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AIRWORTHINESS

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ONLINE TRAINING SEMINAR MODULES

**AIRWORTHINESS: CHICAGO CONVENTION,
ANNEXES, CERTIFICATION, AOC**

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Training Initiatives
19 May – 16 June

Module 2-The CAA Airworthiness Organization

Outlook:



AIRWORTHINESS IN THE
CAA STRUCTURE:
FUNCTIONS AND
RESPONSABILITIES;
EXAMPLE OF
ORGANIZATIONAL CHART



INSPECTORATE
PERSONNEL:
DUTIES AND PRIVILEGES;
JOB DESCRIPTION,
COMPETENCES, TRAINING



FUNCTIONAL ACTIVITIES:
STATE OF
DESIGN/MANUFACTURE
AED (ENGINEERING);
STATE OF
REGISTRY/OPERATOR
AID (INSPECTION)



SURVEILLANCE OF
INDUSTRY
ORGANIZATIONS:
DOA; POA; AMO; AMTO;
CAMO



AIR-OPS
INTERRELATIONSHIP:
SURVEILLANCE OF THE
CONTINUING
AIRWORTHINESS FUNCTION
OF AN AIR OPERATOR

M2-Chapter1: CAA Airworthiness Structure, Functions and Responsibilities

- ▶ As per Airworthiness Manual, Doc 9760:

The Director General of Civil Aviation should consider the **level** of civil aviation activity and the **size** of the State's aviation manufacturing and maintenance industry when establishing the **organizational structure** of the CAA.

Moreover, in order for the State to comply with the applicable provisions of Annexes 6 and 8 the DGCA must ensure that the CAA **retains effective control** of important **inspection and approval(*)** functions.

() CAA may wish to authorize an organization or a delegated person to make approvals on behalf of the CAA. However, responsibility for the issuance of the approval remains with the State*

M2-Chapter1: CAA Airworthiness Structure, Functions and Responsibilities

▶ General Functions and Responsibilities:

The **principal function** of the airworthiness organization is to provide **technical advice to the DGCA**, in such matters as:

- a) **design approvals** and continuing airworthiness of the design (when applicable);
- b) **manufacture of aeronautical products** in the State (when applicable);
- c) **continuing airworthiness of aircraft** and parts thereof;

M2-Chapter1: CAA Airworthiness Structure, Functions and Responsibilities

▶ General Functions and Responsibilities(cont.):

d) **issuance of approvals** (Certificate of Airworthiness, Certificate of Airworthiness for Export and Special flight permits), based on the successful **assessment of aircraft, engines, propellers;**

e) **issuance of approvals** based on the successful **assessment of maintenance organizations, air operators, aircraft maintenance training organizations;**

M2-Chapter1: CAA Airworthiness Structure, Functions and Responsibilities

▶ General Functions and Responsibilities (cont.):

f) **registration** of aircraft;

g) issuance and renewal of **certificates of airworthiness**;

h) issuance of attestation of **noise certification**;

i) approval of **modifications and repairs**;

M1-Chapter1: CAA Airworthiness Structure, Functions and Responsibilities

▶ General Functions and Responsibilities(cont.):

j) taking of appropriate action with **MCAI**;

k) continuing airworthiness **oversight, enforcement actions**;

l) **training and licensing**; and

m) **distribution of appropriate** airworthiness information.

