

Doc 9734
AN/959



Safety Oversight Manual

Part A
**The Establishment and Management
of a State's Safety Oversight System**

Approved by the Secretary General
and published under his authority

Second Edition — 2006

International Civil Aviation Organization

FOREWORD

This manual outlines the duties and responsibilities of ICAO Contracting States with respect to aviation safety oversight. It is directed at high-level Government decision makers, as it highlights States' obligations as signatories to the Convention on International Civil Aviation (Chicago Convention) signed at Chicago on 7 December 1944, and provides information and guidance on the establishment of a State's safety oversight system which may be required to fulfil those obligations.

The manual confines itself to the parameters of a Contracting State's overall safety oversight responsibilities, emphasizing the State's commitment to safety in respect of the State's aviation activity. Several critical elements have been identified as essential parts of a safety oversight system and must be considered for the effective implementation of a safety-related policy and associated procedures. The critical elements of a safety oversight system presented in this manual include:

- primary aviation legislation;
- specific operating regulations;
- State civil aviation system and safety oversight functions;
- technical personnel qualification and training;
- technical guidance, tools and the provision of safety-critical information;
- licensing, certification, authorization and approval obligations;
- surveillance obligations; and
- the resolution of safety concerns.

In accordance with the Convention, a State has complete and exclusive sovereignty over the airspace above its territory. Nevertheless, on adhering to the Convention, States agree to certain principles and arrangements in order that international civil aviation may be developed in a safe and orderly manner. The safe and orderly development of international civil aviation requires that all civil aviation operations be conducted under internationally accepted minimum operating standards, procedures and practices. That States must collaborate to the highest degree to achieve standardization and harmonization in regulations, rules, standards, procedures and practices is thus a requirement of the Convention (Articles 12 and 37 refer). It also follows that a Contracting State should establish and implement a system that enables it to satisfactorily discharge its international obligations and responsibilities to develop and conduct civil aviation in a safe and orderly manner.

Implementation of international Standards and Recommended Practices by an ICAO Contracting State must normally be effected under the rule of law promulgated in that State. Thus, as a first step towards discharging its obligations and responsibilities, a State will require an enactment of a legislative framework referred to as the primary aviation legislation.

This legislative framework entails the development and promulgation of civil aviation regulations consistent with the State's acceptance of the provisions of the Annexes to the Chicago Convention and the establishment of a State entity, namely a Civil Aviation Authority. This legislative

framework also addresses the necessary powers to ensure compliance with these provisions. In the development of its primary aviation legislation, the State has the option of adopting provisions that will govern its role in the implementation of the operational regulations.

The first edition of this manual, prepared with the assistance of the Safety Oversight Audit Study Group, addressed safety oversight systems as related to Annex 1 — *Personnel Licensing*, Annex 6 — *Operation of Aircraft* and Annex 8 — *Airworthiness of Aircraft*. This second edition was developed to address the transition to the comprehensive systems approach covering all safety-related provisions in all safety-related Annexes to the Convention.

In order to keep this manual relevant and accurate, suggestions for improving it in terms of format, content or presentation are welcome. Any such recommendation or suggestion will be examined and, if found suitable, will be included in the next edition of the manual. Regular revision will ensure that the manual remains both pertinent and accurate. Comments concerning this manual should be addressed to:

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Chapter 1

INTRODUCTION

1.1 OBJECTIVES OF THE MANUAL

1.1.1 This part of the *Safety Oversight Manual* has been designed to emphasize the obligations and responsibilities for safety oversight of an ICAO Contracting State and to provide information and guidance for government decision makers on the establishment and management of a safety oversight system. Taking into account difficulties encountered by many Contracting States in fulfilling their Convention obligations, the manual highlights the critical elements involved in the establishment of an effective safety oversight system and provides guidance on resolving difficulties experienced in implementing international Standards and Recommended Practices (SARPs).

1.1.2 In this manual, the term “State” refers to the basic authority that is signatory to the Convention and normally establishes a Civil Aviation Authority (CAA) and other aviation-related authorities and that also appoints the Chief Executive Officers (CEOs) with powers to exercise authority over civil aviation activities in the State, as established.

1.2 ABOUT THE MANUAL

1.2.1 The legislative obligations, responsibilities and related guidance described in this manual have been derived from various sources, including the Chicago Convention and its Annexes, Procedures for Air Navigation Services (PANS) and guidance material published by ICAO to assist Contracting States in the implementation of the SARPs. ICAO has long been aware of the difficulties experienced by many Contracting States in this respect and has tried to assist them through its Technical Co-operation Programme and direct Regional Offices and Headquarters involvement. The extent of the difficulties encountered by States in safety oversight has been highlighted as a result of the audits conducted under the ICAO Universal Safety Oversight Audit Programme (USOAP).

1.2.2 A common deficiency identified in the majority of assessed and audited States is a lack of an adequate safety oversight organization and infrastructure within the CAA. In the majority of cases, this has resulted from insufficient resources being provided for the CAA. As a result, such States are unable to fully comply with national and international requirements relating to the safety of civil aviation, including operations and infrastructure. The audits and other ICAO missions have shown that where an appropriate safety oversight organization has not been established, control and supervision of aircraft operation and associated activities are often deficient, creating an opportunity for unsafe practices. The establishment and management of a viable safety oversight system require a high-level government commitment, without which a State cannot satisfactorily discharge its aviation system safety-related responsibilities.

1.2.3 Audit findings and other sources of information convinced ICAO that it should further assist States by developing safety oversight-related guidance material exclusively directed at high-level decision makers and the different levels of supervision of a State’s civil aviation system.

1.3 ICAO REFERENCE DOCUMENTS

The ICAO documents listed in Appendix A are referred to in the manual and provide additional guidance for the certification and surveillance of air transport operators and associated operations and infrastructure.

1.4 DEFINITIONS

The definitions used in this manual are similar to those found in relevant Annexes to the Convention and in other ICAO documentation (such as the *International Civil Aviation Vocabulary* (Doc 9713)) or are the definitions intended by the Safety Oversight Audit Section (SOA) for this document and the safety oversight audit process. (See Appendix B for a listing of the terms and their definitions.)

1.5 ABBREVIATIONS/ACRONYMS

Some common abbreviations/acronyms used in this manual and in safety oversight audits are as follows:

AFDD	Audit Findings and Differences Database
AIP	Aeronautical Information Publication
AMO	Approved maintenance organization
AOC	Air operator certificate
CAA	Civil aviation authority or an appropriate State aviation regulatory body
CE	Critical elements of a safety oversight system
DGCA	Director General of Civil Aviation
GM	Guidance material
ICAO	International Civil Aviation Organization
PEL	Personnel licensing
SARPs	Standards and Recommended Practices
SMS	Safety Management System
STD	Standard

Chapter 2

SAFETY OVERSIGHT: AN OBLIGATION

2.1 SAFETY OVERSIGHT CONCEPT AND DEFINITION

...Civil aviation has been swept up in the wave of commercialization, globalization and transnationalization, with implications for safety and security that have to be addressed. Regulation of safety and security is, under the Chicago Convention, the responsibility of individual States; as ownership and operation of airlines, airports and air traffic control devolve from governments and cross-border involvement becomes more common, the need for seamless co-ordination beyond national and regional borders becomes even more fundamental.

Dr. Assad Kotaite

Foreword to the *ICAO Strategic Plan (1997)*

2.1.1 Safety oversight is defined as a function by means of which States ensure effective implementation of the safety-related Standards and Recommended Practices (SARPs) and associated procedures contained in the Annexes to the Convention on International Civil Aviation and related ICAO documents. Safety oversight also ensures that the national aviation industry provides a safety level equal to, or better than, that defined by the SARPs. As such, an individual State's responsibility for safety oversight is the foundation upon which safe global aircraft operations are built. Lack of appropriate safety oversight in one Contracting State therefore threatens the health of international civil aircraft operation.

2.1.2 In 1992, during the 29th Session of the ICAO Assembly, a concern was raised on the apparent inability of some Contracting States to carry out their safety oversight functions. Major reasons cited for this included lack of a regulatory framework and lack of technical and financial resources to carry out the minimum requirements of the Chicago Convention. As a result, the Assembly adopted Resolution A29-13: *Improvement of Safety Oversight*, reaffirming individual State's responsibilities for safety oversight as one of the tenets of the Convention and calling on Contracting States to reaffirm their safety oversight obligations under the Chicago Convention.

2.1.3 Assembly Resolution A29-13, by reaffirming individual State's responsibilities, re-established the obligations of States for safety oversight over the whole spectrum of civil aircraft operation in their State and also of aircraft registered in their State but operating in other Contracting States. A State's responsibilities cannot be underestimated in this regard — safety oversight is a major obligation and its implementation ensures the continued safety and regularity of international air transport.

2.1.4 Assembly Resolution A32-11 directed the establishment of a Universal Safety Oversight Audit Programme (USOAP), comprising regular, mandatory, systematic and harmonized safety audits. It also called for the application of the Programme to all Contracting States, together with the implementation of greater transparency and increased disclosure in the release of audit results.

2.1.5 In recognition of the success achieved by the USOAP, Assembly Resolution A33-8 resolved that the USOAP be expanded to Annex 11 — *Air Traffic Services*, Annex 14 — *Aerodromes* and to other safety-related fields, such as aircraft accident and incident investigation, addressed in Annex 13 — *Aircraft*

Accident and Incident Investigation. In view of the findings of the audits conducted under USOAP which indicated that several States experience difficulties in the implementation of ICAO SARPs and the critical elements of a State's safety oversight system, Assembly Resolution A33-9 further resolved that ICAO should develop the concept of a Quality Assurance Function which could then be offered for supervision of projects being carried out by States, on a reimbursement basis.

2.1.6 The 35th Session of the ICAO Assembly considered the proposal of the Council for the continuation and expansion of the ICAO Universal Safety Oversight Audit Programme as of 2005 and resolved (Assembly Resolution A35-6 refers) that the Programme be expanded to cover all safety-related Annexes and also transition to a comprehensive systems approach for the conduct of safety oversight audits. Assembly Resolution A35-6 further directed the Secretary General to:

- ensure that the comprehensive systems approach maintains as core elements the safety provisions contained in Annex 1 — *Personnel Licensing*, Annex 6 — *Operation of Aircraft*, Annex 8 — *Airworthiness of Aircraft*, Annex 11 — *Air Traffic Services*, Annex 13 — *Aircraft Accident and Incident Investigation* and Annex 14 — *Aerodromes*;
- make all aspects of the auditing process visible to Contracting States;
- make the final safety oversight audit reports available to all Contracting States; and
- provide access to all Contracting States to all relevant information derived from the Audit Findings and Differences Database (AFDD) through the secure website of ICAO.

Because of its wider coverage, Assembly Resolution A35-6 superseded Assembly Resolution A33-8.

2.2 OVERVIEW OF ICAO CONTRACTING STATES' RESPONSIBILITIES

2.2.1 The majority of the articles of the Chicago Convention establish the privileges and obligations of all Contracting States and provide for the adoption of international SARPs regulating international air transport. The Convention accepts the fundamental principle that every State has complete and exclusive sovereignty over the airspace above and within its territory.

2.2.2 For the past six decades, the main technical achievement of ICAO has been the agreement of its Contracting States on the necessary level of standardization for the safe, efficient and regular operation of air services. This standardization has been achieved primarily through the adoption of Annexes to the Chicago Convention, containing specifications known as international Standards and Recommended Practices. The 18 Annexes adopted to date cover the entire spectrum of civil aviation operations.

