes, procedures, resources, incentives and infrastructure working in unison towards a total quality management approach. It requires an

organizational construct complete with policies, processes, procedures and resources that underpins a commitment to achieve excellence in product and service delivery through the implementation of best practices in quality management.

4.2 An ATO that supports its QA plan with a well-designed, implemented and maintained QS structure should be able to easily and repeatedly achieve results that exceed both the requirements of the applicable national regulations and the expectations of the ATO's clients.

4.3 The basic attributes of an effective QS should include, but are not necessarily limited to:

- a) a managerial structure that facilitates and encourages clear and unencumbered access to the decision makers (Appendix C provides some examples in Figures C-1, C-2 and C-3);
- b) an overarching company commitment to achieving excellence in the delivery of training services, rather than meeting minimum requirements;
- c) quality policies, processes and procedures that are well-designed, consistently applied and subject to formalized review and refinement processes;
- d) an employee training plan that instils and promotes best practices in quality management efforts;
- e) an organizational risk profile and corresponding risk management plan, which together provide a comprehensive list of hazards that are tied to the ATO's activities and establish mitigating measures to effectively manage those risks which threaten the achievement of desired standards of performance; and
- f) a strategic review of policies and procedures which measures the ATO's current assumptions, objectives and plans by applying a relevance test matched to evolving trends in the industry or changes occurring within the ATO.

## 5. ORGANIZATIONAL RISK PROFILE

5.1 An organizational risk profile is an inventory of identified hazards and threats that present risks which are likely to prevent conformity with the required standards of performance. This "threat to quality" list is normally arrived at by first establishing a directory of those activities that routinely take place in order to deliver and administer a training programme. Once complete, the activity directory is then expanded to identify the hazards and threats associated with each individual activity. Some examples of routine activities that should be examined during this process are:

- a) selection and training of staff;
- b) training programme development, validation and review;
- c) development and maintenance of training courseware;
- d) administrative staff duties in support of the training programme, the instructors and evaluators, and the students;
- e) delivery of training;
- f) record keeping;
- g) assessment and examination processes; and
- h) client and Licensing Authority feedback.

5.2 The risks identified through this exercise should not be limited to just those which currently exist but should also include those potential risks that could arise from a change to existing circumstances or conditions.

## **6. RISK MANAGEMENT PLAN**

6.1 A risk management plan is designed to mitigate the identified risks, real or potential, which were derived from the organizational risk profile exercise. The plan's objective is not to eliminate risk so much as it is to effectively manage risk by putting in place risk controlling measures.

6.2 A well-developed and implemented risk management plan will substantially aid in accurately scoping out the depth and frequency of planned QA-related activities.

6.3 The plan should be subject to the management review process outlined in 4.3 f) of this appendix.

6.4 The current risk management plan should be readily accessible to all employees so that it can be accurately followed and open to comment for improvement.

## **7. COHERENCE MATRIX**

7.1 A coherence matrix, sometimes known as a correspondence matrix, is a powerful addition to the ATO's compliance efforts. It is a detailed, tabulated document that lists all the applicable regulatory requirements imposed on the ATO. Beside each listed provision there should be at least two descriptive elements that identify:

- a) the existing processes that are designed to ensure continuous compliance with that specific regulatory rule or standard; and
- b) the individual managerial position responsible for the effective implementation of each process.

7.2 The coherence matrix should indicate the most recently completed and next intended audits designed to validate the functionality of each of the identified processes. Any recent audit findings should be listed in the matrix or referred to as being documented in a separate "register of findings".

7.3 The coherence matrix is developed and managed by the quality manager and is subject to the management review process outlined in 4.3 f) of this appendix.

7.4 The current coherence matrix should be readily accessible to all employees so that it can be accurately followed and open to comment for improvement.

## **8. CORRECTIVE AND PREVENTIVE ACTION REPORTS**

8.1 QA plans should include a well-structured reporting system to ensure that suggestions by ATO personnel for both corrective and preventive actions are recorded and promptly addressed. Paragraph 3.3 f) of this appendix identifies this as a necessary component of QA.

8.2 After an analysis of the reports submitted, the reporting system should specify who is required to rectify a discrepancy and/or non-conformity in each particular case and the procedure to be followed if corrective action is not completed within an appropriate timescale. Just as important, the reporting system should identify who is required to investigate and act upon any report identifying measures that could prevent a non-conformity from occurring.

8.3 Corrective and preventive action reports should be able to be submitted anonymously, if individuals so choose, to maximize the opportunity for open and effective reporting.

*Note.— Since corrective and preventive action reports, in this instance, represent suggestions for improvement in conformity levels and deal with quality issues, this reporting system and its processes should be managed by the quality manager.*

## 9. QUALITY-RELATED DOCUMENTATION

9.1 Relevant documentation includes parts of the training and procedures manual which may be included in a separate quality manual.

9.2 In addition, the relevant documentation should include the following:

- a) description of the ATO;
- b) quality policy and strategy;
- c) glossary;
- d) organizational risk profile;
- e) risk management plan;
- f) coherence matrix;
- g) procedures and reporting system for corrective and preventive actions;
- h) specified training standards;
- i) assignment of duties and responsibilities in relation to the QA or QS; and
- j) training procedures related to the QS to ensure regulatory compliance.

9.3 The QA audit programme documentation should reflect:

- a) the schedule of the monitoring process;
- b) audit procedures;
- c) reporting procedures;
- d) procedures for follow-up and corrective actions;
- e) the record-keeping system; and
- f) document control.

## 10. QA AUDIT PROGRAMME

The QA audit programme should include all planned and systematic actions necessary to provide confidence that every training activity is being conducted in accordance with all applicable requirements, standards and procedures.

## 11. QUALITY INSPECTION

11.1 A quality inspection is an activity in support of QA and quality audits (see Section 12). The primary purpose of a quality inspection is to review a document or observe a particular event, action, etc., in order to verify whether established training procedures and requirements were followed during the conduct of the inspection and whether the required standard was achieved.

11.2 Examples of typical subject areas for quality inspections are:

- a) actual training sessions;
- b) maintenance, if applicable;
- c) technical standards; and
- d) training standards.

## 12. QUALITY AUDITS

12.1 An audit is a systematic and independent comparison between the way in which training is being conducted and the way in which it should be conducted according to the published training procedures.

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

- a) a description of the scope of the audit, which should be explained to the personnel to be audited;
- b) planning and preparation;
- c) gathering and recording evidence; and
- d) analysis of the evidence.

12.3 The various techniques that make up an effective audit are:

- a) a review of published documents;
- b) interviews or discussions with personnel;
- 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.



### 13. AUDITORS

13.1 The ATO should decide, depending on the complexity of the organization and the training being conducted, whether to make use of a dedicated audit team or a single auditor. In any event, the auditor or audit team should have relevant training and/or operational experience.

13.2 The responsibilities of the auditors should be clearly defined in the relevant documentation.

### 14. AUDITOR'S INDEPENDENCE

14.1 Auditors should not have any day-to-day involvement in the area of the operation or maintenance activity that is to be audited.

14.2 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 through the use of part-time auditors. An ATO whose structure and size does not justify the establishment of full-time auditors may undertake the audit function using part-time personnel from within its own organization or from an external source under the terms of an agreement acceptable to the Licensing Authority.

14.3 In all cases the ATO should develop suitable procedures to ensure that persons directly responsible for the activities to be audited are not selected as part of the auditing team. Where external auditors are used, it is essential that any external specialist has some familiarity with the type of activity conducted by the ATO.

14.4 The QA audit programme of the ATO should identify the persons within the organization who have the experience, responsibility and authority to:

- a) perform quality inspections and audits as part of ongoing QA;
- b) identify and record 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 and reasonable timescales; and
- e) report directly to the quality manager.