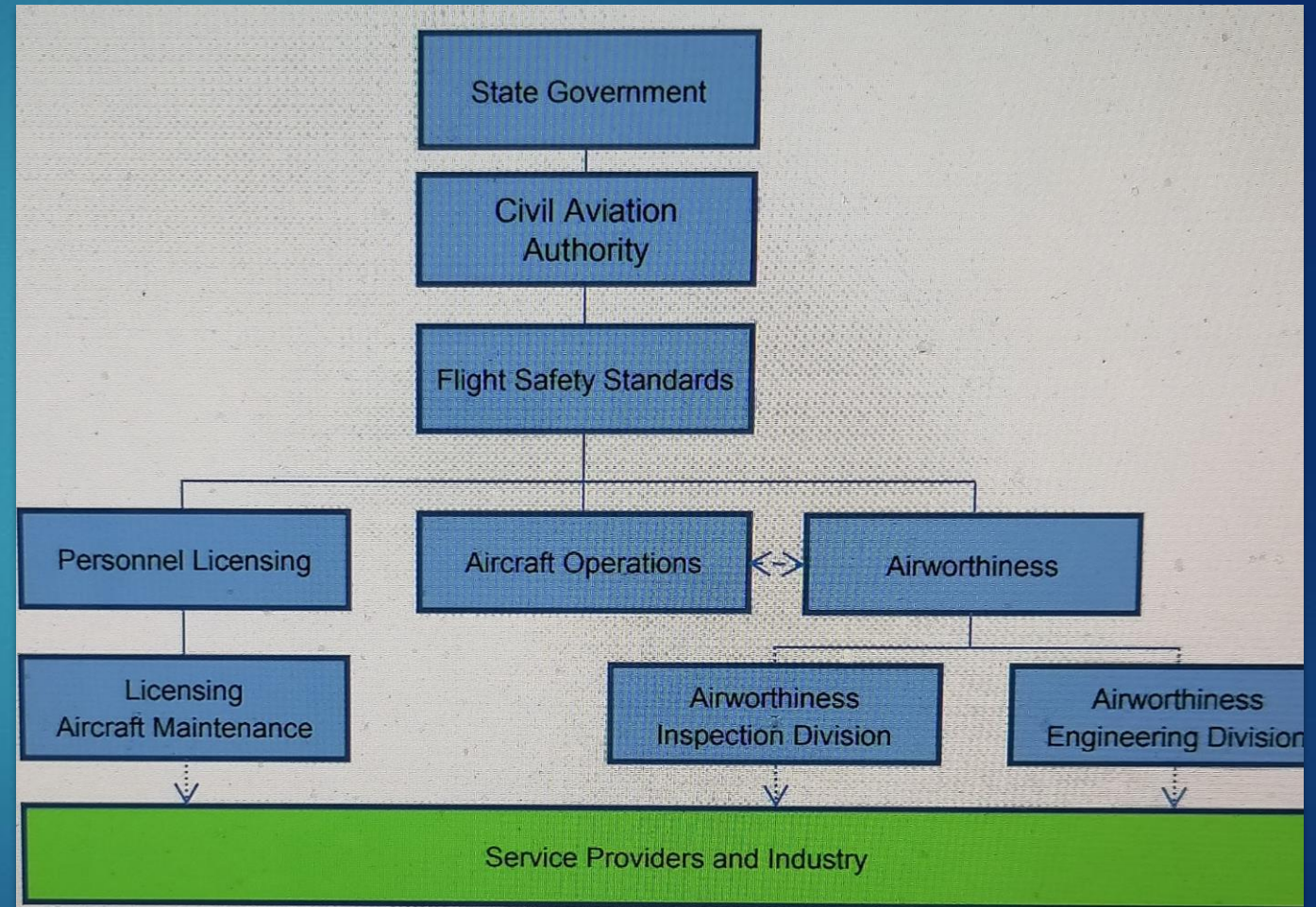
M2-Chapter 1: CAA Airworthiness Structure, Functions and Responsibilities

In order for the Airworthiness Organization to accomplish all required activities including keeping abreast with Annex Amendments, development of guidance material, training of staff, surveillance and resolution of safety concerns, the necessary financial resources, charges and budget have to be allocated to the CAA for equipment, staff training and inspection/auditing activities.

M2-Chapter1: CAA Airworthiness Structure, Functions and Responsibilities

As per Airworthiness Manual,
Doc 9760:

- ▶ Example of organizational structure of a State civil aviation airworthiness system



M2-Chapter 2:

Inspectorate Personnel: Duties and Privileges

► Staffing Requirements:

To effectively fulfill its responsibilities the Airworthiness Department should be properly **organized and staffed** with **experienced, qualified, competent personnel** and **sufficient number** of suitable Inspectors capable of accomplishing required wide range of technical duties involved in safety oversight activities. Furthermore, Airworthiness Inspectors 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 audit, inspect and supervise.

M2-Chapter 2:

Inspectorate Personnel: Duties and Privileges

► Staffing Competencies:

In addition to the importance of **technical competency** in performing certification, inspection and surveillance function, it is critical that the Inspectorate not only possess the knowledge, experience and qualifications to carry out their duties in a professionally sound manner, but also possess **other competencies**, namely the personality to win the respect and confidence of the air operators. This would require a reasonable level of tactfulness, understanding, firmness, be impartial in carrying out their tasks, high degree of integrity, have a good understanding of human nature, good communication skills and an exemplary personal conduct both in the office and at the air operator's premises.