2.2.3 Article 37 of the Chicago Convention specifies that States must collaborate in securing the highest practical degree of uniformity in regulations, standards, procedures and organization in relation to aircraft, personnel, airways and auxiliary services in all matters in which such uniformity will facilitate and improve air navigation. To this end, ICAO has adopted SARPs dealing with practically all activities concerning the operation of an aircraft. However, it is the integration of such SARPs into the national regulations and practices of Contracting States and their timely implementation that will ultimately achieve safety and regularity of aircraft operations worldwide.

2.2.4 Through the provision of national regulations, States are expected to implement and enforce SARPs contained in the Annexes to the Convention. Article 12 of the Chicago Convention is very clear in this respect. It states that:

Each contracting State undertakes to adopt measures to insure that every aircraft flying over or maneuvering within its territory and that every aircraft carrying its nationality mark, wherever such aircraft may be, shall comply with the rules and regulations relating to the flight and maneuver of aircraft there in force. Each contracting State undertakes to keep its own regulations in these respects uniform, to the greatest possible extent, with those established from time to time under this Convention.

Further, the Article states that:

Each contracting State undertakes to insure the prosecution of all persons violating the regulations applicable.

These and other related articles enshrine States' responsibilities for safety oversight under the Convention and leave no doubt as to a Contracting State's responsibility for control and supervision of all its aviation activities.

2.2.5 Article 38 of the Convention specifies that any State which finds it impracticable to comply with any international standard or procedure, or to bring its own regulations or practices into full accord with any international standard or procedure after amendment of the latter, or which deems it necessary to adopt regulations or practices differing from those established by international standard shall give immediate notification to ICAO of differences between its own practice and that established by the international standard.

2.3 OVERVIEW OF STATES' SAFETY OVERSIGHT OBLIGATIONS

2.3.1 Nature of Contracting State responsibilities

2.3.1.1 A State's responsibility under the Convention and its Annexes includes:

- the licensing of operational personnel;
- certification of aircraft, air operators, and aerodromes;
- the control and supervision of licensed personnel, certified products, and approved organizations;
- the provision of air navigation services (inclusive of meteorological services, aeronautical telecommunications, search and rescue services, charts and the distribution of information); and
- aircraft accident and incident investigation.

Ensuring that this responsibility is carried out in the most effective manner is fundamental to the health of aircraft operations across borders and throughout the world.

2.3.1.2 This responsibility is enshrined in several Articles of the Convention. Article 31, for example, requires the State of Registry to issue a certificate of airworthiness or to validate a certificate of airworthiness issued by another Contracting State for every aircraft engaged in international air navigation. In Article 32, the same State is charged with issuing certificates of competency and licenses or validating such certificates or licenses issued by other Contracting States to the pilot of every aircraft and to other

members of the operating crew of every aircraft engaged in international navigation. The basis of these obligations is the desire to promote and conduct safe and regular aircraft operations through the development and implementation of internationally acceptable certificating, licensing and operating processes. Compliance with these processes should provide a State with assurance of its own organizational and individual competence as well as the competence of other Contracting States' regulatory authorities, Service Providers, operators and personnel, particularly in the area of change and systematic safety management. Furthermore, these processes are extended to domestic operations to ensure the overall safety of aircraft operation wherever it takes place.

2.3.2 General obligations of a Contracting State

2.3.2.1 When permitting or undertaking aviation activities, the State incurs certain obligations under the Chicago Convention and its Annexes. For example, every State that is a signatory to the Convention is obligated to provide for the safe and efficient operations of aircraft within its airspace. Some of the general obligations include ensuring provisions for transient general aviation and commercial air transport operations such as adequate:

- aerodromes;
- navigation aids;
- charting and instrument approach minima;
- weather reporting;
- air traffic services;
- search and rescue;
- aviation security; and
- timely correction of safety deficiencies with respect to these obligations.

2.3.2.2 To ensure that the State's system is appropriate to the level and scope of their aviation activity, each of these obligations will require consideration of the critical elements of a safety oversight system. This should include the State policy to systematically manage the safety-critical pressures, dependencies and conflicts affecting the community from internal as well as external sources, some of which are noted in 2.5.2. Part of that management process calls for States to consider the adoption of national requirements that exceed ICAO SARPs in some areas for some circumstances.

2.3.3 State of Design and State of Manufacture obligations

2.3.3.1 The State of Design's obligations include the following:

- a) It issues a type certificate which defines the design of an aircraft type and certifies that this design meets the appropriate airworthiness requirements of that State.
- b) It transmits any generally applicable information necessary for the continuing airworthiness and safe operation of the aircraft to the following:
 - every Contracting State which has advised the State of Design that it has entered the aircraft on its register; and

- any other Contracting State upon request.
- c) It requires and approves a continuing structural integrity programme to ensure the airworthiness of aircraft over 5 700 kg maximum certificated take-off mass, including specific information concerning corrosion prevention and control.
- d) It establishes a system to ensure that in respect of aeroplanes over 5 700 kg and helicopters over 3 180 kg maximum certificated take-off mass,
 - information on faults, malfunctions, defects and other occurrences that cause or might cause adverse effects on the continuing airworthiness of the aircraft is received,
 - decisions are made on whether or not to take airworthiness action, and
 - if necessary, airworthiness actions are developed and promulgated appropriately.

2.3.3.2 The State of Manufacture's obligations include the following:

- a) It ensures that each aircraft and all aircraft parts, including parts manufactured by sub-contractors, conform to the approved design.
- b) When approving the production of aircraft parts, it ensures that production is conducted in a controlled manner, including the use of a quality system, so that construction and assembly are satisfactory. (This may be facilitated by approving the production organization.)
- c) It requires that records be maintained such that the identification of the aircraft and of the parts with their approved design and production can be established.

2.3.3.3 When the State of Manufacture of an aircraft is other than the State of Design, there shall be an agreement acceptable to both States to ensure that the manufacturing organization cooperates with the organization responsible for the type design in assessing information received on experience with operating the aircraft.

2.3.4 State of Registry and State of Operator/Service Provider obligations

2.3.4.1 The act of registering an aircraft may not, by itself, be a safety issue. This action, however, imposes on the State of Registry several Convention obligations that directly relate to the safety of the aviation system as a whole. In the case of the registration of aircraft of an international operating agency on other than a national basis, the States constituting the agency are jointly bound to assume the obligations which, under the Chicago Convention, are attached to a State of Registry. Thus, on registering an aircraft, a State of Registry's obligations include the following:

- a) It notifies the State of Design that it has entered such an aircraft on its register.
- b) It determines whether the airworthiness of the aircraft meets minimum established Standards.
- c) It issues or validates the airworthiness certificate for the aircraft.
- d) It ensures the continuing airworthiness of the aircraft regardless of where it is operated in the world.

- e) It determines that the personnel performing maintenance work on the aircraft meet minimum experience, knowledge and skill requirements.
- f) It issues or validates maintenance personnel certificates.
- g) It determines that the flight crew operating the aircraft meet minimum experience, knowledge and skill requirements to safely operate the aircraft.
- h) It issues or validates flight crew licences and/or ratings as appropriate.
- i) It verifies that the aircraft and personnel related to its operation continue to meet the conditions that were required for the initial issue of licences and certificates.
- j) It takes timely and appropriate actions to correct all deficiencies that are found with respect to the maintenance of the aircraft and its operation by the flight crews.
- k) It ensures that in respect of aeroplanes over 5 700 kg and helicopters over 3 180 kg maximum certificated take-off mass, there exists a system whereby information on faults, malfunctions, defects and other occurrences that cause or might cause adverse effects on the continuing airworthiness of the aircraft is transmitted to the organization responsible for the type design.
- l) Upon receipt of mandatory continuing airworthiness information from the State of Design, it adopts the mandatory information directly or assesses the information received and takes appropriate action.

2.3.4.2 The State of the Operator is responsible for issuing the Air Operator Certificate, or equivalent document, required by Annex 6. This responsibility entails the control and supervision of the aircraft operation-related activities of all aircraft operators in the State. The responsibility also confers several specific Convention obligations to the State of the Operator. Thus, the State of the Operator's obligations include the following:

- a) It ensures the adequacy of the air operator's ability to provide safe and efficient operations prior to the initiation of international flight operations.
- b) It ensures the air operator's ability to conduct operations with respect to the original certification criteria on a continuing basis.
- c) It takes timely and necessary actions to resolve safety issues that are found with respect to the maintenance of aircraft, flight operations and other air operator responsibilities, including the actions of the operator's personnel.

2.3.4.3 In some States, Operators and Service Providers include aerodrome owners (other than the State) that manage and provide services at an aerodrome, as well as an agency or a non-State entity that provides air traffic services. The State of the Operator or the Service Provider remains responsible for issuing the licences, certificates or other approvals required by Annex provisions for relevant parts of the system. This responsibility includes the control and supervision of the relevant Operators or Service Providers in the State. The responsibility also confers to the State of the Operator or Service Provider several specific Convention obligations related to personnel actions, flight operations, maintenance and continued adherence to original certification criteria. Similar obligations and responsibilities apply across the spectrum of the aviation system, including aerodrome operations and the provision of air traffic services and related activities.

2.3.4.4 The ICAO provisions for air traffic services (ATS) safety management, contained in Annex 11 — *Air Traffic Services* and in the *Procedures for Air Navigation Services — Air Traffic Management* (PANS-ATM, Doc 4444), require States to implement systematic and appropriate safety management programmes to ensure that their ATS systems achieve an acceptable level of safety, and to establish such levels of safety and safety objectives for their air traffic services. The objectives of ATS safety management are to ensure that the established level of safety applicable to the provision of ATS within an airspace or at an aerodrome is met, and that safety-related enhancements are implemented wherever necessary. The provisions of the PANS-ATM require that an ATS safety management programme include:

- a) monitoring of overall safety levels and detection of any adverse trend;
- b) safety reviews of ATS units;
- c) safety assessments in respect of planned implementation of airspace reorganizations, the introduction of new equipment, systems or facilities, and new or changed ATS procedures; and
- d) a mechanism for identifying the need for safety-enhancing measures.

2.3.4.5 When determining the adequacy of the system as a whole, the State of Registry and the State of the Operator or Service Provider should consider the critical elements of a safety oversight system (see Chapter 3) and the complexity of the operations conducted.

2.3.5 Operator and Service Provider safety responsibilities

2.3.5.1 Operators or Service Providers are responsible for the safe, regular and efficient conduct of aircraft operations, including compliance with any laws or regulations that the State of the Operator and the State where the aircraft is operating may promulgate. This obligation extends to any contractors that they might use. In the event that an operator utilizes an aircraft registered in a State other than the State of the Operator, the Operator will also need to comply with relevant laws and regulations promulgated in the State of Registry. These laws and regulations, which are the means by which the State implements the provisions of the Annexes, are not in themselves sufficient to provide Operators and Service Providers with comprehensive and detailed instructions on which to base an operation. The responsibility for the development of operating instructions necessary for the safety of an operation must therefore rest with the operators (concept of “Operator or Service Provider responsibility”).

2.3.5.2 Operating instructions must not conflict with the laws and regulations of the State of the Operator or Service Provider or those of other States into or over which aircraft operations are conducted. An Operator or Service Provider should include these operating instructions in the applicable manual (operations manual, aerodrome manual or others), which should be presented to the State's regulatory authority (e.g. Civil Aviation Authority) as part of the documents to be evaluated prior to the approval, licensing or certification of an Operator or Service Provider. These manuals, like legislation and regulatory documents, are expected to be updated and amended as part of a systematic approach to safety management and safety assurance.