### 15. AUDIT SCHEDULING

15.1 A QA audit programme should include a defined audit schedule and a periodic review cycle. The schedule should be flexible and allow unscheduled audits when negative trends are identified. The quality manager should schedule follow-up audits when necessary to verify that a corrective action resulting from a finding was carried out and that it is effective.

15.2 An ATO should establish a schedule of audits to be completed during a specific calendar period. This schedule should be influenced by the organizational risk profile and be reflected in both the risk management plan and the coherence matrix documents. As a minimum, all aspects of the training should be reviewed within a period of twelve months in accordance with the audit programme.

15.3 When an ATO defines the audit schedule, it should take into account significant changes to the management, organization, training or technologies, as well as changes to the standards and requirements as discussed in paragraph 4.3 f) of this appendix.

## 16. MONITORING AND CORRECTIVE ACTION

16.1 The aim of monitoring within the QS is primarily to investigate and judge its effectiveness and thereby 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:

- a) quality inspections;
- b) quality audits; and
- c) corrective and preventive action reports and subsequent follow-up.

16.2 Any non-conformity identified as a result of monitoring should be communicated by the quality manager to the manager responsible for taking corrective action or, if appropriate, to the head of training or, when circumstances warrant, to the accountable executive. Such non-conformity should be recorded for the purpose of further investigation in order to determine the cause and to enable the recommendation of an appropriate corrective action.

16.3 The QA audit programme should include procedures to ensure that corrective and preventive actions are developed in response to findings. Personnel implementing these procedures should monitor such actions to ensure that they have been completed and verify their effectiveness. Organizational responsibility and accountability for the implementation of corrective action resides with the department where the finding was identified. The accountable executive will have the ultimate responsibility for ensuring, through the quality manager, that the corrective action has re-established conformity with the standard required by the ATO and any additional requirements established by the Licensing Authority or the ATO.

16.4 As part of its QS, the ATO should identify internal and external clients and monitor their satisfaction by measurement and analysis of feedback.

## 17. CONTINUOUS IMPROVEMENT PROCESS

17.1 As stated in 2.2 of this appendix, the quality manager should be responsible for the review and continuous improvement of the established QS's policies, processes and procedures. The following tools, on which the quality manager relies, are essential to the continuous improvement process:

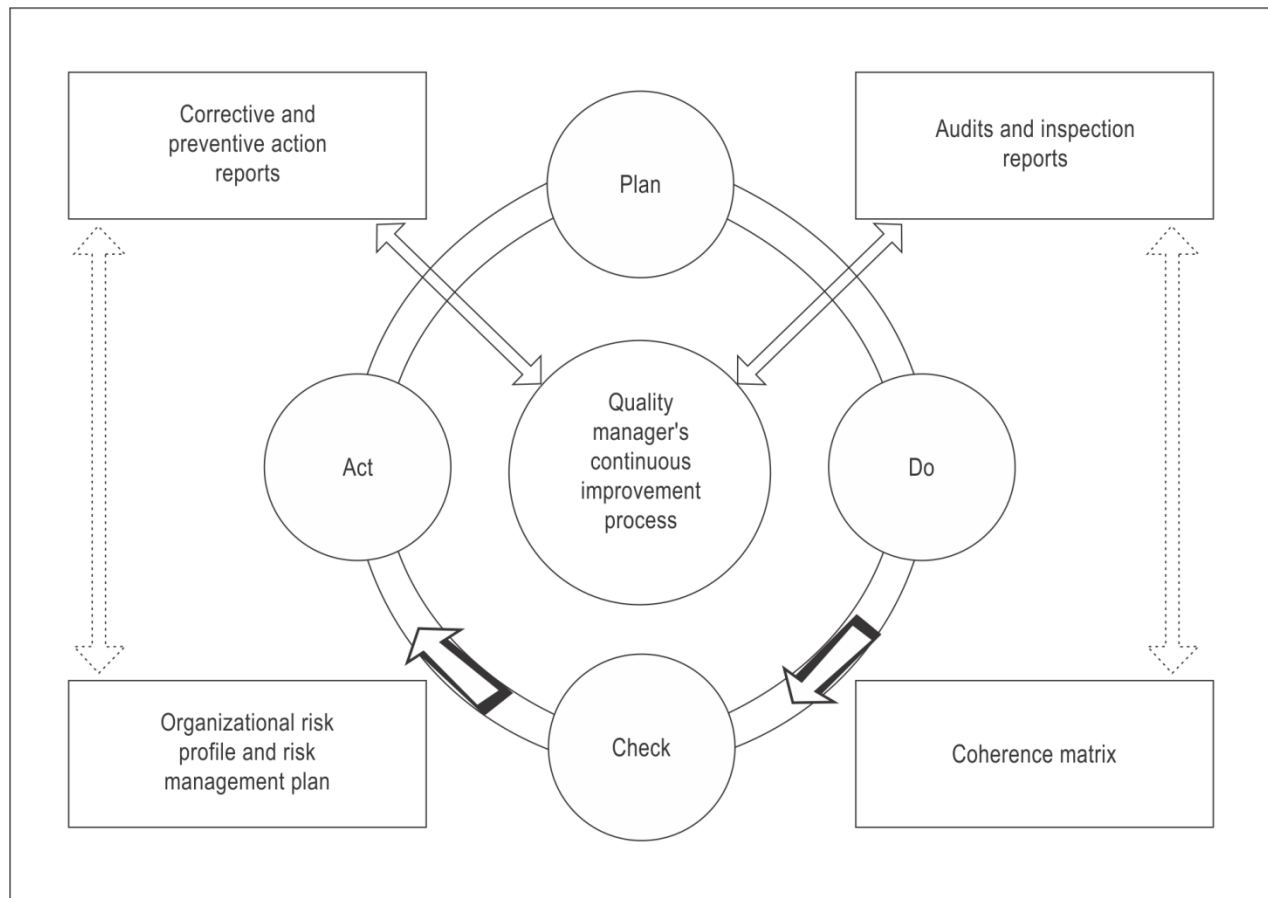
- a) organizational risk profile;
- b) risk management plan;
- c) coherence matrix;
- d) corrective and preventive action reports; and
- e) inspection and audit reports.

17.2 These tools and processes are interrelated and help define the continuous improvement efforts of the ATO. For example, any corrective or preventive action report could identify a deficiency or an opportunity for improvement. As outlined in 8.2 of this appendix, the quality manager would then be required to ensure the identified issue was addressed and corrective action effectively implemented. The same would be true if the issue was identified during an inspection or audit.

17.3 The effective implementation of change and the subsequent validation that the change did indeed result in the desired outcome are critical to the continuous improvement process. Simply introducing a well-meaning suggestion for improvement into the ATO without carefully managing that change could have undesirable consequences. It is therefore incumbent upon the quality manager to responsibly introduce, monitor and validate improvement efforts.

17.4 A simple but effective process to use in managing continuous improvement is known as the plan-do-check-act, or PDCA, approach, which is illustrated in Figure B-1 and described below:

- a) *Plan*. Map out the implementation of the recommended change, identifying at least:
  - 1) the people who will be affected by the change;
  - 2) the required quality control measures necessary to mitigate risk; and
  - 3) the desired outcome and its intended consequences.
- b) *Do*. Execute the implementation plan once all affected groups have accepted the proposal and understand their role in ensuring its success.
- c) *Check*. Apply sufficient quality control “stage” checks throughout the implementation phase to ensure any unintended deviations in the execution are identified and addressed without delay.
- d) *Act*. Analyse the results and take appropriate action as necessary.



**Figure B-1. The plan – do – check – act approach**

## 18. MANAGEMENT REVIEW AND ANALYSIS

18.1 Management should accomplish a comprehensive, systematic and documented review and analysis of the QS, training policies and procedures and should consider:

- a) the results of quality inspections, audits and any other indicators;
- b) the overall effectiveness of the management organization in achieving stated objectives; and
- c) the correction of trends and, where applicable, the prevention of future non-conformities.