M2-Chapter 2:

Inspectorate Personnel: Duties and Privileges

► Qualifications and Experience:

An Airworthiness Engineering Division allocated staff generally **should** have the **relevant knowledge, background and experience** related to the design, manufacture and airworthiness certification of aircraft and its related aeronautical products, including:

- a) have the **proficiency** necessary to apply design and manufacture standards relating to the original airworthiness certification of aircraft and component parts to ensure the prototype, modified aircraft or parts meet national airworthiness requirements;
- b) be **proficient** in the **skills necessary to audit manufacturing operations** that will ensure **compliance** with national airworthiness requirements, **design specifications** and **safety standards**;
- c) be able to make **airworthiness determinations** and issue initial certificates of airworthiness including **export certificates** of airworthiness;

M2-Chapter 2:

Inspectorate Personnel: Duties and Privileges

► Qualifications and Experience:

An Airworthiness Inspection Division allocated staff generally **should** have the **relevant knowledge, background and appropriate experience** related to aircraft **continuing airworthiness** management including:

- a) aircraft **maintenance programme** development, approval and control, including applicable reliability programmes;
- b) evaluation and approval of **modifications and repairs**;
- c) applicability of **MCAI and operational directives** with a continuing airworthiness impact;
- d) airworthiness requirements of relevant parts of **operations specifications**;

M2-Chapter 2:

Inspectorate Personnel: Duties and Privileges

► Qualifications and Experience:

An AID inspector generally **should** (cont.):

- e) **have experience** in **certifying as airworthy aircraft or parts after maintenance** has been performed in accordance with national regulations;
- f) **have experience** with the requirements for **issuing a maintenance release** for maintenance work performed;
- g) be **able to** make national airworthiness **compliance determinations** with regard to the **auditing** of air operators, **AMOs** and approved aircraft maintenance **training** organizations;

M2-Chapter 2:

Inspectorate Personnel: Duties and Privileges

- ▶ Qualifications and Experience:

Qualification of AED or AID inspectors **by academic study**:

Ideally, an AID inspector should be as qualified as the personnel to be inspected or supervised. This is usually accomplished by the inspectors **having previous** engineering or aircraft maintenance experience.

There may be occasions where there is a shortage of such qualified **AID inspectors may be deemed qualified by the successful completion of a course of relevant academic aeronautical study** at a recognized approved training organization or university.

M2-Chapter 2:

Inspectorate Personnel: Duties and Privileges

► Training Requirements:

The CAA should determine the **minimum qualifications for their technical personnel performing safety oversight functions** and also provide for their technical training on an **initial and recurrent basis**. Additionally, **periodic practical and specialized** technical training including supervisory courses will enable the technical personnel to perform their duties effectively.

Training **should not be limited to strictly professional elements**; technical personnel should receive training on subjects **such as** applicable CAA regulations, inspector handbooks, auditing techniques, safety management systems (SMS) and quality systems, Human Factors principles, enforcement procedures and topics dealing with advances in aviation technology.

M2-Chapter 2:

Inspectorate Personnel: Duties and Privileges

► Training Requirements (cont.):

The CAA should have an **indoctrination programme for induction** of new personnel that includes training in:

Organizational responsibilities; appropriate airworthiness standards, practices and policies; working procedures; certification and surveillance procedures; and, the role of a regulator.

The CAA should have a **structured programme** to educate the personnel on **new CAA requirements**, policies and procedures as they are being implemented.

To keep personnel **abreast of new industry developments** a training programme should be developed that **provides at regular intervals** (initial and recurrent) technical training **to gain first-hand knowledge of new developments**, including management principles.

M2-Chapter 2:

Inspectorate Personnel: Duties and Privileges

- ▶ On-the-job training:

To further ensure a structured training environment a CAA should consider an on-the-job (OJT) training programme that ensures new inspectors are **mentored** by experienced inspectors in all tasks the inspector is required to perform on behalf of the CAA prior to performing the tasks unaccompanied.

The OJT training should be comprehensive and cover the CAA regulations, policies, procedures and current practices.

The OJT should allow for the new inspector to **observe** the experienced inspector actually perform the task. Once this has occurred the new inspector should perform the task being observed and **coached** by an experienced inspector. Following this the new inspector is **debriefed** by the experienced inspector.