2.3.6 State of Occurrence responsibilities

2.3.6.1 Article 26 of the Convention on International Civil Aviation imposes an obligation on the State in which an accident occurs (State of Occurrence) to institute an inquiry into the circumstances of the accident, in accordance, so far as its laws permit, with the procedure that may be recommended by ICAO. Annex 13 outlines the applicable SARPs to be implemented by States to meet their obligations in the investigation of accidents and incidents and in other related tasks.

2.3.6.2 The sole objective of the investigation shall be the prevention of accidents and incidents. It is not the purpose of this activity to apportion blame or liability. Any investigation carried out must be strictly objective and totally impartial and must also be perceived to be so. It should be conducted in such a way that it can withstand political or other interference. This can only be met when appropriate legislation on aircraft accident and incident investigation is in place and through effective support and cooperation between all the States involved (in particular, the State of Design, State of Manufacture, State of Registry and State of the Operator).

2.4 BALANCED APPROACH TO CONTROL AND SUPERVISION

2.4.1 In order to discharge its responsibility, each State should enact a basic aviation law which will provide for the development and promulgation of a code of civil aviation rules, regulations and requirements which should be consistent with the provisions of the Annexes to the Convention. In the development of this code, the State has the option of adopting provisions that will govern its role in the implementation of the operational regulations; this may range from a stringent regulatory presence to a passive role.

2.4.2 In a stringent regulatory role, close day-to-day involvement in the civil aviation industry direction and control of activities would be carried out by the State through an assessment organization. In a passive role, the State would intervene only to institute proceedings or investigatory action in the case of an accident/incident or of a violation of the regulations.

2.4.3 A State exercising a passive role relies almost completely on the civil aviation industry's technical and organizational competence and commitment to safety. In these situations, the industry is responsible for both the interpretation and the implementation of the regulations, thus becoming essentially self-regulating. As a result, the State is not in a good position to assess the adherence of the civil aviation industry to the regulations, other than by knowledge acquired fortuitously or in the course of accident and incident investigations. Such a system would not enable the State to be proactive and exercise the necessary preventive and corrective responsibilities required under the Convention.

2.4.4 If, on the other hand, the State safety oversight system is so rigorous as to amount to a complete domination and dictation of the conduct of operations, then under such an environment the civil aviation industry is not empowered with the responsibility and self-sufficiency for safe operations. This can undermine the morale of the civil aviation industry's personnel and result in a lowering of safety standards. It could also be cost-prohibitive for the State to maintain the large enforcement organization required to sustain this level of oversight.

2.4.5 In practice, neither of these extremes is compatible with the objective of a well-balanced division of responsibilities between the State and the aviation community. The public interest would best be served by a balanced approach, where both the State and the aviation community have clearly defined responsibilities for the safe and efficient conduct of their functions.

2.4.6 States need to carefully consider the public interest when establishing the various safety oversight functions and to ensure that a proper system of checks and balances is maintained. The State should retain effective control of important inspection functions. Such functions cannot be delegated; otherwise, aviation personnel, maintenance organizations, general aviation, commercial operators, aviation service providers, aerodrome operators etc. will in effect be regulating themselves and will not be effectively monitored by CAA inspectors.

2.4.7 A balanced safety oversight system is one in which both the State and the aviation community share responsibility for the safe, regular and efficient conduct of civil aviation activities. This relationship should be established in the primary aviation legislation, regulations and requirements and put into practice

as a matter of policy and methodology of the CAA (safety management policy). The characteristics of an effective State safety oversight system include:

- a) a robust and effective approach to the management of safety, including the adoption of Safety Management Systems (SMS) in the functional areas of regulation as well as in operation and service provision;
- b) a coordinated approach to the formulation, timely and accessible publication and implementation of aviation legislation, requirements, and guidance to industry. This should include the manner in which safety oversight is conducted, such as:
 - adopting a systematic approach to auditing to ensure that whole systems are considered where appropriate, not just isolated elements, activities or disciplines;
 - employing risk management strategies to assist in the effective use of resources;
 - coordinating with other agencies where overlapping or adjoining interfaces, such as safety and security, exist; and
 - requiring and encouraging industry to adopt similar systematic philosophies as part of an SMS, which should include the consideration of Human Factors principles and human performance as they apply across the whole spectrum of aviation activity. Additional information on SMS can be found in Doc 9734 — *Safety Oversight Manual*, Part B — *The Establishment and Management of a Regional Safety Oversight System*;
- c) a well-balanced allocation of responsibility, between the State and the industry, for civil aviation safety;
- d) economic justification for the resources of the State;
- e) continued State supervision of the activities of Operators and Service Providers without unduly inhibiting the effective direction and control of their own organization; and
- f) the cultivation and maintenance of harmonious relationships, including communication and consultation between the State and the civil aviation industry, whilst maintaining effective and clearly separate functional roles. Communication should include the promulgation to industry of requirements to be met for the granting of licences, certificates or other approvals, together with associated guidance material.

2.4.8 The aviation industry has the overall responsibility for maintenance of safe, regular and efficient operations, for aviation personnel training and for the manufacture and maintenance of aircraft and aviation equipment. Some States may share some of the responsibility for monitoring internal safety standards with other organizations (air traffic and aerodrome service providers, operators, approved maintenance organizations, manufacturers, etc.) that have been found to be reliable and to act responsibly. The objective of a safe and orderly civil aviation system cannot be attained unless each designated member is prepared to readily accept the implications of this policy, including committing the necessary resources to its implementation. Crucial to the confidence that the CAA may place in civil aviation certificate holders and to the associated freedom and flexibility it can give is the establishment by the certificate holders of an adequate quality system which must be reviewed and approved by the CAA.

2.4.9 In those States where the State is both the regulatory authority and an air traffic service provider, aerodrome operator, air operator, manufacturer or maintenance organization, the requirements of the Convention will be met, and public interest be best served, by clear separation of authority and

responsibility between the State operating agency and the State regulatory authority. The approval, certification and continued surveillance procedures should be followed as though the operating agency were a non-governmental entity.

2.5 STATE COMMITMENT TO AVIATION SAFETY

2.5.1 Over the years, ICAO and its Contracting States have collaborated to develop uniform SARPs and procedures that ensure the implementation of the principles and arrangements agreed upon by the founding members of ICAO in order that international civil aviation may be developed in a safe and orderly manner and that international air transport services may be established on the basis of equal opportunity and operated soundly and economically. United by a common cause and a common commitment, ICAO and its Contracting States have been able to confront crucial issues and, to a great degree, overcome the challenges encountered. Through the years, however, the challenges faced by State civil aviation authorities have increased in number and complexity. This has, in turn, required that State commitment to aviation safety increase at the same rate.

2.5.2 There are a number of forces at work that underline the importance of a renewed commitment and political will on the part of governments:

- a) There is an increased involvement of non-traditional sectors in civil aviation, necessitating a significantly increased attention to matters of aviation safety within the context of wider policy initiatives.
- b) There is increasing globalization of civil aviation itself, exemplified by foreign and multi-national ownership and alliances of airlines, joint marketing arrangements, multinational approaches to both technical and economic regulations, along with increasing interaction between domestic and international civil aircraft operations.
- c) There is an increasing demand for flights and therefore the infrastructure and services that such demand generates. The growth of air transport is overtaxing the capacity of many aerodromes and airspace utilization, causing authorities to reconsider concepts, processing methods and facilities. This presents the challenge of providing additional capacity while maintaining or even improving safety levels.
- d) There are increasingly intense social, economic, political, environmental and other pressures on civil aviation policy, particularly at the national and regional levels. Such pressures can result from rapid changes to socio-economic systems, which can have global effects (for example, rising expectations by society of safety levels). These pressures can also lead to conflicts such as those between safety and environmental obligations. In meeting environmental obligations, those relating to safety should not be compromised.
- e) In many States, civil aviation is still considered an essential public service, making a fundamental contribution to socio-economic development and, in some areas, providing service to otherwise inaccessible points.

2.5.3 Responding to these pressures and to the increased complexity and cost of aviation systems places significant financial constraints on civil aviation authorities throughout the world. These constraints have a significant bearing on the fundamental objectives of the Convention, as it has been observed that they are the root cause of non-implementation of minimum international Standards (STDs).

2.5.4 Information available to ICAO shows that a significant number of Contracting States have experienced major difficulties in carrying out their safety oversight functions. The reasons for their inability to effectively carry out an exercise that is one of the tenets of the Convention may be many and varied. Nevertheless, the obligation remains with individual States and the successful resolution of difficulties requires a solid and transparent commitment from governments. State authorities responsible for safety oversight should be provided with the necessary resources, both human and financial, to be able to effectively carry out safety oversight obligations on behalf of the State. Without such a commitment on the part of the State, efforts put into resolving difficulties will remain simply efforts, with no significant positive effect.

Chapter 3

CRITICAL ELEMENTS OF A SAFETY OVERSIGHT SYSTEM

3.1 GENERAL CONSIDERATIONS

3.1.1 ICAO Contracting States, in their effort to establish and implement an effective safety oversight system, need to consider the critical elements for safety oversight (CE). Critical elements are essentially the safety defence tools of a safety oversight system and are required for the effective implementation of safety-related policy and associated procedures. States are expected to implement safety oversight critical elements in a way that assumes the shared responsibility of the State and the aviation community. Critical elements of a safety oversight system encompass the whole spectrum of civil aviation activities, including areas such as aerodromes, air traffic control, communications, personnel licensing, flight operations, airworthiness of aircraft, accident/incident investigation, and transport of dangerous goods by air. The effective implementation of the CE is an indication of a State's capability for safety oversight.

3.1.2 ICAO has identified and defined the following critical elements of a State's safety oversight system:

CE-1. Primary aviation legislation. The provision of a comprehensive and effective aviation law consistent with the environment and complexity of the State's aviation activity and compliant with the requirements contained in the Convention on International Civil Aviation.

CE-2. Specific operating regulations. The provision of adequate regulations to address, at a minimum, national requirements emanating from the primary aviation legislation and providing for standardized operational procedures, equipment and infrastructures (including safety management and training systems), in conformance with the Standards and Recommended Practices (SARPs) contained in the Annexes to the Convention on International Civil Aviation.

Note.— The term “regulations” is used in a generic sense to include but is not limited to instructions, rules, edicts, directives, sets of laws, requirements, policies, and orders.

CE-3. State civil aviation system and safety oversight functions. The establishment of a Civil Aviation Authority (CAA) and/or other relevant authorities or government agencies, headed by a Chief Executive Officer, supported by the appropriate and adequate technical and non-technical staff and provided with adequate financial resources. The State authority must have stated safety regulatory functions, objectives and safety policies.

Note.— The term “State civil aviation system” is used in a generic sense to include all authorities with aviation safety oversight responsibility which may be established by the State as separate entities, such as: CAA, Airport Authorities, Air Traffic Service Authorities, Accident Investigation Authority, and Meteorological Authority.