*Note.— Paragraph 4.3 of this appendix identifies the basic attributes which require review and analysis.*

18.2 Conclusions and recommendations made as a result of the review and analysis should be submitted to the responsible manager, in writing, for action. The responsible manager should be an individual who has the authority to resolve relevant issues and take action. The head of training should decide on the frequency, format and structure of meetings for internal review and analysis, in coordination with the accountable executive, if different, because the accountable executive has the overall responsibility for the QS including the frequency, format and structure of the internal management review and analysis activities (see 1.2 of this appendix).

## 19. RECORDS

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

19.2 Records should be retained at least for the period that may be mandated by national requirements. In the absence of such requirements, a period of three years is recommended. The relevant records include:

- 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.

## 20. QA RESPONSIBILITY FOR SATELLITE ATOs

20.1 An ATO may decide to subcontract certain training activities to external organizations subject to the approval of the Licensing Authority.

20.2 The ultimate responsibility for the training provided by the satellite ATO always remains with the ATO. A written agreement should exist between the ATO and the satellite ATO clearly defining the training services to be provided and the level of quality to be assured. The satellite ATO's activities relevant to the agreement should be included in the ATO's QA audit programme.

20.3 The ATO should ensure that the satellite ATO has the necessary authorization/approval when required and commands the resources and competence to undertake the task.

## 21. QA TRAINING

21.1 As outlined in 4.3 d) of this appendix, appropriate and thorough training is essential to optimize quality in every organization. To achieve this, the ATO should ensure that all staff members understand the objectives as laid out in the quality manual, to a level relevant to their duties, including:

- a) the concept of QA and associated systems;
- b) quality management;
- c) the quality manual;
- d) inspections and audit techniques; and
- e) reporting and recording.

21.2 Time and resources should be allocated to provide appropriate levels of QA training to every employee.

21.3 QA courses are available from the various national or international standards institutions, and an ATO should consider whether to offer such courses to those likely to be involved in the management or supervision of QA processes. ATOs with sufficient appropriately qualified staff should consider the possibility of providing in-house training.

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## Appendix C

### ORGANIZATIONAL STRUCTURE OF THE ATO

#### 1. ROLE OF THE COURSE DEVELOPERS

An ATO needs course developers for courseware development to conduct the training needs analysis, develop the training material and evaluate the training material during the course validation delivery. As such, course developers are highly specialized personnel who may be contracted from an outside organization to develop courseware as described in Chapter 7, 7.1. Normally, course developers belong to a separate component of the ATO reporting to the head of training. That component is not represented in the following organizational charts.

#### 2. EXAMPLES OF ORGANIZATIONAL CHARTS

2.1 The following organizational charts are by no means exhaustive and do not pretend to meet all operational requirements. They are provided only to assist ATOs in developing and maintaining an organizational structure that is consistent with the needs of an effective quality system (QS) governance model.

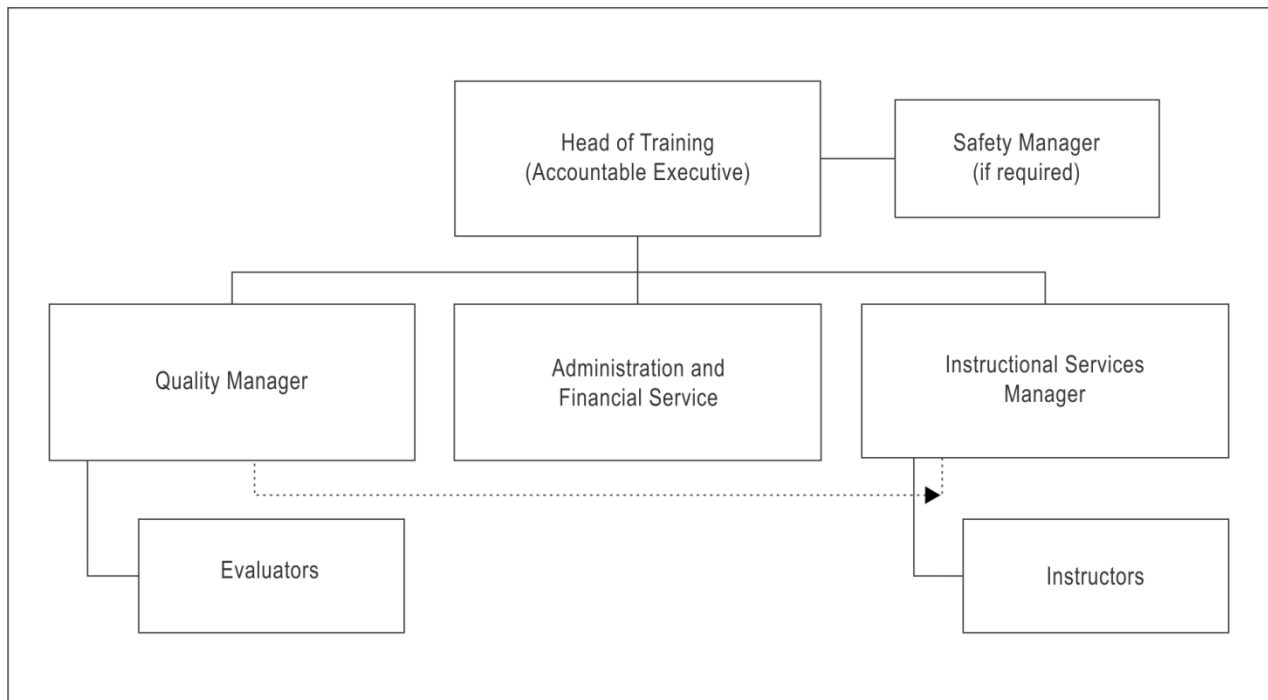
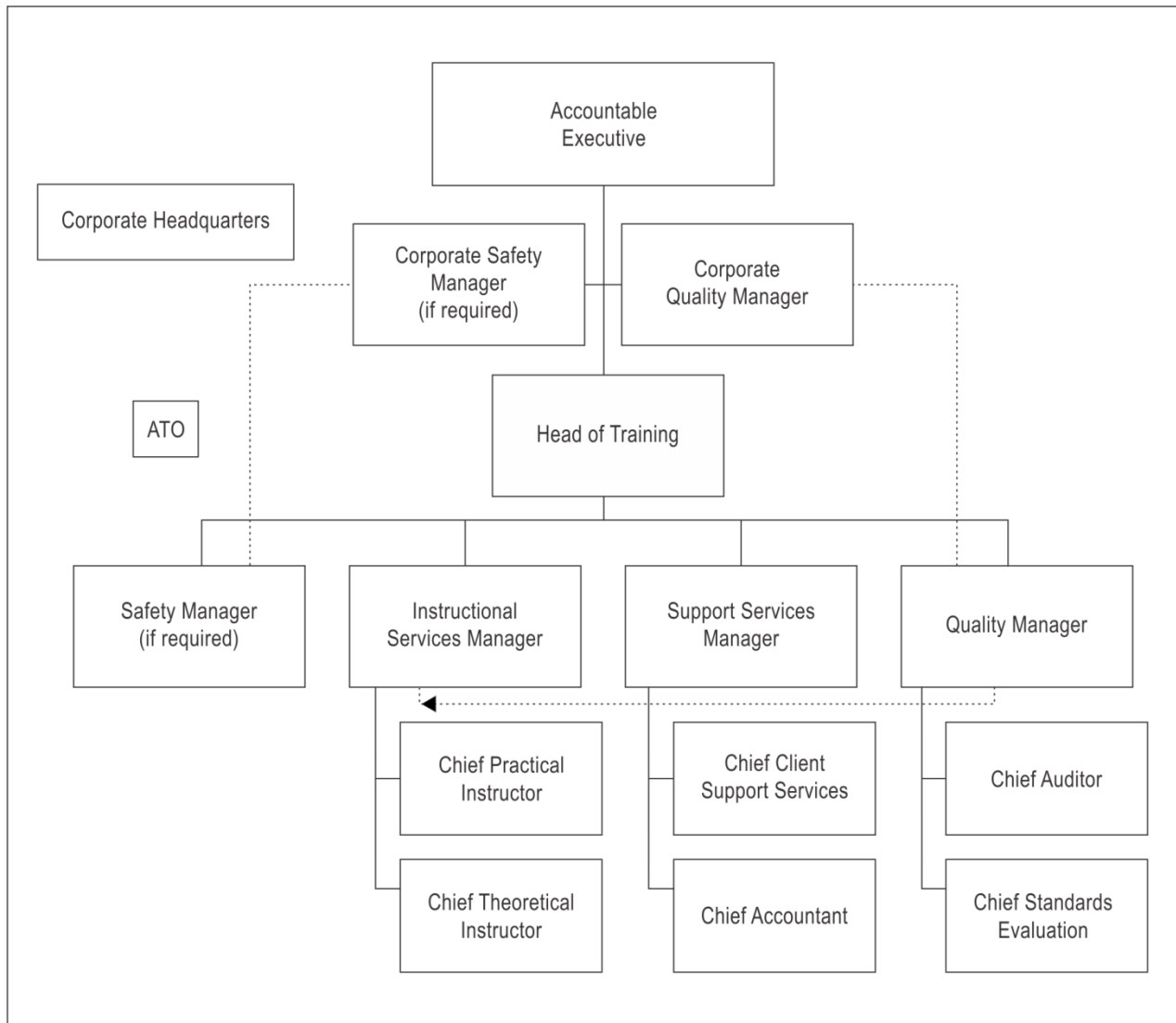