The new inspector then **performs** the task **under supervision** and is evaluated by an experienced inspector. The new inspector should **be evaluated** on successfully performing the task in accordance with CAA requirements. The new inspector **training records** should be updated upon successful completion of each OJT task

M2-Chapter 3.1:

The Engineering Division (AED) Functional Activities

► Responsibilities of the Engineering Division :

States with a **significant** aviation manufacturing industry should establish an airworthiness engineering division (AED) within the CAA airworthiness organization. **The size and structure of the AED should be** appropriate to the aviation manufacturing industry and the various aeronautical products for which the State has the responsibility of State of Manufacture and/or State of Design.

M2-Chapter 3.1:

The Engineering Division (AED) Functional Activities

► The AED **should**:

- 1) develop standards and procedures for the type certification of an aircraft including its components, engines, systems, instruments and equipment in conformity with Annex 8;
- 2) develop and evaluate changes in engineering standards, procedures and practices to reflect current requirements and limitations and to keep pace with changes in aviation technology;
- 3) evaluate engineering and airworthiness of new aircraft designs with regard to structures, applied air and ground loads, dynamics, stress analysis, structural testing and materials;
- 4) analyse aerodynamic performance, flying qualities and systems functioning during the certification process to determine compliance with the applicable airworthiness standards;
- 5) monitor manufacturers' engineering work for the design and testing of aircraft engines, propellers, equipment and instruments to ensure compliance with airworthiness requirements and related manufacturing specifications;

M2-Chapter 3.1:

The Engineering Division (AED) Functional Activities

► The AED **should**: (cont'd)

6) evaluate proposals relevant to the engineering aspects of the design, repair and modification of an aircraft engine;

7) evaluate proposals relevant to the design and modification of systems, instruments and equipment, including their installations;

8) evaluate, plan and coordinate complex aircraft modifications;

9) evaluate proposals for major repairs to aircraft and its components, engines and propellers;

10) evaluate effects of specific engineering changes on aerodynamics, flight dynamics, performance, and stability and control of an aircraft;

11) evaluate equipment and materials to be used in aircraft construction and modifications to ensure their conformity with CAA specifications;

12) investigate unsatisfactory occurrences to identify and prepare necessary design, maintenance and operational corrections;

M2-Chapter 3.1:

The Engineering Division (AED) Functional Activities

The AED **should** (cont'd.):

13) process all continuing mandatory airworthiness information initiated by the manufacturers and air operators in the State and review of mandatory continuing airworthiness information issued by manufacturer of imported aircraft and recommend implementation action in coordination with the AID;

14) evaluate reports of accidents, incidents and malfunctions with a view to determine trends for unsatisfactory design features and take action on cases that affect aviation safety;

15) monitor aerodynamic performance, structural integrity and system functioning of aircraft in service and scrutiny of failures and service difficulties to initiate improvement and corrective action;

16) ensure that the type data necessary to support the type certificate of aircraft on the State aircraft register is maintained;

17) provide technical advice on matters relating to production, inspection and flight operations, as required.

M2-Chapter 3.1:

The Engineering Division (AED) Functional Activities

► In relation to approvals and certificates the AED **should**:

- a) approve design organizations and ensure they have the technical competency and organization to enable them to show compliance with the appropriate design requirements and national requirements;
- b) validate or accept aircraft type certificates issued by another State including its components, engines, systems, instruments and equipment;
- c) issue type certificates or design approvals for aircraft, including its components, engines, systems, instruments and equipment;
- d) grant or validate aircraft noise certification;

M2-Chapter 3.1:

The Engineering Division (AED) Functional Activities

In relation to approvals and certificates the AED **should** (cont.):

- e) evaluate and approve modification and repair designs;
- f) issue production certificates or approval for a manufacturer that produces aeronautical products or parts;
- g) amend a production certificate or approval, as necessary;
- h) approve manufacturing organizations and ensure proper communication with the design organization.

M2-Chapter 3.1:

The Engineering Division (AED) Functional Activities

In relation to approvals and certificates the AED **should** (cont.):

- i) Ensure the adequacy of manufacturing and test facilities, the competence of skilled personnel, and the existence of satisfactory quality control systems, including coverage of suppliers;
- j) issue special flight permits for aircraft that do not meet applicable airworthiness requirements but are capable of safe flight (e.g. prototype aircraft or production flight tests);
- k) issue initial certificates of airworthiness for aircraft on the State aircraft register or in preparation for export to another State.