- CE-4. *Technical personnel qualification and training.*** The establishment of minimum knowledge and experience requirements for the technical personnel performing safety oversight functions and the provision of appropriate training to maintain and enhance their competence at the desired level. The training should include initial and recurrent (periodic) training.
- CE-5. *Technical guidance, tools and the provision of safety-critical information.*** The provision of technical guidance (including processes and procedures), tools (including facilities and equipment) and safety-critical information, as applicable, to the technical personnel to enable them to perform their safety oversight functions in accordance with established requirements and in a standardized manner. In addition, this includes the provision of technical guidance by the oversight authority to the aviation industry on the implementation of applicable regulations and instructions.
- CE-6. *Licensing, certification, authorization and approval obligations.*** The implementation of processes and procedures to ensure that personnel and organizations performing an aviation activity meet the established requirements before they are allowed to exercise the privileges of a licence, certificate, authorization and/or approval to conduct the relevant aviation activity.
- CE-7. *Surveillance obligations.*** The implementation of processes, such as inspections and audits, to proactively ensure that aviation licence, certificate, authorization and/or approval holders continue to meet the established requirements and function at the level of competency and safety required by the State to undertake an aviation-related activity for which they have been licensed, certified, authorized and/or approved to perform. This includes the surveillance of designated personnel who perform safety oversight functions on behalf of the CAA.
- CE-8. *Resolution of safety concerns.*** The implementation of processes and procedures to resolve identified deficiencies impacting aviation safety, which may have been residing in the aviation system and have been detected by the regulatory authority or other appropriate bodies.

Note.— This would include the ability to analyse safety deficiencies, forward recommendations, support the resolution of identified deficiencies, as well as take enforcement action when appropriate.

3.2 PRIMARY AVIATION LEGISLATION (CE-1)

3.2.1 The Convention on International Civil Aviation does not *specifically* require a State to promulgate “primary aviation legislation”, a national legislative framework commonly known as the “civil aviation code” or the “civil aviation act”, proclaiming the establishment of a State’s civil aviation organization. However, the Convention, in most of its Articles, refers to a State’s national laws and regulations relating to the admission to or departure from its territory of aircraft engaged in international air navigation. It also refers to State regulations in respect of the operation and navigation of such aircraft while within its territory, the registration of aircraft in the State, and the flight and manoeuvring of aircraft, including the certification of airworthiness and personnel. Further, the Convention requires that “each contracting State undertakes to keep its own regulations in these respects uniform, to the greatest possible extent, with those established from time to time under this Convention” (Article 12).

3.2.2 While it can be argued that the above-mentioned Articles refer to specific aviation regulations (subsidiary legislation) that can be satisfactorily implemented without having to establish aviation legislation

at a national level, Article 12 does not stop at requiring States to align their operational regulations with those provided by the Annexes to the Convention. It explicitly obligates States by stipulating that “each contracting State undertakes to insure the prosecution of all persons violating the regulations applicable”.

3.2.3 Adhering to the Convention requires a State, without exception, to fulfil the requirements of the Articles of the Convention and the associated Annex provisions in international operations. Implementation of the requirements contained in the 96 Articles of the Convention and the thousands of Annex provisions requires that the States’ own aviation laws and regulations be built on a solid national legislation foundation at par with all other national codes legislated by the sovereign State. For example, in order to prosecute a person for violating a specific aviation regulation, it is essential that the State legislate that violation of civil aviation regulations is punishable in accordance with the national penal code or other penal legislation. Thus, by inference, all Articles of the Convention referring to a State’s aviation laws and regulations require that the State promulgate primary aviation legislation to serve as the legal basis for the establishment of a civil aviation organization responsible for all aviation activities in the State.

3.2.4 Primary aviation legislation should contain provisions to enable the government and its administration, through the establishment of a CAA, to proactively supervise and regulate civil aviation activities, notably in relation to:

- a) the qualifications and competency of aviation personnel, by using a personnel licensing system (e.g. issuance/validation, renewal, suspension or revocation/cancellation of licences and certificates of competency, as appropriate); and
- b) the operation of aircraft and support functions through an inspection organization and the processes used for the registration, issuance/validation, renewal, suspension, and revocation/cancellation of licences, certificates, authorizations and approvals, as appropriate. These support functions include:
 - airworthiness inspection and airworthiness engineering, as appropriate; issuance of airworthiness directives and design approvals; and approval of manufacturing and maintenance organizations;
 - air traffic services and related activities/functions such as the provision of charts, telecommunications and navigational facilities;
 - aerodrome development, certification and operation;
 - the provision of meteorological and search and rescue services; and
 - the investigation of aircraft accidents and incidents, which may be vested in an independent or separate body.

3.2.5 Primary aviation legislation is the key to effective safety oversight by the State. The establishment of a CAA, the extent of its authority and empowerment and that of its Director must be based on the solid foundation of a legal document legislated at the highest possible level of rule-making in the State. In addition, the legislation should provide for the independent investigation of accidents and incidents to ensure impartial and objective investigations to correct shortcomings in the system, not only within the aviation industry but also within the CAA.

3.2.6 When a State has found it necessary to separate service provision functions by the creation of commercial entities outside of its CAA, such as an air traffic service agency or an airport authority, the creation thereof shall be included in the primary legislation. A clear division of responsibilities shall be defined between the regulatory functions and service provision functions. Regulatory and safety functions shall remain the responsibility of the State.

3.3 SPECIFIC OPERATING REGULATIONS (CE-2)

Note.— Throughout this manual, the term “regulations” is used in a generic sense to include but is not limited to what may be variously considered by States as instructions, rules, edicts, directives, sets of laws, policies, requirements and orders. The specific status given to a regulation when it is applied within the State and the penalty assigned in the event of non-compliance are matters for the judgement of individual States, taking into account their responsibilities under the Convention.

3.3.1 General requirements

3.3.1.1 The State laws and regulations should be in conformity with the Annexes to the Convention. The Annex provisions are designed to provide the minimum requirements to be met by all Contracting States, regardless of the size and complexity of their civil aviation activity. The individual States are then responsible for developing equivalent regulations and rules containing sufficient details to ensure that satisfactory compliance will result in the desired level of safety. This responsibility includes the development of a process for the amendment of regulations, as necessary.

3.3.1.2 Annexes to the Convention, which specify international requirements covering civil aviation operations, set out SARPs in order to achieve uniformity and to facilitate incorporation into national regulations. Licensing and certification of civil aviation organizations are governed by a State’s own laws and regulations. In discharging its responsibilities in this respect, however, the State has an obligation to collaborate in securing the highest practicable degree of uniformity in regulations, Standards, procedures and practices, as required by Article 37 of the Convention.

3.3.1.3 Annexes provide a clear presentation of the broad international specifications for licensing and certificating, as applicable, agreed upon by Contracting States. However, no matter how detailed specifications are, they may not necessarily cover all possible risks or all circumstances. Specifications may not provide enough detail for the day-to-day handling of licensing, certification, supervision and control of matters. Therefore, in some parts of the Annexes, it is left to States to decide on the additional details to be included in their laws and regulations to comply with the Annex requirements. On occasion, a State may need to consider if requirements beyond the minimum standards are necessary. To address such an occasion, States should consider the formulation of suitable processes, with the expectation that the Operator or Service Provider take a major role, as part of the “Operator or Service Provider responsibility” concept. Because of this, it is inevitable that States implement the provisions of the Annexes in different ways but, in general, with the same ends in view. Thus, legislative systems naturally vary, and amendments to existing regulations and orders can be carried out more quickly in some States than in others. As legislation is expected to be reviewed and amended as appropriate, it is certainly convenient if a State’s aviation legislation can be expressed in a form that will allow for easy and fast amendment of the technical details contained in that legislation.

3.3.1.4 A State’s laws and regulations must be framed in legal phraseology. They must, however, also be written in such a way that they can be used by the staff of the licensing, certificating, and approving authority in the execution of their day-to-day activities and also by the general public, who need to know how to go about qualifying for a particular licence, certificate or other prescribed approval. In any event, the regulations of a State should, at a minimum, conform to the Standards of the relevant Annexes to the Convention and should at least contain the requirements leading to the issuance or validation of licences, ratings, certificates and approvals, as appropriate.

3.3.2 Adapting or adopting regulations from other States

To meet their requirements for regulations, Contracting States always have the option of adopting another Contracting State’s regulations. Even though the unilateral adoption of another State’s regulations may have

some advantages, such as enhanced exchange of operating crew and aircraft, it should be done only after ensuring that the regulations have been updated to include all ICAO Standards. The complexity of the other State's aviation environment should also be considered. A State with a limited aviation environment should be careful not to place undue burden on its aviation community and its assessment staff by adopting excessively restrictive regulations. A better alternative would be to adapt the regulations to meet the aviation environment while still maintaining harmony with other States.

3.3.3 Differences between national regulations and ICAO Annex Standards

3.3.3.1 Article 38 of the Convention specifies that if a State finds it impracticable to comply in all respects with any international Standards or to bring its own regulations or practices into full accord with international Standards as amended, or if it deems it necessary to adopt regulations or practices differing from those established by ICAO, it shall give immediate notification to ICAO of the differences between its own practice and that established by the international Standard. In any such case, the ICAO Council is obligated to make an immediate notification to all other States of the difference which exists between one or more features of an international Standard and the corresponding national practice of the notifying State.

3.3.3.2 It should be noted, however, that the filing of differences with respect to international Standards does not mean that a State can then continue to do business as usual. Several articles of the Convention make it clear that if Standards adopted by a State are lower than those required by ICAO, aerodromes, aircraft, service providers or personnel with licences or certificates endorsed by that State cannot participate in international air navigation, except with the permission of the State or States whose territory is entered. The responsibility to obtain such permission is that of the individual or civil aviation organization whose certificate has been so endorsed, although a State may also request blanket permission on behalf of its licence or certificate holders.

3.3.4 Aircraft registration and airworthiness

3.3.4.1 The aircraft registration regulations of a State should, at a minimum, conform to the Standards of Annex 7 — *Aircraft Nationality and Registration Marks*. To make the aircraft eligible for international operations, the State of Registry must ensure that the issuance of their airworthiness certificate is in compliance with the detailed and comprehensive airworthiness code applicable to the type of aircraft. The Convention on International Civil Aviation stipulates that every aircraft of a Contracting State, engaged in international air navigation, shall carry a Certificate of Registration and a Certificate of Airworthiness (Article 29). It also states that the Certificate of Airworthiness shall be issued or rendered valid by the State in which the aircraft is registered (Article 31). Furthermore, the Convention indicates that Contracting States shall recognize as valid the Certificate of Airworthiness issued or rendered valid by the State of Registry, provided that the requirements under which the Certificate was issued or rendered valid are equal to or above the minimum Standards which may be established by ICAO (Article 33).

3.3.4.2 The minimum airworthiness Standards referred to above are contained in Annex 8 — *Airworthiness of Aircraft*. However, the technical specifications in Annex 8 include only broad Standards which define, for application by competent State authorities, the complete international basis for the recognition by States of Certificates of Airworthiness for the purpose of flight of aircraft of other States into or over their territories. Thus, it is necessary that each State develop its own comprehensive airworthiness regulations and rules consistent with the provisions of Annex 8 or adopt and implement appropriate airworthiness regulations developed by another Contracting State.

3.3.4.3 In the development of national airworthiness regulations and rules, consideration must be given to the fact that the State of Registry has the ultimate responsibility for ensuring that every aircraft on its

register conforms to the prototype designed. Furthermore, the State of Registry has the responsibility of ensuring that every aircraft on its register is maintained in an airworthy condition throughout its service life. Although the methods of discharging the foregoing State airworthiness responsibilities may vary, and in some cases may involve the transfer of certain tasks to authorized organizations or other States, such arrangements do not relieve the State of Registry from its overall responsibility.

3.3.4.4 The State of the Operator, when different from the State of Registry, also has the responsibility to ensure that the operator takes all necessary actions to keep its aircraft in an airworthy condition. If a transfer agreement in terms of Article 83 *bis* is in place between such States, the oversight duties and functions of such States with respect to specific aircraft must be clearly allocated.