Figure C-1. Example of a small generic ATO

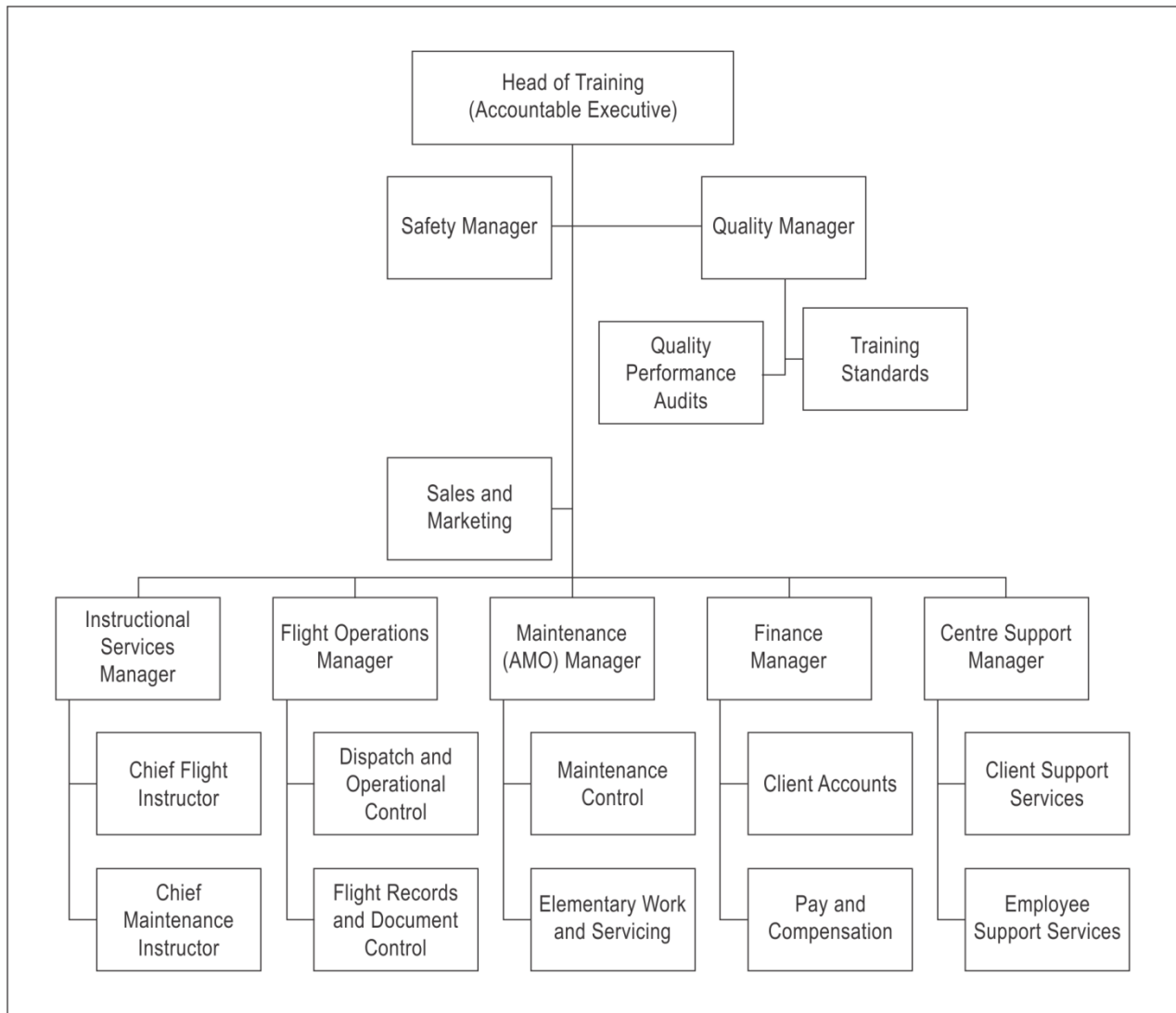
2.2 This example depicts an ATO that is part of a much larger company, which oversees it as a business unit.



**Figure C-2. Example of a small/medium (complex) generic ATO**



2.3 This ATO has an AMO certificate for maintenance of aircraft. The AMO may also be involved in on-the-job training for the aircraft maintenance students. In this instance, the ATO has an SMS programme covering both aircraft flight operations and maintenance activities.



**Figure C-3. Example of a large (complex) multi-faceted ATO**



## Appendix D

### ALTERNATIVE MEANS OF COMPLIANCE

#### 1. APPLICABILITY

1.1 Each Licensing Authority attempts to develop rules and standards of conduct in close harmonization with ICAO's Standards and Recommended Practices (SARPs) in so far as they are consistent with national interests. Article 1 of the *Convention on International Civil Aviation* (Doc 7300) recognizes the sovereignty of the State while Article 38 makes provisions for the filing of differences when circumstances so warrant.

1.2 Another obligation of Contracting States is the need to establish and maintain a national safety oversight programme designed to ensure civil aviation standards are upheld. This obligation requires the civil aviation authority (CAA) to effectively manage risk in those parts of the civil aviation industry that fall within its jurisdiction. It is with the risk management process that applicants wishing to seek approval for new training methodologies need to become most familiar.

1.3 Besides employing best practices in risk management, CAAs need to be assured that changes to the regulatory status quo are supported by data which provide irrefutable evidence that the proposed change represents an improvement to existing practices and demonstrated outcomes. In other words, applicants requesting approval for new approaches to training should be prepared to put their proposal through a rigorous testing process, such as a proof-of-concept trial.

*Note.— Provisions for new approaches regarding evidence-based training programmes are provided in the PANS-TRG and in the Manual of Evidence-based Training (Doc 9995).*

#### 2. PROOF-OF-CONCEPT TRIALS

2.1 Many Licensing Authorities are adopting approval processes which incorporate varyingly complex proof-of-concept trials as a means of validating potential modifications to their regulatory framework. They commence this exercise by subjecting each new idea or issue to a formal risk assessment (RA) process. This is particularly true when evaluating concepts that are relatively new, such as employing competency-based approaches to training.

2.2 In addition to demonstrating an improvement to existing practices and outcomes, as described in 1.3 of this appendix, another important feature of any particular proposal for change is being able to demonstrate that the end-state or outcome is in the public's interest.