M2-Chapter 3.1:

The Engineering Division (AED) Functional Activities

- ▶ In relation to continuing airworthiness functions the AED **should**:
 - a) Ensure that a system is in place through which the air operator will report malfunctions, failures, defects and other occurrences that might cause adverse effects on continuing airworthiness to the type design organization.
 - b) Ensure the type design organization, under its authorization, reviews the reports it receives on malfunctions, failures, defects and other occurrences that might cause adverse effects on continuing airworthiness and takes appropriate corrective action(s) on unsafe conditions, where necessary;
 - c) monitor SBs from the manufacturer (both foreign and domestic) to determine likely effects on the continuing airworthiness of aeronautical products and to establish procedures to avoid or correct service difficulties;
 - d) mandate actions to correct any unsafe conditions and disseminate the information to all air operators and to CAAs located in States that have the affected aeronautical product on their respective national aircraft register;

M2-Chapter 3.1:

The Engineering Division (AED) Functional Activities

► In relation to continued airworthiness functions the AED **should**:

e) ensure that a system is in place for the receipt, review and appropriate action on MCAI from the State of Design;

f) ensure that a structural integrity programme (SIP) is in place for each aeroplane above 5 700 kg MTOM and monitor its effectiveness with a view to determine the need for supplemental inspections to maintain the aircraft in airworthy condition;

g) participate in maintenance review board (MRB) activities related to the development and approval of initial maintenance and inspection requirements for newly type certificated aircraft and engines being introduced into service for the first time; and

h) prepare and recommend regulatory changes and amendments to the national aviation legislation concerning all matters of airworthiness within the scope and function of the AED.

M2-Chapter 3.1:

The Engineering Division (AED) Functional Activities

- ▶ In relation to liaison functions the AED **should**:
 - a) work with the organization responsible for accident and incident investigations to ensure that recommendations are adequately addressed;
 - b) work with the aviation industry, other governmental organizations, and the public in safety matters;
 - c) coordinate with the AID on major problems or defects discovered in aeronautical products or parts in service, and determine the manufacturing corrective action to be taken where airworthiness may be affected;
 - d) maintain continuous and effective cooperation with the AID regarding all aspects of manufacturing that affect the approved design and continuing airworthiness of the aeronautical product;
 - e) maintain continuous and effective communication with the manufacturing organization to evaluate and advise on any changes to the production system that may affect the inspection, conformity or airworthiness of the aeronautical product; and
 - f) establish relationships with foreign authorities for cooperation on production surveillance of suppliers.



Airworthiness
functional
Organization

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M2-Chapter 3.2:

The Inspection Division (AID) Functional Activities

► Duties and Responsibilities of the Inspection Division :

All States should establish some form of airworthiness organization to meet the requirements set forth in the Convention and in Annexes 6 and 8.

The organizational structure of the Airworthiness Inspection Division (AID), will vary depending upon the level and scope of aviation activity within the State and whether an AED has also been established. **The primary responsibilities of the AID should cover** all matters concerning the continuing airworthiness of aircraft and should cover, at a minimum:

- Continuing airworthiness of aircraft and parts thereof;
- Approval of maintenance organizations;
- Maintenance certification of air operators;
- Approval of maintenance training organizations (where no separate licensing division exists)
- The licensing of aircraft maintenance personnel (where no separate personnel licensing division exists).

M2-Chapter 3.2:

The Inspection Division (AID) Functional Activities

► The AID **should**:

- 1) maintain the national civil aircraft register and make the information from the register available, when needed;
- 2) evaluate and accept air operator's mass and balance programmes;
- 3) periodically review the airworthiness records of aircraft on the State's aircraft register to assess the adequacy of their maintenance and status of aircraft and the competence and diligence of the persons and organizations who perform the maintenance;
- 4) establish a service difficulty reporting (SDR) system. Analyze and investigate significant defects discovered in aircraft and determine corrective action to be taken where airworthiness may be affected and correct any trends, where necessary;

M2-Chapter 3.2:

The Inspection Division (AID) Functional Activities

The AID **should**: (cont'd)

5) where no separate AED exists, review aircraft and component manufacturers' SBs and ADs issued by foreign airworthiness authorities to determine their applicability to national aircraft and take action where airworthiness may be affected. Provide guidance on the implementation of MCAI;

6) where no separate AED exists, monitor the implementation of the ADs and/or related SBs issued by the manufacturer (both foreign and domestic) to ensure air operator's compliance to the continuing airworthiness of aeronautical products with an established procedure to avoid or correct service difficulties;