3.3.5 Air Operator certification and surveillance

3.3.5.1 With respect to the certification and surveillance of an air operator, the State's rules and regulations should provide a framework of positive control and guidance, and they should also allow the operator the flexibility to develop instructions for the guidance of personnel on the details essential to the conduct of the operation. This is in accordance with the principle of "operator's responsibility" and helps to facilitate the development of the operating Standards and techniques best suited to particular circumstances and conditions. It should be recognized that, while the scope of the regulations and rules will need to be extensive, it may not be feasible or desirable to attempt to cover every conceivable operational detail.

3.3.5.2 The State's rules and regulations must require the operator to submit to the CAA detailed operating instructions and procedures governing the conduct of operations as a basis for certification and the conduct of operations. As required by Annex 6 — *Operation of Aircraft*, Part I — *International Commercial Air Transport — Aeroplanes* and Part III — *International Operations — Helicopters*, the operator's operating instructions and procedures must be submitted in the form of an operations manual and a maintenance control manual containing at least the material specified in Annex 6, Parts I and III, and any other material that the CAA may require.

3.3.6 Provision of services to the aviation industry

3.3.6.1 Each State undertakes to adopt measures to ensure that every aircraft flying over or manoeuvring within its territory complies with the rules and regulations relating to the flight and manoeuvre of aircraft therein. This requires the State to provide, in its territory, aerodromes, radio services, search and rescue services, meteorological services, and other air navigation services to facilitate international air navigation.

3.3.6.2 To achieve the above, the adoption and application of appropriate standard systems of communications procedures, codes, markings, signals, lighting and other operational practices and rules, as well as collaboration in international measures to secure the publication of aeronautical maps and charts, are necessary.

3.3.6.3 The Standards and Practices recommended or established from time to time and related to the above are defined in:

- Annex 2 — *Rules of the Air*
- Annex 3 — *Meteorological Service for International Air Navigation*
- Annex 4 — *Aeronautical Charts*
- Annex 10 — *Aeronautical Telecommunications*
- Annex 11 — *Air Traffic Services*
- Annex 12 — *Search and Rescue*

- Annex 14 — *Aerodromes*
- Annex 15 — *Aeronautical Information Services*

3.3.6.4 One further important aspect in an international context is the requirement and responsibility of a Contracting State to establish and provide air traffic services in flight information regions, control areas or control zones extending over its territory. To ensure an adequate level of air traffic services and communications, navigation and surveillance, as well as procedures applicable to the airspace or aerodrome concerned, the appropriate air traffic services authority is required to implement formal and systematic safety management programmes for the services under its jurisdiction. When appropriate, these air traffic services (ATS) safety management programmes should be established on the basis of regional air navigation agreements.

3.3.6.5 The structural organization implemented by States to meet their obligations, as called for by the above Annexes, may vary from State to State, depending on the size and scope of their aviation activities. The required services can be provided by the CAA itself or contracted to State-owned or private companies. It remains important that any such arrangement be clearly defined by legislation to ensure that adequate safety oversight authority remains vested in the CAA.

3.3.7 Exemptions/exceptions

3.3.7.1 Compliance with requirements is not optional. Occasionally, however, particularly in the area of aerodrome infrastructure, there might be instances where there are insurmountable geographical or other physical problems. When there are appropriate, robust and documented regulatory mechanisms in place, and when not in conflict with the ICAO Annexes, the objective of a specific SARP, or a good accepted safety practice, it may be possible to resolve a discrepancy or shortcoming by the imposition of limiting conditions or compensatory measures/controls. However, it is important not to imply that exemptions/exceptions be used to overcome an unpopular requirement or that compliance with a requirement is optional. The use of such mechanisms must be regarded as the exception, not the norm. It must also be borne in mind that the granting of such exceptions could materially affect States' differences and subsequently could require States to change their notification of differences.

3.3.7.2 Furthermore, any exception should only be granted on the basis of a robust rationale. Therefore, risk analysis or aeronautical study techniques should be developed, as part of a Safety Management System (SMS), at the appropriate level. In such exceptional cases, the responsibility for justifying, either qualitatively or quantitatively, an alternative means of compliance lies with the Operator or Service Provider, before approval is sought from the regulator. The case must be fully documented and the outcome made public, for example in the Aeronautical Information Publication (AIP), as well as in safety assurance documents, such as the Aerodrome Manual, held by the regulator and Operator or Service Provider. Furthermore, the Operator or Service Provider must regularly review any exceptions with a view to removing the need for an exception where possible, as well as check the validity and robustness of any mitigating measures in place. The regulator must also assess, before granting an exemption or exception, whether the exemptions or exceptions would lead to differences from SARPs and, if so, to the appropriate notification being made by the State.

3.4 STATE CIVIL AVIATION SYSTEM AND SAFETY OVERSIGHT FUNCTIONS (CE-3)

3.4.1 Establishing a State civil aviation system

3.4.1.1 For a State to fulfil its obligations as provided for in the Convention, it is clear that an appropriately organized, funded and empowered civil aviation system must be established on the basis of

national legislation and structured to effectively fulfil the tasks that it is expected to undertake. In practice, it is necessary that the State establish an appropriate and practical organization and employ the necessary personnel, including technical personnel and support staff, to carry out the various functions of a national civil aviation authority. Since aviation activities and State requirements differ, so do their respective civil aviation establishments, and it is not reasonable or practical to suggest a one-size-fits-all model for the guidance of States. Some larger States may feel it necessary and efficient, as well as effective, to establish regional offices, as well as a Headquarters office. In such cases, there should be processes to ensure effective management and communication with the main office and necessary access to library and other common documents, as well as standardization, taking account of any appropriate regional differences. It should be noted, however, that the scope of authority and responsibility of a civil aviation system should not vary substantially from State to State, and that whatever the size of the CAA, it should always ensure that a proper system of checks and balances is maintained.

3.4.1.2 In deciding upon the required organizational structure, the State should assess its requirements as outlined in several ICAO Annexes and associated guidance material, keeping in view the size and complexity of the aviation activity in the State. In many, if not most, States, it will be necessary to establish a Safety Regulation Division/Group within the CAA to ensure that the authority's responsibilities for the safety of commercial air transport, both national and international, are properly discharged.

3.4.1.3 One example of an organizational structure of a State civil aviation system is depicted in Figure 3-1. This organizational chart is intended to provide a framework for the essential functions of the State civil aviation system and does not pretend to be the "ideal" organization; a national civil aviation system may be established with more or fewer departments than those depicted in the example, depending on the size and complexity of civil aircraft operation in the State.

3.4.1.4 In States where the size and complexity of the aviation industry are relatively small, the State may be able to fulfil its responsibilities in a cost-effective manner through cooperative inspection arrangements with neighboring States or through regional arrangements.

3.4.2 Staffing requirements

3.4.2.1 To effectively fulfil its responsibilities, the State civil aviation system must be properly organized and staffed with qualified personnel capable of accomplishing the required wide range of technical duties involved in safety oversight. Furthermore, they should also enjoy conditions of service and remuneration consistent with their education, technical knowledge and experience and comparable to the operator's staff whose activities they will inspect and supervise.

3.4.2.2 All State technical personnel authorized to ensure the maintenance of competency and to conduct a surveillance or safety oversight function, as applicable, must possess appropriate credentials identifying them as technical experts employed by the State authorities, with the right to unhindered access to inspect aircraft, documents, aerodromes, air traffic services and other relevant facilities, as well as normally restricted civil aviation-related sites.

3.4.2.3 The cost of recruiting and retaining qualified technical personnel who satisfactorily meet the requirements of the profession represents a significant financial commitment and may require revisions to long-standing policies and regulations regarding remuneration for qualified technical personnel. In order to recruit and retain appropriately qualified personnel who combine professionalism and integrity, it is essential that the State authorities become a competitive employer. Furthermore, States should have appropriate recruitment policies, terms of employment and practices in place.

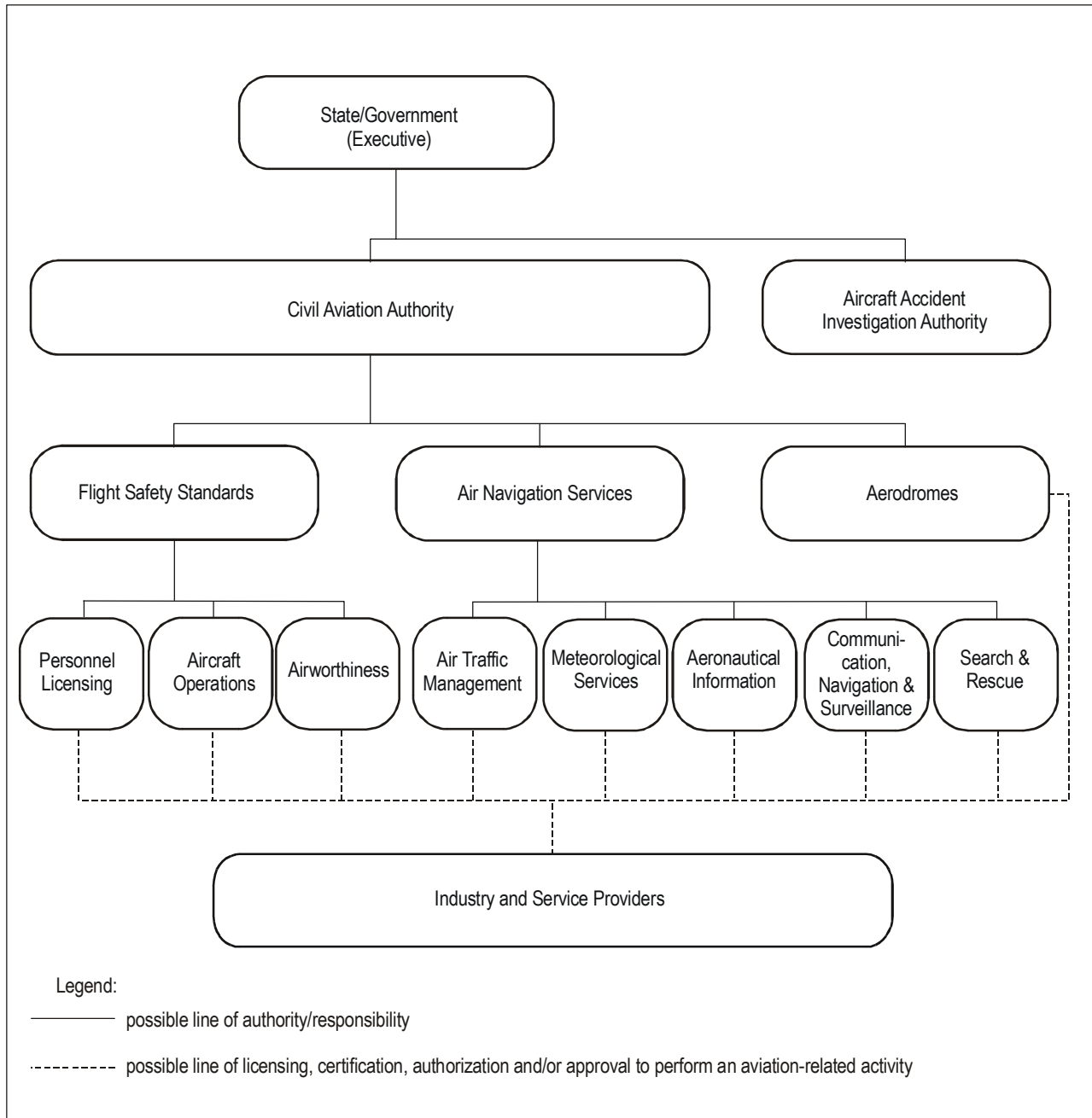


Figure 3-1. Example of the organizational structure of a State civil aviation system

3.4.2.4 It is recognized that some States (particularly those in which the level of commercial air transport activity is low) may not be in a position to meet their staffing requirements due to lack of qualified local personnel or the inability to obtain the necessary budgetary allocations. Sometimes, particularly when the State is also an operator or service provider, operator or provider personnel may be designated by the CAA to carry out fundamental CAA inspection responsibilities without benefit of technical supervision by an independent CAA. Such an arrangement is not normally in the best interest of the travelling public and should be avoided. However, when properly controlled by the CAA, the assignment of qualified operator personnel to assist in some inspection functions can be acceptable in terms of safety and is generally economically beneficial to both the State and operator. In such cases, it must be stressed that the designated operator personnel, when performing their designated duties, must be kept under the supervisory and technical control of the CAA.