*Note.— Provision has been made in Annex 1 for some reduction in the experience requirements for the issue of certain licences and ratings, provided that the Licensing Authority has determined the existence of at least equivalent levels of competencies to those originally prescribed. In these instances, Licensing Authorities will likely require an evaluative process similar to that described in this appendix.*

2.3 It stands to reason, therefore, that the ability to successfully obtain approval for a new training approach is dependent upon the applicant's proposal undergoing a thorough proof-of-concept trial which is able to consistently demonstrate that the proposal meets all of the following objectives:

- a) it maintains an equivalent or reduced exposure to risk;
- b) it results in improvements in efficiencies or existing outcomes; and
- c) it continues to meet the public's interest as intended in the applicable regulations and their associated standards.

### 3. REGULATORY CONSIDERATIONS

States have implemented differing organizational structures in the design of their CAAs, which will greatly influence the approach necessary for gaining approval. As an example, a proposal to adopt new training methodologies into existing commercial air transport operators' training programmes will require a carefully orchestrated process designed to meet both licensing and operational suitability requirements. Often these two oversight domains, licensing and operations, are managed independently by CAAs due to their distinct specialization requirements. Both the applicant and the CAA, therefore, need to be respectful of these considerations in charting out a plan to adequately assess the impact of the proposal on both domains.

*Note.— Guidance on meeting licensing and operational requirements is provided in the PANS-TRG and in Doc 9995.*

### 4. APPLICANT CONSIDERATIONS

4.1 Since CAAs are frequently approached by stakeholders to provide "relief" or "exemptions" from specific regulatory provisions, it becomes incumbent upon the applicant seeking approval to make it easy for the Licensing Authority to discriminate its proposal from those less substantiated requests that are frequently submitted for consideration.

4.2 To that end, if the applicant wishes to ensure that its proposal will meet the objectives outlined in 2.3 of this appendix, the following steps should be undertaken prior to making a formal application for approval:

- a) identify the end-state objectives of the proposal;
- b) quantify the improvement in efficiencies/outcomes being sought;
- c) determine the current regulatory impediments to achieving the desired improvements;
- d) identify the overriding hazards of the intended proposal and develop a thorough risk profile;
- e) define the risk controlling measures in the form of a risk management plan that must be implemented and validated during the proof-of-concept trial;
- f) establish data collection and analysis procedures for the trial; and
- g) determine if the proposed change will continue to serve the public's interest.

4.3 With all these factors addressed, the applicant needs to devise a detailed draft proof-of-concept plan for consideration by the CAA.

## 5. IDENTIFYING RISK

5.1 A risk profile is an objective evaluation of potential risk, developed by making reasonable assumptions tied to both known conditions and uncertainties. It represents a critical step in the development of an effective risk management programme.

5.2 There are several ways to determine a risk profile; but in all instances the objective is the same: to develop a dynamic tool that enables the effective management of those risks which threaten desired outcomes.

5.3 The risk profile usually is initiated by evaluating all the processes that define a work effort. In other words, it is an exercise that begins with identifying all the major activities that an entity is required to carry out in order to produce or deliver a product or a service. For example, it might be all the activities that a commercial air operator or an ATO would undertake in order to successfully design, deliver and administer a new training programme. In this instance, each activity must be identified along with all the associated potential hazards. The next step is to determine the risk each of the hazards poses.

*Note 1.— Traditional RA methodologies are somewhat different in that they require risk scenarios to be developed for each identified hazard. The risks attached to the hazard are then subjected to an evaluation process which includes determining the cost/benefit factors of the activity posing the risk. Ultimately, this leads to the realization of the overall impact of the risks on the affected organization and the identification of means to control those risks. This methodology is detailed in Chapters 2 and 5 of the Safety Management Manual (Doc 9859).*

*Note 2.— A traditional RA is a valued tool in determining whether or not to proceed with the proof-of-concept trial, and, if so, under what conditions. Unless a real risk to safety is identified during the risk profile exercise, conducting a formal safety RA is unnecessary.*

## 6. MANAGING RISKS

6.1 Risk management is the process of identifying hazards and their associated risks, assessing their implications, deciding on a course of mitigating action and evaluating the results. The simplified approach to managing risk begins with the completion of a risk profile as described in paragraph 5 of this appendix.

6.2 Once the identified risks have been assessed, a weighted factor is applied to each risk activity in terms of the potential impact of the risk, the likelihood of its occurrence and the long-term consequences to the organization. This exercise results in the creation of a prioritization list which will help in the development of a risk management plan.

6.3 The identification of effective controlling measures to mitigate each risk and how to best employ them becomes the basis by which a risk management plan is developed and documented.

6.4 Implementation of a risk management plan is a dynamic process, supported by documented procedures which are coordinated by a responsible member of the risk management team. Throughout its implementation those procedures and their results are subjected to constant review and refinement, as are the original assumptions that were made in determining the risk profile.

6.5 The overall objective is to be able to create a risk management process that permits the proof-of-concept trial to proceed under safe conditions.

## 7. PARTNERING FOR RESULTS

7.1 There is measurable added value by partnering the efforts of the CAA and industry in reaching sustainable improvements to current regulatory frameworks. The mutual challenge is to arrive at a common understanding of how the proposed trial's objective represents a valued return on investment since both parties will be committing resources to the endeavour.

7.2 In order to promote an efficient and effective national transportation system, a CAA is constantly trying to balance the trial's objective with the need to create a safe operating environment. Implementing best practices in risk management becomes its ultimate target. Hence, an organization that methodically scopes out the proposed trial in the manner suggested in this appendix has a much higher probability of realizing a common understanding with the CAA of the importance and advantage of proceeding.

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## Appendix E

### APPROVING AUTHORITY TRAINING REQUIREMENTS

#### 1. NEW AND EMERGING DIFFERENCES IN TRAINING

1.1 More than at any other time in recent history, civil aviation training has been undergoing some innovative and exciting changes. These are changes brought about and, to some extent, made necessary by rapid advancements in technology, by improved methodologies in training programme and courseware design, and by the need to realize significant increases in safety levels through training that is more job focused. These dynamic realities gave rise to the establishment of ICAO's Flight Crew Licensing and Training Panel (FCLTP) in 2003. The FCLTP is just one example of the aviation community's appreciation of the evolution of its industry and of the need to modernize and make relevant internationally accepted training standards.

1.2 Rapidly introduced improvements in simulation fidelity have, in many instances, outpaced the ability to embrace the full potential of simulation within the training environment. As recently as the turn of the century, many respected training professionals were arguing that a seamless transfer of learned skills from a highly simulated training environment to the actual work environment was not likely to happen. The need for significant remediation once the graduates of a training programme entered the workplace was expected to be a common occurrence. This particular concern was a driving force in the FCLTP's final recommendations for the multi-crew pilot licence (MPL) to include the need to complete twelve take-offs and landings on the actual type-rated aeroplane prior to the holder exercising the privileges of that licence. In this instance, although global MPL training is still in development, the fear of systemic skill transfer issues for MPL holders has not materialized.

1.3 Along with the increased use of simulation, there have been significant improvements in course design and programme delivery. Instructional systems design (ISD) methodologies involving the analyse, design, develop, implement and evaluate (ADDIE) framework for new training programmes are now in frequent use. This approach to perfecting course design is described in Part I, Chapter 2 of the PANS-TRG.

1.4 Changes to ICAO Standards and Recommended Practices (SARPs) starting in 2006 have recognized competency-based training programmes as an alternative way to gain civil aviation occupational qualifications. The advanced qualification programme (AQP) used extensively in North America has components that are focused on the achievement of specifically targeted competencies. The same could be claimed by alternative training and qualification programmes (ATQP) used by some air operators in other continents. But in so far as being singularly focused on the achievement of benchmarked competency elements, a properly ISD-developed MPL training programme is by far the most notable example in civil aviation training at this time (see the PANS-TRG for details).