3.4.2.5 For those States which have determined that it is not feasible to maintain a full range of CAA technical staff to carry out the complete CAA safety oversight function, one option is to establish a small, technically competent and experienced nucleus of CAA technical personnel. To augment this nucleus and thus be able to carry out its full safety oversight responsibilities, the CAA should consider entering into agreement with other States for assistance, on a part-time or cooperative basis, in performing certain detailed tasks requiring specialized skills and experience. Alternatively, or in combination with the foregoing, the CAA could also consider the employment of a competent commercial organization that would supply qualified personnel as needed to perform the required inspection functions in an advisory capacity for the CAA. The ICAO Regional Office accredited to the State may be of assistance in working out cooperative inspection arrangements among States in their region.

3.4.2.6 It must be clear, however, that regardless of the arrangements that a State makes, it is in no way relieved of the ultimate responsibility for the safe, regular and efficient conduct of aviation within its jurisdiction. It is essential that agreements or contracts for the enforcement of inspection responsibilities and duties be explicit in their requirements. For example, once a State has accepted or approved an operations manual, a contract would then specify that inspections be conducted using this manual, as well as the operating regulations/rules/means of compliance of the State. Additionally, the contract must explicitly indicate that the CAA is to be notified of any deficiencies that are discovered during an inspection by the contracted or designated agency within a specified period following the inspection. In all instances, the State defines the rules for inspection by a contracted or designated agency, sets the criteria for the reports to be submitted to it and provides the means to audit the contracted or designated agency.

3.4.3 Functions of a Flight Safety Standards Department

The Flight Safety Standards Department bears the overall responsibility for the safety oversight-related activities of the CAA. It is the top technical department responsible for the implementation of technical policy related to personnel licensing, aircraft operation and airworthiness of aircraft. As such, it is also responsible for the harmonization of operating regulations and coordination among the various sections responsible for the implementation of national and international Standards.

Note.— In many developing States, an Aviation Medical Unit is attached to the Personnel Licensing Section. However, several States have found it necessary to establish a separate Aviation Medicine Section within the Flight Safety Standards Department, working in close harmony with the Personnel Licensing Section.

3.4.4 Establishment of Service Providers

Where States have established and developed commercialization and privatization projects in the provision and operation of aerodromes and air navigation services, States have had to adapt their organizational

structures to ensure retention of adequate oversight by the CAA in its role as regulator due to the associated increased autonomy of such providers. Clear distinction and separation of authority and responsibility between the State regulatory authority and the State operating agency should be maintained. Consequently, States need to ensure that appropriate legislation and safety regulations are in place to implement safety oversight of the various functions.

3.4.5 Establishment of an Aircraft Accident Investigation Authority

It is essential that the State's agency, board, commission or other body tasked to carry out the investigation of aircraft accidents and serious incidents report directly to a higher authority, preferably at a ministerial level of government, so that the findings and safety recommendations of the investigation are not diluted when passed through regular administrative channels. Many States have set up their Aircraft Accident Investigation Authority as an independent statutory body which is separate from the civil aviation regulatory authority.

3.5 TECHNICAL PERSONNEL QUALIFICATION AND TRAINING (CE-4)

3.5.1 Qualification of technical personnel

3.5.1.1 The tasks and activities involved in aviation safety oversight include a wide range of complex evaluations, inspections, analyses and interventions. Effective implementation of these tasks requires the intervention of highly qualified personnel during the various stages of the process.

3.5.1.2 The satisfactory execution of the various functions of the CAA Inspectorate depends to a large extent on the qualifications, experience, competence and dedication of individual inspectors. In addition to the vital importance of technical competency in performing certification, inspection and surveillance functions, it is critical that inspectors possess a high degree of integrity, be impartial in carrying out their tasks, be tactful, have a good understanding of human nature and possess good communication skills. Considering the specialized and sensitive nature of the CAA inspector's mission, it is vitally important that the qualifications, previous experience and personal characteristics of each person employed, whether directly or on contract, to perform licensing, certification, inspection and surveillance duties be verified and carefully evaluated before selections are made.

3.5.1.3 Ideally, technical personnel should be at least as qualified as the personnel to be inspected or supervised. With respect to personnel licensing officers, the qualifications required should include considerable experience in one of the professions for which the licence or rating is issued. If the licensing officer is involved in conducting examinations and tests, the qualifications and experience required should be similar to those which are required for civil aviation inspectors.

3.5.1.4 In the case of medical inspectors, it is essential that they be suitably qualified and experienced in the practice of aviation medicine, at least to the level of the physicians responsible for the medical examinations to be conducted. Inspection of the Medical Section of the CAA, the aviation medicine clinic accredited to the CAA for extended health examinations of licence holders, and the network of Designated Medical Examiners should be conducted with due respect for the appropriate confidentiality involved. In many smaller States, the only available competent medical inspectors are most likely to be the physicians who are already part of the system to be inspected. Consequently, in many cases, an agreement should be reached whereby medical inspectors can be appointed from or made available by other Contracting States, possibly on the basis of mutual exchange.

3.5.1.5 The certification and surveillance of civil aviation activities involve technical activities far beyond the review and approval of documentation. Although the importance of the latter element must not be overlooked, the safety oversight of civil aviation also includes timely inspection by qualified inspectors of all civil aviation activities, starting with the beginning of the certification process to an ongoing periodic surveillance long after the certificate has been issued. The qualification of a civil aviation inspector should ideally match the qualification of those who are being inspected. Although a CAA civil aviation inspector should be fully qualified, it is not expected that in all cases any one inspector would possess the same experience as all the personnel under inspection, for example, in the area of aerodromes where a number of disciplines are involved.

3.5.1.6 However, the organization with safety oversight responsibility should be organizationally competent; this may require a team of inspectors with a mix of disciplines. As a team, they should be as knowledgeable, qualified and experienced in the appropriate areas of qualification and experience as the organization being inspected. The maintenance of licences and other skills or qualifications and of an acceptable level of proficiency and knowledge of civil aviation activities, limitations, equipment, systems, operations, etc. will permit civil aviation inspectors to better assess the knowledge, techniques and overall competence of the civil aviation personnel, operators, service providers and maintenance organizations.

3.5.2 Training of technical personnel

3.5.2.1 The State authorities must determine the minimum professional qualifications for their technical personnel performing safety oversight functions and also provide for the technical and administrative training necessary for them to effectively accomplish their duties and responsibilities. For example, in the area of pilot proficiency, at least one pilot inspector should be qualified and current on at least one aircraft type operated by each airline over which the CAA has jurisdiction or responsibility.

3.5.2.2 The State authorities must be prepared to finance their technical personnel's initial and recurrent training. The State's technical personnel represent the authority and, as such, require the continuing development of their knowledge and skills related to their respective responsibilities. This should be accomplished through periodic training and refresher courses in all the disciplines for which the technical officers are responsible. Participation in seminars and workshops organized by ICAO and international and regional aviation-related organizations can also enable the State's technical personnel to widen their horizons and share experience with experts from other Contracting States. Additional studies, such as courses in technical report writing and supervisory training, will also assist the technical experts in improving their effectiveness and efficiency.

3.5.2.3 Periodic practical and theoretical specialized (technical) training, including supervisory courses, will enable the State's technical personnel to maintain a high level of knowledge and expertise and thus undertake their duties and responsibilities in a more effective and efficient manner. An example of the net result of such training is better job performance and greater respect from those who are inspected and supervised by the CAA's inspectors.

3.5.2.4 Training of the State's technical personnel shall not be limited to strictly professional elements, such as the maintenance of competency and currency. In particular, it is essential that CAA inspectors also be provided with training on subjects such as applicable CAA regulations, inspectors' skills, knowledge, duties and responsibilities, and CAA procedures for the implementation and enforcement of requirements.

3.6 TECHNICAL GUIDANCE, TOOLS AND THE PROVISION OF SAFETY-CRITICAL INFORMATION (CE-5)

3.6.1 The effectiveness of a safety oversight system and the implementation of national and international Standards need to be supported by guidance material which will provide the technical experts

with guidance on how to accomplish their specific functions. ICAO has developed and published technical guidance to assist States in implementing Annex provisions.

3.6.2 States also need to develop and publish their own technical guidance material to assist their technical experts in implementing national regulations, procedures and practices. ICAO technical guidance can be fruitfully utilized in the preparation of such national technical guidance material. Such material should include information on how to process an application for a licence, rating, certificate or approval; evaluate claims made on an application form; and evaluate experience. The State's technical guidance should also include guidance on the implementation of applicable regulations, instructions and directives. Similar processes should be in place for all Annex areas, together with mechanisms, to ensure that applicants are made aware of the requirements to be met and of the application process.

3.6.3 Relevant inspectors will also require technical guidance to implement regulations and policies leading to the certification and surveillance of licence or certificate holders, inclusive of standard procedures for the evaluation of documentation and demonstration of the operational suitability for initial and continued certification, as appropriate.

3.6.4 An inspectors' handbook is a useful tool that should be developed and provided to inspectors for all functional areas. Inspectors and staff should be provided with adequate tools to enable the effective accomplishment of their tasks, such as transportation as applicable, adequate offices, telephones and other communication facilities. Access to the Internet to supplement a technical library has become a necessity in today's world of information and communication technology.

3.6.5 To foster safety in the aviation operational environment, the supply and speedy dissemination of safety-critical information, such as a Notice to Airmen (NOTAM) and airworthiness directives, are essential. The importance of the regular amendment and updating of publications such as aeronautical maps and other aviation-related publications should not be discarded in respect of its role in ensuring a safe operating environment.

3.7 LICENSING, CERTIFICATION, AUTHORIZATION AND APPROVAL OBLIGATIONS (CE-6)

3.7.1 General considerations

3.7.1.1 The Convention requires that Contracting States issue licences and certificates, as applicable, to aircraft, organizations and personnel engaged in international air navigation. For example, Article 31 states that "every aircraft engaged in international navigation shall be provided with a certificate of airworthiness issued or rendered valid by the State in which it is registered".

3.7.1.2 Article 32 a) provides for the licensing of operating personnel. It states that "the pilot of every aircraft and the other members of the operating crew of every aircraft engaged in international navigation shall be provided with certificates of competency and licenses issued or rendered valid by the State in which the aircraft is registered".

3.7.1.3 The Convention also provides for the recognition by other Contracting States of licences and certificates issued by a Contracting State (Article 33). This recognition "as valid" is achieved only if "the requirements under which such certificates or licences were issued or rendered valid are equal to or above the minimum standards which may be established from time to time pursuant to this Convention".