1.5 To complete the suite of large changes, systems-based governance models have now been universally accepted as an essential requirement for the effective management of risk. Risks that can undermine the quality and safety of training are mitigated through the implementation of effective system-based governance models. Both quality systems (QS) and safety management systems (SMS) are detailed in Appendix B and Chapter 5, respectively.

## 2. NATIONAL REGULATORY REVIEW

2.1 Changes to internationally accepted standards since 2006, and supporting documentation, should trigger a review by Licensing Authorities of existing national regulatory frameworks in the following domains:

- a) qualifying standards for simulation devices and their expanded use for training credits;
- b) system-based governance requirements for ATOs; and
- c) competency-based training programmes.

2.2 An International Working Group (IWG) was established in March 2006 by the Royal Aeronautical Society's Flight Simulation Group to review and expand upon existing technical criteria detailed in the *Manual of Criteria for the Qualification of Flight Simulation Training Devices* (Doc 9625). The IWG decided to also establish simulation fidelity levels required to support specific training tasks for each pilot licence, qualification or rating. This activity led to the promulgation of new criteria for aeroplane training devices in Volume I of the fourth edition of the manual in 2015. The criteria for helicopter flight simulation training devices (FSTDs) were published in Volume II of Doc 9625. These volumes should be reviewed by Licensing Authorities to ensure their national rules are consistent with the expanded ICAO criteria.

2.3 Although many civil aviation authorities (CAAs) already require that safety management programmes be instituted by their major air operators, some may not have implemented that requirement for ATOs. The requirement for ATOs to adopt a SMS governance model applies to only those ATOs engaged in specific activities that directly pose a risk to the safe operation of aircraft.

*Note 1.— An example of an activity “directly” posing a risk to the safe operation of aircraft would be an ATO that conducts flight training utilizing an aircraft during a portion of the training syllabus.*

*Note 2.— An example of an ATO not directly posing a risk to the safe operation of aircraft would be an ATO that sends its aircraft maintenance students to an approved maintenance organization (AMO) for some on-the-job training as part of the training syllabus. In this instance, the onus would be on the AMO to ensure that the students' participation in aircraft maintenance activities is captured by the AMO's SMS.*

2.4 Appendix 2 to Annex 1 requires ATOs to adopt QA processes acceptable to the Licensing Authority. Appendix B to this manual provides expanded guidance on how to maximize the effectiveness of an ATO's QA efforts through the implementation of a QS governance model. However, it should be expected that all ATOs may not have the resources or the expertise to implement the QS model as suggested in Appendix B. What is important to understand is that each ATO is required by Annex 1 to implement QA policies, procedures and practices “which ensure that training and instructional practices comply with all relevant requirements.” Appendix B is intended only to provide an effective way of achieving such an objective.

2.5 Internationally accepted practices with respect to competency-based training programmes conducted by ATOs are described in the PANS-TRG. It covers the technical aspects of both programme design and delivery for the MPL and for air traffic management personnel and aircraft maintenance personnel training, and will expand this coverage to additional categories of aviation personnel in the future. Licensing Authorities need to intuitively understand the significant differences between competency-based training methodologies and the traditional training programmes with which they have been most familiar up to now.

2.6 The three domains of change mentioned in 2.1 of this appendix suggest that a review of national regulatory structures for aviation training is in order, but they also point to a need to review internal qualification training for inspectorate and enforcement CAA personnel to ensure that they are ready to provide an effective safety oversight programme.



*Note.— The Manual on the Competencies of Civil Aviation Safety Inspectors (Doc 10070), contains guidance on the qualifications of inspectors, including qualifying experience and initial, continuation, requalification and advanced training.*

### 3. LICENSING AUTHORITY TRAINING

While it is recognized that several Licensing Authorities already have made some adjustments to their internal training scheme for their personnel, additional guidance is needed. In light of changes to SARPs, procedures and accepted practices, the following subject areas should be covered in qualification training for inspectors and enforcement personnel, as appropriate for their duties:

- a) use of simulation in training, to include:
  - Doc 9625, Volumes I and II;
  - applicable national regulations and standards for simulation; and
  - device technical qualification versus device suitability for a training programme.
- b) quality assurance programmes:
  - process approach to achieving objectives; and
  - attributes of effective QA practices.
- c) safety management programmes:
  - process approach to achieving objectives;
  - non-punitive reporting cultures; and
  - attributes of effective safety management.
- d) system-based governance models, to include:
  - “governance”, the term’s definition and objectives;
  - design and effective application of organizational structures; and
  - Appendix B to this manual and Chapter 5.
- e) competency-based training, to include the PANS-TRG, Amendment 5 and later amendments.
- f) alternative means of compliance, to include:
  - definition of the term “alternative” means of compliance (as opposed to “alternate” means of compliance — see glossary)
  - paragraph 3.1 of Appendix 2 to Annex 1; and
  - Appendices D and F to this manual.

#### 4. DEVELOPMENT AND MAINTENANCE OF APPROVAL STANDARDS

4.1 Licensing Authorities will need to recognize the changes outlined in 2.1 of this appendix and determine if current national approval standards for ATOs still serve their needs. This is particularly important when evaluating the:

- a) application of ISD methodologies in programme design;
- b) use of differing levels of simulation in training programmes;
- c) use of learning management systems for tracking student progress; and
- d) performance criteria and continuous assessment practices in competency-based training programmes.

4.2 Licensing Authorities also must recognize the need to establish rigorous proof-of-concept methodologies that provide irrefutable evidence to support any approval of an “alternative means of compliance”, as provided for in Appendix 2 to Annex 1. The basis for such an approval should be focused upon the proposal’s outcomes being sustainable and repeatable. Appendix D details one effective approach for introducing new training methodologies in a risk-managed environment.

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## Appendix F

### ALTERNATIVE APPROVAL PROCESS OF A FOREIGN ATO

(See Chapter 11, 11.3)

*Note.— For the purpose of this appendix, the civil aviation authority (CAA) is the authority issuing the approval of a foreign ATO. The baseline CAA is defined in the glossary.*

#### 1. FOREIGN ATO APPROVAL

The process for a foreign ATO approval is based on a phased gate approach with a defined set of criteria. The process provides assurance that the foreign ATO approval is fully compliant with national regulations while leveraging to the maximum extent possible an existing approval (baseline CAA approval). The concept of the alternative approval process and phased gate approach are illustrated in Figures F-1 and F-2, respectively.

#### 2. PROCESS PHASES AND GATES

2.1 In principle, the process phases mirror the normal phases required for a full approval and provide a streamlined set of requirements limited to those areas of the national requirements which differ from the baseline CAA approval.

2.2 There are five phases, similar to the phases used to issue an air operator certificate, which an applicant has to follow in this process to obtain a foreign-based ATO approval:

- a) In the *pre-application phase*, the training organization requests the alternative approval process and the CAA determines if its national regulations will support this process.
- b) The *application phase* includes a gap analysis regarding the approval of a training organization between the baseline CAA regulation and the national regulation, conducted by the training organization, that identifies any significant differences, which must be addressed to ensure compliance with the national regulations.
- c) The *application evaluation phase* determines if the eligibility requirements are met; this phase is a complete review of the application.
- d) The *demonstration and validation phase* requires the CAA to complete the validation (or inspection) of the different components of the approval, and extends to the training programme and flight simulation training device (FSTD) equipment.
- e) The *certification phase* is the final step and results in the issuance of the required certification and required approvals to include the training and procedures manual, the FSTD qualification and the approval for the use of the FSTD.

2.3 The phased gate approach requires specific (gate) criteria that must be met before proceeding to the next phase of the approval process.

### 3. PHASE 1: PRE-APPLICATION

3.1 This phase starts when an ATO wishes to provide training for an individual or operator under a foreign ATO approval.

3.2 The training organization must first establish if the foreign ATO approval can be achieved through the alternative approval process by leveraging an existing ATO approval, preferably that of the State where the training organization is located. However, an ATO approval by another State should be equally acceptable. In either case, that State's CAA becomes the baseline CAA. The training organization should be capable of complying with all the procedures and guidelines associated with the alternative approval process and also satisfy the ATO requirements of the CAA.