3.7.1.4 The requirements for licences and certificates, other than those related to aircraft airworthiness and the operating crew, are contained in Article 37 of the Convention, Annex 1 — *Personnel Licensing* and

Annex 6 — *Operation of Aircraft*. Article 37 commissions ICAO to adopt and amend from time to time, as may be necessary, international Standards and Recommended Practices which include those dealing with the licensing of operating and mechanical personnel. Annex 1 provides for the licensing of aircraft maintenance technicians, air traffic controllers, flight operations officers/flight dispatchers and aeronautical radio operators. Related requirements are found in Annex 6 — *Operation of Aircraft*, Part I — *International Commercial Air Transport — Aeroplanes*.

3.7.2 Personnel Licensing

3.7.2.1 Personnel licensing is a State function, enabling it to comply with the Convention and Annex 1 requirements, and covers a number of disciplines and functional areas. The activities involved in personnel licensing are such that it usually requires the establishment of a licensing system and a specific licensing section (office). The establishment will, of course, vary from State to State, depending on the size and complexity of civil aircraft operations. It is also possible, depending on the number of licences and ratings issued, for licensing activities to be combined with those of other sections of the CAA. However, whether the licensing functions are discharged by a fully developed personnel licensing office or outsourced by a basic licensing office, several essential functions remain the responsibility of the CAA. These essential functions of a State's personnel licensing office include:

- a) drafting and amendment of rules relating to the training and licensing of aviation personnel;
- b) assessment and approval of applications for licences and ratings and the issue of licences and ratings;
- c) application of medical fitness assessments relating to licence requirements;
- d) validation of licences and ratings issued by other Contracting States; and
- e) approval, designation and supervision of individuals or organizations delegated to perform specific tasks on behalf of the personnel licensing office.

3.7.2.2 Within a State, personnel licensing is governed by national legislation and regulations and can cover a number of disciplines and functional areas. Annex 1 gives a clear presentation of the broad international specifications for personnel licensing agreed upon by Contracting States. Although the provisions of Annex 1 are written in such a way as to facilitate their incorporation into national legislation without major textual changes, most of the specifications are not given in enough detail to satisfy the day-to-day management of a State's personnel licensing activities. In most cases, the detailed requirements are left for States to develop, and it is for this reason that there are significant differences in States' personnel licensing practices. This is particularly true for the medical assessment of licence holders, where individual evaluation and judgement, as well as indiscriminate use of the "flexibility clause" (Annex 1, 1.2.4.8), have led to significant variations in the application of the medical requirements.

3.7.3 Certificates and approvals

3.7.3.1 Many other articles and paragraphs of the Convention and its Annexes require that ICAO Contracting States issue or validate licences and certificates. This requirement, in turn, obligates States to establish, manage and supervise a system of licensing and certification of personnel, equipment, aerodromes, air operators, maintenance organizations, air traffic service providers, etc., in order to comply with international obligations and responsibilities for a safe and orderly international air navigation system.

3.7.3.2 Part I — *International Commercial Air Transport — Aeroplanes* and Part III — *International Operations — Helicopters* of Annex 6 require that a State issue an air operator certificate (AOC) or

equivalent document to an air operator upon the operator demonstrating an adequate organization and a method of control and supervision of flight operations. The continued validity of that certificate will also depend upon the operator's demonstration of continued maintenance of the Standards demonstrated during the initial certification process. States must therefore establish a system for both the certification and the continued surveillance of the operator to ensure that the required Standards of operation are maintained. To this effect, the CAA should establish and maintain a strong, effective and viable Aircraft Operations Organization to control and supervise aircraft operations in the State.

3.7.3.3 An Aircraft Operations Organization is a major component of a CAA's establishment and is the most common inspection component of almost all the civil aviation systems of the world. Its size and organizational complexity differ from State to State, as they are a function of the scale of flight operations conducted in the State by both commercial and general aviation. Again, depending on the size, variety and complexity of aircraft operations in the State, the Organization may need to contain several sub-sections assigned with specific responsibility or may be established as part of a single control and supervisory office of the CAA. In any event, the essential functions remain fundamentally the same and should include:

- a) drafting and amendment of rules relating to aircraft operations;
- b) certification and approval of initial applications of air operators and the issuance of an AOC;
- c) continued inspection and surveillance of certificated air operators; and
- d) approval, designation and supervision of individuals or organizations delegated to perform specific tasks on its behalf.

3.7.3.4 Airworthiness of aircraft has always been considered by ICAO to be a key element in the safety of international civil aviation. This is reflected in the Convention which gives particular emphasis to the issuance and validation of certificates of airworthiness according to approved Standards. In order to fulfil their airworthiness responsibilities, build the necessary confidence and integrity, and meet the requirements set forth in the Convention and in Annexes 6 and 8, it is vital that Contracting States establish an effective airworthiness system (organization).

3.7.3.5 The airworthiness inspection system to be established will vary depending upon the level and scope of aviation activity within the State. The essential functions of the airworthiness inspection organization include:

- a) drafting and amendment of rules relating to the airworthiness of aircraft;
- b) certification and approval of initial applications of air operators (airworthiness aspects);
- c) continued inspection and surveillance of certificated air operators (airworthiness aspects);
- d) issuance, renewal and continuing validation of the certificate of airworthiness;
- e) approval of modifications and mandatory inspection;
- f) approval and continuing inspection of approved maintenance organizations (AMOs);
- g) approval and continuing inspection of the maintenance aspects of an AOC; and
- h) monitoring and control of mandatory continuing airworthiness information.

3.7.3.6 When design activities take place in the State, it may be necessary to establish an airworthiness engineering organization to look after the essential functions of a State of Design. In those States where an aircraft engineering organization is not established, it will normally be necessary for the aircraft inspection organization to also be responsible for those engineering tasks associated with continuing airworthiness. In any event, the essential functions of an aircraft engineering organization, when established, include:

- a) assistance in the implementation of SARPs and procedures as well as in the monitoring of engineering work;
- b) evaluation of engineering and airworthiness of new aircraft;
- c) evaluation of modifications or repairs, either through acceptance of the State of Design's approval or by a specific national approval; and
- d) follow-up of type certificate mandatory continuing airworthiness information.

3.7.3.7 Article 15 of the Convention requires that all aerodromes open to public use under the jurisdiction of a Contracting State provide uniform conditions for the aircraft of all other Contracting States which is normally achieved by the certification of an aerodrome. To fulfil their aerodrome certification responsibilities and meet the requirements set forth in the Convention and in Annex 14, it is vital that Contracting States establish an effective aerodrome certification system. When a CAA may also be responsible for the management and operation of aerodromes, it is essential to establish a separate safety oversight entity within the CAA to carry out the functions of certification and safety regulation of aerodromes.

3.7.3.8 There are presently no ICAO requirements for the certification of ATS providers. However, certification is seen by many States as an important element of the regulatory and oversight functions, and a number of States have already implemented requirements for certification of Air Traffic Management (ATM) service providers. A significant number of States are moving to a situation where air traffic services are provided by an organization separate from the State body responsible for the regulatory function. However, irrespective of whether or not the service provision is the responsibility of the State or a separate body, it is the State that is responsible for ensuring compliance with the provisions of ICAO Annexes. There is presently strong support among ICAO Contracting States for ICAO to adopt ATS provider certification standards. For this reason, ICAO is studying the issue and it is expected that such standards will exist by the end of 2007.

3.7.3.9 Unsatisfactory conditions noted by the CAA technical experts during the licensing or certification process should immediately be brought to the attention of the applicant for corrective action. In the case of deficiencies or weaknesses discovered during a licensing process, an opportunity should be provided for the applicant to remedy the problem, and the applicant should be given an opportunity to try again. In the case of certificating an aerodrome operator or an air operator, or of approving a service provider or maintenance organization, again, an opportunity should be provided for the applicant to remedy any deficiencies affecting the safety of the operation before any further operations are undertaken or maintenance work is commenced. All discrepancies and items of non-compliance must be corrected or resolved to the satisfaction of the CAA technical expert and the CAA prior to the commencement of any service.

3.8 SURVEILLANCE OBLIGATIONS (CE-7)

3.8.1 An ICAO Contracting State's obligation and responsibility for a safe and orderly international civil aviation system does not end with the issuance of licences, ratings, certificates or other approvals.

Maintenance of continued safe operations, particularly during significant change, demands that a State also establish a system of ensuring continuing organizational, as well as individual, professional competency of licence/rating/certificate/approval holders; continuing validity of licences/ratings/certificates/approvals; continuing capacity to maintain a safe and regular operation by air operators and service providers; and continuing capacity to properly maintain aviation-related AMOs. Authority for this continuing process should be contained in the provisions of the basic aviation law of the State.

3.8.2 Paragraph 1.2.5.1 of Annex 1 states that “a Contracting State, having issued a licence, shall ensure that the privileges granted by that licence, or by related ratings, are not exercised unless the holder maintains competency and meets the requirements for recent experience established by that State”. This requirement, of course, demands that Contracting States establish a system of continued control and supervision to ensure continued safe aircraft operation.

3.8.3 The continued validity of a certificate and, by extension, an equivalent document issued to an organization is dependent on the operator or organization maintaining the requirements established for its issuance. This is clearly provided for in the Annexes and relates to the need for continued surveillance by the State.

3.8.4 Under the basic aviation law of the State and the operating regulations and rules promulgated therefrom, the CAA should be given the authority and responsibility to conduct inspections, analyse operations, identify safety deficiencies, make recommendations, impose operating restrictions, as well as grant, suspend, revoke or terminate licences, certificates or other approvals and, in the case of operator certificates, amend the corresponding operations specifications. Additionally, the CAA should have the authority and responsibility for exercising continued surveillance over such operations to ensure that accepted safety practices and proper procedures that will promote safety in operations are maintained. To achieve this objective, the CAA and, more specifically, the technical personnel must continuously monitor operations conducted by holders of licences, certificates and/or approvals, as applicable.

3.8.5 Required surveillance and the related inspections should be planned and conducted by the CAA technical personnel responsible for personnel licensing and civil aviation technical inspections and possessing the required credentials (see 3.4.2.2).

3.8.6 The surveillance function should be accomplished on a continuing basis, performed at specified times or intervals or conducted in conjunction with the renewal of a licence, certificate or other approval. ICAO publishes guidance on inspection periodicity in a number of guidance documents. In the case of an air operator, a maintenance organization or an approved training organization, regardless of the method used for surveillance, all significant aspects of the operator's or organization's procedures and practices should be evaluated and appropriate inspections conducted at least once in every 12-month period. Scheduled inspections must be augmented by periodic random inspections of all facets of the operation.

3.8.7 Throughout all phases of the surveillance programme, the standards of an organization's capability and competence should be equal to or exceed those required at the time of original certification. Accordingly, the CAA technical personnel conducting surveillance and related inspections should carry out such activities in a thorough manner and require the organization to convincingly demonstrate that operations and/or maintenance are being conducted in accordance with the requirements of the certificate issued, the related operations/maintenance requirements/specifications, the operations manuals, control manuals and appropriate civil aviation regulations and that, as a consequence, the authority granted with the initial issuance of the certificate should continue.

3.8.8 Compliance of the ATS service providers with the regulatory provisions should also be monitored by a safety oversight mechanism to ensure that the regulatory objectives and requirements are effectively met. The methods of safety oversight should include safety regulatory approval, audit and/or

inspection. With the introduction of requirements for safety management, the oversight function has assumed even greater importance. While the ongoing management of safety is the responsibility of the ATS service provider, there is a need for independent oversight of the safety management practices and safety performance of the provider.

3.8.9 The surveillance and inspection programme should provide a comprehensive and conclusive assessment of the maintenance of competency of licence/rating/certificate/approval holders. Moreover, the associated inspection reports should indicate whether the inspection and surveillance system and procedures employed by the CAA are effective in determining the licence/rating/certificate/approval holder's competence, record of compliance and overall capability.