3.3 Once it has been determined that the training organization can use the alternative approval process, the CAA should coordinate with the baseline CAA to explore collaboration.

3.4 Upon request from the training organization, the CAA contacts the baseline CAA to establish if the baseline CAA will collaborate and support the ATO approval. When collaboration is established between the baseline CAA and the CAA, the training organization will be required to provide a regulatory gap analysis between the CAA and baseline CAA's ATO requirements.

3.5 The areas to be reviewed should include all of the areas required for ATO approval to include organization, training programmes and training delivery, training and procedures manual, personnel, facilities, records, quality system and safety management system (SMS) (if required).

#### 3.6 Gate 1: Criteria

3.6.1 The CAA contacts the baseline CAA to determine the level of support, if any, which may be extended by the baseline CAA, and this may be through a memorandum of understanding or other suitable arrangements.

*Note.— An important element with the use of the alternative approval process is the option for the CAA and baseline CAA to reach an agreement to collaborate on the overall oversight of the training organization operations. The additional tasks imposed on the baseline CAA are minimal and, for the most part, the additional tasks should be limited to administrative actions.*

3.6.2 The CAA notifies the foreign ATO of the acceptance or denial to proceed with the alternative approval process.

### 4. PHASE 2: APPLICATION

4.1 The application process for each State may vary and the training organization should consult with the CAA to establish the specific procedures to be followed to meet the regulatory requirement for ATO approval. In principle, the application using the alternative approval process mirrors that of a normal ATO application with the exception that the CAA accepts the baseline CAA approvals and limits its level of involvement to those areas that are identified in the applicant's gap analysis and submitted as a supplement to the application.

4.2 The applicant should, to the extent possible, demonstrate through a compliance matrix how all of the foreign ATO requirements are met.

#### 4.3 Gate 2: Criteria

4.3.1 The applicant completes the gap analysis: the training organization establishes if there are gaps between the CAA regulations and the baseline CAA regulations regarding the requirements for ATO approval.

4.3.2 The gap analysis is completed to the extent that would allow the applicant to perform Annex 1 and relevant Annex 6 training activities (multi-crew pilot (MPL), type rating, etc.) as appropriate.

4.3.3 The applicant submits an application which includes a full analysis of how compliance with the CAA's ATO requirements are met through the recognition of the baseline approval with an additional supplement as applicable. The application should be complete, i.e. the baseline CAA approval documentation plus a supplement as applicable.

4.3.4 The CAA and the baseline CAA finalize the memorandum of understanding or other suitable arrangement, as applicable, based on the output from the gap analysis.

### 5. PHASE 3: APPLICATION EVALUATION

5.1 This phase differs from the normal ATO approval process in that the evaluation is accomplished by the CAA without going on-site, through a desktop assessment of the application and acceptance that the baseline CAA approval allows that a significant portion of the application evaluation is already met. This phase provides for the ability to maximize the recognition of the work completed by the baseline CAA and thus gives the CAA the opportunity to better utilize its resources and complete the approval process in an effective and efficient manner.

5.2 For the training organization, this phase supports better utilization of its own resources and provides efficiencies by leveraging its existing approvals. Accordingly, to ensure a successful application, training organizations should have followed in Phase 2 a methodical and comprehensive process to complete the application, which should include submission of the following:

- a) a compliance matrix showing how the training organization complies with the regulatory requirements of the CAA and the regulatory requirements of the baseline CAA (based on the gap analysis already carried out);
- b) a document containing any supplemental conditions and/or a rationale explaining how the training organization meets the national requirements regarding the approval of a training organization which differ from the requirements of the baseline CAA;
- c) the training and procedures manual, or equivalent;
- d) the quality management system manual, or equivalent;
- e) the SMS manual, or equivalent, if applicable;
- f) the training programme course syllabus relating to the programmes required under the scope of the approval being applied for;
- g) the list of instructors and evaluators, together with supporting documentation; and
- h) the FSTD qualification certificates.

### **5.3 Gate 3: Key elements**

5.3.1 The CAA receives the completed application and initiates the evaluation in accordance with the guidance provided in this manual.

5.3.2 If the evaluation is satisfactory, the CAA should consider establishing a set of terms (memorandum of understanding or equivalent) with the baseline CAA with regard to providing a collaborative role in support of the ATO approval.

5.3.3 Consideration or guidance regarding training record, graduation certificate and other applicable forms.

## **6. PHASE 4: DEMONSTRATION AND VALIDATION WITH, IF APPLICABLE, INSPECTION**

6.1 This phase is the demonstration and validation, and is a combination of a desktop validation and, if applicable, an on-site inspection. In view of the use of the alternative process to approve a foreign ATO, this phase provides the opportunity for the CAA to determine the extent of required on-site inspection, if any. CAAs are encouraged to limit the on-site inspection to those areas that are identified in the gap analysis and would require an inspection so as to leverage work already accomplished by the baseline CAA.

### **6.2 Gate 4: Key elements**

6.2.1 Desktop evaluation and validation of the ATO application: this could be through a multi-media demonstration or presentation of how requirements are met.

6.2.2 Supplemental requirements are compliant: this includes training programme elements (with focus on the specific CAA requirements), as applicable:

- a) (optional) FSTD evaluation limited to user approval;
- b) instructor qualifications meet requirements;
- c) managerial personnel;
- d) record keeping;
- e) exemptions and deviations, if any;
- f) designation of evaluators (at discretion); and
- g) (optional) on-site audit or inspection limited to those areas that necessitate an on-site visit.

## **7. PHASE 5: CERTIFICATION**

7.1 When the alternative process is applied, the baseline CAA should focus on the key elements that comprise its oversight of the ATO, e.g. organization, training programme(s), courseware, instructors and evaluators, FSTD equipment, record keeping, quality assurance (QA) and, if applicable, SMS.

7.2 The CAA should establish appropriate procedures to ensure continued validity of the ATO approval certificate obtained through the alternative approval process. These procedures may include establishing:

- a) obligations for the foreign ATO to report surveillance-relevant information, such as reporting enforcement activities taken by the baseline CAA which may affect the approval certificate; and
- b) a process for taking appropriate measures in relation to baseline CAA enforcement activities, such as limitation, suspension or revocation of the baseline CAA approval certificate, and for taking appropriate follow-up action.