3.9 RESOLUTION OF SAFETY CONCERNS (CE-8)

3.9.1 The resolution of identified deficiencies and safety concerns is a critical element at the core of all safety oversight activities. A good safety oversight system will provide for the identification of deficiencies and safety concerns and the appropriate action required for resolution.

3.9.2 Should the surveillance and inspection programme and related inspection reports reveal that the licence/rating/certificate/approval holder has failed or is unable to meet or maintain the required Standards, the CAA technical expert primarily responsible for the surveillance of the operation must promptly advise the licence/rating/certificate/approval holder of the deficiency observed. Once the cause of the deficiency is determined, the CAA should provide deadlines for corrective action to be taken and initiate appropriate follow-up to determine the effectiveness of the corrective action. Additional inspections should be conducted whenever problems in particular areas repeatedly occur.

3.9.3 If the licence/rating/certificate/approval holder does not correct the deficiency within the established deadlines, the CAA technical expert should immediately inform the Director General of Civil Aviation (DGCA) with a recommendation that the licence/rating/certificate/approval holder's privileges be temporarily or permanently withdrawn or restricted. If, after careful review of all circumstances involved and following necessary coordination and consultation within the CAA, there is agreement on the need to suspend or revoke the licence/rating/certificate/approval holder's privileges, the CAA should officially inform the licence/rating/certificate/approval holder in writing summarizing both the proposed action and the reasons for it. When a certificate is cancelled or revoked for any reason, the licence/rating/certificate/approval holder must promptly return it to the issuing official.

3.9.4 In a properly established and managed certificating and surveillance system, analysis of the various inspection reports will indicate a pattern of weakness or deficiency, if such weaknesses or deficiencies exist, and will often also identify causes and possible remedies. The CAA, which has a legal responsibility for safety, must be satisfied that an operator is competent to conduct safe operations. Therefore, the CAA must rely heavily on the inspection reports and the recommendations of its technical experts.

3.9.5 In view of the increasing complexity of modern operating techniques, aircraft and equipment, there is a continuing need to review the scope of inspections and related techniques and procedures in order to better evaluate specific areas of interest and ensure effective use of CAA inspectorate resources.

3.9.6 The CAA should ensure that an efficient system exists for transmitting and/or receiving, as appropriate, information on faults, malfunctions, defects and other occurrences that cause or might cause adverse effects on the continuing airworthiness of the aircraft. Access to this type of information is necessary for the State of Design to analyse the deficiencies and develop the necessary airworthiness actions for resolution of the safety concern, if necessary (CE-5 refers).

3.9.7 Accident investigations also play a crucial role in the identification of deficiencies and safety concerns. Safety recommendations can be issued in the course of or at the completion of an investigation. Other essential tools are a mandatory incident reporting system and a voluntary incident reporting system (which shall be non-punitive). The establishment of an accident and incident database and the analysis of the information contained in such a database are means to identify safety concerns; a common taxonomy is essential to allow for the exchange of information between the users of the aviation system worldwide.

3.9.8 An effective resolution of safety issues is highly dependent on the authority vested in the CAA. This critical element can only be successful in situations clearly supported by and linked to the primary aviation legislation and regulations. There should be technical guidance and procedures for both the technical inspectors and the assigned CAA legal personnel. This guidance should be provided early in the programme of safety oversight improvement to avoid inconsistent extremes of actions by CAA personnel.

APPENDICES

Appendix A

REFERENCES

The following ICAO publications are referred to in this manual and provide additional guidance material for the certification and surveillance of air transport operators. As the ICAO safety oversight programme expands to include other civil aviation disciplines such as aerodromes and air traffic control, the list of ICAO reference publications will also be expanded accordingly.

Conventions and Related Acts

Convention on International Civil Aviation (Doc 7300)

Protocol Relating to an Amendment to the Convention on International Civil Aviation (Article 83 bis) (Doc 9318)

Annexes to the Convention on International Civil Aviation

Annex 1 — Personnel Licensing

Annex 2 — Rules of the Air

Annex 3 — Meteorological Service for International Air Navigation

Annex 4 — Aeronautical Charts

Annex 5 — Units of Measurement to be Used in Air and Ground Operations

Annex 6 — Operation of Aircraft

Part I — International Commercial Air Transport — Aeroplanes

Part II — International General Aviation — Aeroplanes

Part III — International Operations — Helicopters

Annex 7 — Aircraft Nationality and Registration Marks

Annex 8 — Airworthiness of Aircraft

Annex 10 — Aeronautical Telecommunications

Volume I (Radio Navigation Aids)

Volume II — Communication Procedures including those with PANS status

Annex 11 — Air Traffic Services

Annex 12 — Search and Rescue

Annex 13 — Aircraft Accident and Incident Investigation

Annex 14 — *Aerodromes*
Volume I — *Aerodrome Design and Operations*
Volume II — *Heliports*

Annex 15 — *Aeronautical Information Services*

Annex 16 — *Environmental Protection*
Volume I — *Aircraft Noise*
Volume II — *Aircraft Engine Emissions*

Annex 18 — *The Safe Transport of Dangerous Goods by Air*

Assembly Resolutions

Assembly Resolutions in Force (as of 8 October 2004) (Doc 9848)

Procedures for Air Navigation Services

ATM — Air Traffic Management (Doc 4444)

Manuals and Circulars

Safety Oversight Manual (Doc 9734)

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

Appendix B

DEFINITIONS

The definitions used in this manual are similar to those found in relevant Annexes to the Convention and in other ICAO documentation (such as the *International Civil Aviation Vocabulary* (Doc 9713)) or are the definitions intended by the Safety Oversight Audit Section (SOA) for this document and the safety oversight audit process.

Accident. An occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, in which:

- a) a person is fatally or seriously injured as a result of:
 - being in the aircraft, or
 - direct contact with any part of the aircraft, including parts which have become detached from the aircraft, or
 - direct exposure to jet blast,
except when the injuries are from natural causes, self-inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew; or
- b) the aircraft sustains damage or structural failure which:
 - adversely affects the structural strength, performance or flight characteristics of the aircraft, and
 - would normally require major repair or replacement of the affected component,
except for engine failure or damage, when the damage is limited to the engine, its cowlings or accessories; or for damage limited to propellers, wing tips, antennas, tires, brakes, fairings, small dents or puncture holes in the aircraft skin; or
- c) the aircraft is missing or is completely inaccessible.

Note 1.— For statistical uniformity only, an injury resulting in death within 30 days of the date of the accident is classified as a fatal injury by ICAO.

Note 2.— An aircraft is considered to be missing when the official search has been terminated and the wreckage has not been located.

Aerodrome. A defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft.

Aerodrome Certificate. A certificate issued by the appropriate authority under applicable regulations for the operation of an aerodrome.

Aerodrome Manual. A manual that forms part of the safety assurance in an application for an aerodrome certificate, containing material required by a State's certification requirements as well as material for use by aerodrome operational personnel in the execution of their duties.

Aeronautical Information Publication (AIP). A publication issued by or with the authority of a State and containing aeronautical information of a lasting character essential to air navigation.

Note.— The term includes details of aerodrome certification conditions and exemptions/exceptions granted by the State aviation authority in relation to aerodrome certification requirements.

Aeronautical Study. A study of an aeronautical problem to identify possible solutions and select a solution that is acceptable without degrading safety.

Aircraft. Any machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth's surface.

Air navigation services. Services provided to air traffic during all phases of operations including air traffic management (ATM), communication, navigation and surveillance (CNS), meteorological services for air navigation (MET), search and rescue (SAR) and aeronautical information services (AIS).

Air operator certificate (AOC). A certificate authorizing an operator to carry out specified commercial air transport operations.

Air traffic. All aircraft in flight or operating on the movement area of an aerodrome.

Air traffic service (ATS). A generic term meaning variously, flight information service, alerting service, air traffic advisory service, air traffic control service (area control service, approach control service or aerodrome control service).

Audit. A systematic and objective review of a State's aviation framework to verify compliance with the provisions of the Chicago Convention or national regulation, conformance with or adherence to Standards and Recommended Practices (SARPs), procedures and good aviation safety practices.

Authorized person. A person authorized by the Director General of Civil Aviation (DGCA) or empowering Head of State in writing to act under the provision in which the expression occurs.

Cabin crew. A crew member who performs, in the interest of safety of passengers, duties assigned by the operator or the pilot-in-command of the aircraft, but who shall not act as a flight crew member.

Certified aerodrome. An aerodrome whose operator has been granted an aerodrome certificate.

Civil aviation authority. The governmental entity or entities, however titled, that are directly responsible for the regulation of all aspects of civil air transport, technical (i.e. air navigation and aviation safety) and economic (i.e. the commercial aspects of air transport).

Commercial air transport operation. An aircraft operation involving the transport of passengers, cargo or mail for remuneration or hire.

Crew member. A person assigned by an operator to duty on an aircraft during flight time.

Dangerous goods. Articles or substances which are capable of posing significant risk to health, safety or property when transported by air.

Note.— *Dangerous goods are classified in Chapter 3 of Annex 18 — The Safe Transport of Dangerous Goods by Air.*

Flight crew member. A licensed crew member charged with duties essential to the operation of an aircraft during flight time.

General aviation operation. An aircraft operation other than a commercial air transport operation or an aerial work operation.

Human Factors principles. Principles which apply to aeronautical design, certification, training, operations and maintenance, and which seek safe interface between the human and other system components by proper consideration to human performance.

Human performance. Human capabilities and limitations which have an impact on the safety and efficiency of aeronautical operations.

Inspection. The basic activity of an audit, which involves examination of the specific characteristics of the safety oversight programme of the Contracting State. (*Safety Oversight Audit Manual (Doc 9735)*)

Inspector. A person trained and authorized to undertake inspections.

Investigator (of an accident). A person charged, on the basis of his or her qualifications, with the responsibility to participate in the conduct and control of an investigation.

(Legal) Person. A person or an association of people or special purpose funds (e.g. a foundation) having legal personality and possessing legal capacity.

Operations manual. A manual containing procedures, instructions and guidance for use by operational personnel in the execution of their duties.

Operator. A person, organization or enterprise engaged in or offering to engage in the operation of an aircraft, aerodrome or associated aviation activity.

Public use (aerodrome). An aerodrome licensed to be available to all persons on equal terms and conditions for the take-off or landing of aircraft.

Regulation. The giving of authoritative direction to bring about and maintain a desired degree of order.

Note.— *For the purpose of this manual, this term includes but is not limited to instructions, rules, edicts, directives, sets of laws, requirements, policies, and orders.*

Responsibility/accountability. The state of being responsible for an undertaking, person, thing or action and for which an organization or individual or both are liable to be called to account.

Risk analysis/aeronautical study. A mechanism, part of a Safety Management System, used to assess the risk (combination of event or hazard severity and probability of occurrence) posed by a particular set of circumstances. It is used to compare the outcome of such an analysis against the intended outcome of a particular Standard, Recommended Practice or national requirement so that a solution can be selected that will not degrade safety below that which is intended.

Service Provider. An organization, serving operators and other providers, that is part of the aviation activity and is functionally separated from its regulator.

State of Design. The State with jurisdiction over the organization responsible for the type design.

State of Manufacture. The State with jurisdiction over the organization responsible for the final assembly of the aircraft.

State of Occurrence. The State in whose territory an accident or incident occurs.

State of the Operator. The State where the operator's principal place of business is located or, if there is no such place of business, where the operator's permanent residence is.

State of Registry. The State on whose register the aircraft is entered.

Subsidiary legislation. Legislation arising from primary legislation.

— END —