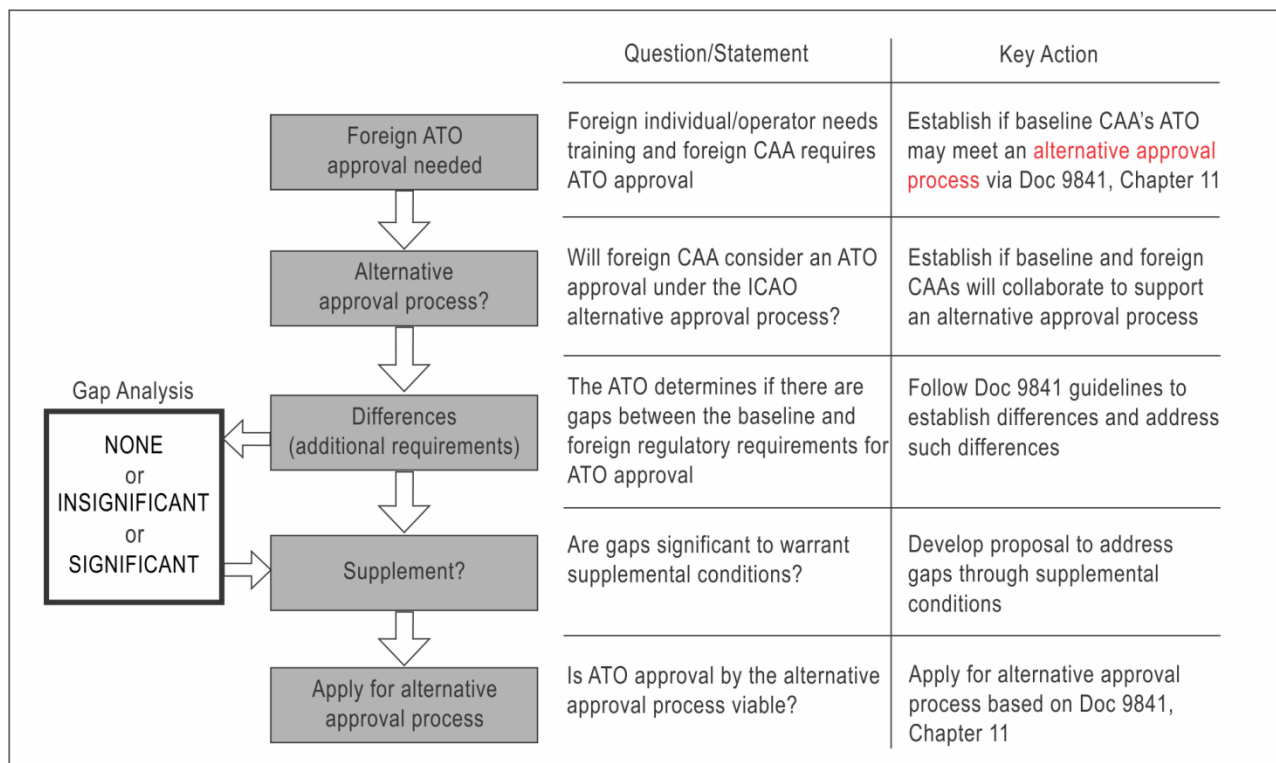
7.3 The CAA should also establish the process for the continuing approval of the training programme, instructors, evaluators and FSTDs. The CAA should consider a process that allows for the approval to be maintained as long as the baseline CAA approval is current.

**7.4 Gate 5: Key elements**

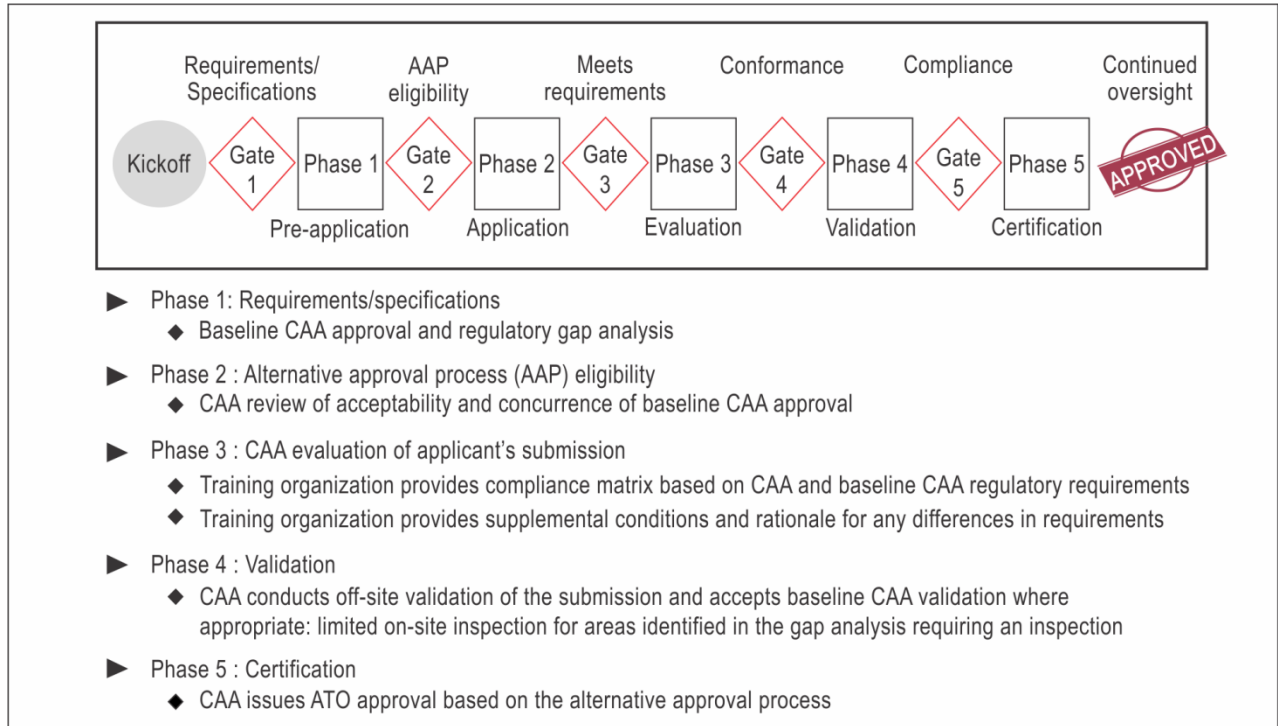
7.4.1 The CAA completes its internal process for the approval of the ATO through the alternative approval process.

7.4.2 The CAA issues the applicable ATO approval document(s) which identifies the scope of the approval.

7.4.3 The CAA notifies the baseline CAA of the successful completion of the approval process.



**Figure F-1. Concept overview of the alternative approval process**



**Figure F-2. ATO alternative approval process phase gates (▶)**



## Appendix G

### RECOGNITION/APPROVAL OF THE TRAINING PROGRAMMES

*Note.— For the purpose of this appendix, the civil aviation authority (CAA) is the authority issuing the approval of a foreign ATO. The baseline CAA is defined in the glossary.*

1. The CAA is encouraged to recognize the baseline CAA training curriculum and courseware with reasonable supplemental or additional requirements of the CAA. Gaps identified between the CAA's requirements and the baseline CAA's approved training curriculum should be appropriately addressed.
2. The CAA should not require that changes be made to the training programme that forms the approval basis, unless there are significant differences between the CAA's requirements and the baseline CAA's requirements.

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## Appendix H

### PROCESS FOR RECOGNIZING INSTRUCTORS AND EVALUATORS

*Note.— For the purpose of this appendix, the civil aviation authority (CAA) is the authority issuing the approval of a foreign ATO. The baseline CAA is defined in the glossary.*

Instructor and evaluator qualifications granted under the baseline CAA's regulatory requirements are encouraged to be recognized with reasonable supplemental or additional requirements of the CAA. The CAA should consider authorizing the instructor or evaluator based on the baseline CAA qualifications together with additional training on the CAA regulations, training programme and administrative procedures. The instructor and evaluator authorization issued by the CAA should be limited to training and evaluation at the ATO. The CAA should provide the necessary evaluator designations to conduct assessments on its behalf.

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## Appendix I

# PROCESS FOR RECOGNIZING THE FLIGHT SIMULATION TRAINING DEVICE QUALIFICATION

*Note.— For the purpose of this appendix, the civil aviation authority (CAA) is the authority issuing the approval of a flight simulation training device (FSTD) located in another State. The baseline CAA is defined in the glossary.*

### 1. FSTD QUALIFICATION

States should consider recognizing and accepting a device qualification that is already granted by the baseline CAA, or by another State, where the qualified device already meets the relevant criteria of the *Manual of Criteria for the Qualification of Flight Simulation Training Devices* (Doc 9625) or an equivalent regulatory standard that already is aligned with the criteria of Doc 9625; with minimal supplemental requirements, if any.

### 2. USE OF AN FSTD IN AN APPROVED TRAINING PROGRAMME

2.1 In order to receive training credit for the use of an FSTD, the device must be part of the training organization's or operator's approved curriculum and be qualified.

2.2 The FSTD must also be evaluated for each manoeuvre, procedure or crew member function to be trained, and approved for the operator's use.

2.3 When an operator requests the use of a training centre's FSTDs, the CAA continues to be responsible for determining that the operator's application conforms to the appropriate regulations, policies, and procedures.

— END —





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