7) review current and new international and foreign airworthiness standards related to continuing airworthiness and determine the need for adoption of critical features of those standards into national requirements;

8) review air operator's airworthiness main base and line stations maintenance provisions including training provisions, organizations and quality assurance procedures of applicants for issuance and renewal of an AOC in coordination with OPS section of the CAA and making recommendations as appropriate with regard to the application;

M2-Chapter 3.2:

The Inspection Division (AID) Functional Activities

► The AID **should** (cont.):

9) review the facilities and procedures of applicants for issuance and renewal of certificates of approval to conduct maintenance of aircraft, including qualifications of persons issuing a maintenance release;

10) assess qualifications of persons who may be eligible to perform tasks on behalf of the CAA when found qualified and properly authorized (designees);

11) provide assistance to the AED, or evaluate the design and suitability when qualified, of aircraft components and equipment and their approval for use in aircraft, and assess and approve the installation of aircraft components and equipment;

12) evaluate and approve aircraft maintenance programmes, including condition monitoring programmes, reliability programmes, structural integrity programmes, as applicable;

M2-Chapter 3.2:

The Inspection Division (AID) Functional Activities

► The AID **should** (cont.):

13) evaluate and approve or accept MCMs, maintenance procedures manuals, and where no separate licensing division exists, aircraft maintenance training organizations' curriculums;

14) assist in the airworthiness investigation of aircraft accidents, as necessary;

15) investigate possible violation of the national air law or regulations in regard to airworthiness and take appropriate enforcement action, when necessary;

16) issue directives concerning maintenance, overhaul and repair of aircraft and components thereof, and procedures to be followed by the aviation industry to comply with the national air law and/or regulations related to airworthiness;

M2-Chapter 3.2:

The Inspection Division (AID) Functional Activities

► The AID **should** (cont.):

17) issue advisory material to the aviation industry concerning airworthiness practices and procedures, where such advice may make a significant contribution to aviation safety;

18) resolve regulatory problems associated with continuing airworthiness, formulating amendments to regulations as necessary, establishing general and technical policies and procedures on which airworthiness requirements can be improved upon and based;

19) take appropriate action on MCAI issued by the State of Design or by the State of Registry;

20) provide advice and recommendations in other areas of CAA responsibility, such as the identification and handling of dangerous goods, and on other technical matters relating to airworthiness as may be required.

M2-Chapter 3.2:

The Inspection Division (AID) Functional Activities

- ▶ In relation to approvals and certificates the AID **should**:
 - a) review, process and record applications for registration of aircraft, registering and de-registering aircraft as appropriate, and issuing certificates of registration;
 - b) grant or validate aircraft noise certification;
 - c) survey aircraft for issuance, renewal and validation or acceptance of certificates of airworthiness and processing of documents, as appropriate;
 - d) issue and review of maintenance organization approvals, air operators, and where no separate licensing division exists, aircraft maintenance training organizations' approvals;
 - e) record, review and process application forms of aircraft maintenance personnel for issuance, renewal validation and extension of licenses and ratings, when no personnel licensing division is established;
 - f) evaluate and approve aircraft maintenance programmes, including special maintenance programme requirements for extended diversion time operations (EDTO);

M2-Chapter 3.2: The Inspection Division (AID) Functional Activities

- ▶ In relation to approvals and certificates the AID **should** (cont.):
 - g) evaluate and approve aircraft condition monitoring, aircraft reliability, and aircraft structural integrity programmes, as appropriate;
 - h) evaluate equipment required for specific operations as appropriate for the intended purpose, e.g. minimum equipment list, reduced vertical separation minima, Category II and III precision approach equipment, and EDTO;
 - i) evaluate and issue export certificates of airworthiness for aircraft, engine and/or propellers, as applicable;
 - j) evaluate and approve or accept air operators' MCMs, maintenance organization procedures manuals, and where no separate licensing division exist, maintenance training organization curricula;

M2-Chapter 3.2:

The Inspection Division (AID) Functional Activities

► In relation to approvals and certificates the AID **should** (cont.):

k) evaluate and issue approval of modification and repair-designs, when no separate AED exists, and those engineering tasks are associated with continuing airworthiness. The evaluation of the proposed modification or repair design should be accomplished by experienced personnel in the areas where design approval is sought;

l) issue special flight permits with operating limitations for aircraft that do not meet airworthiness requirements but are capable for safe flight. Examples of special flight permits include: flights after a modification or repair or during a process of applying for a supplemental type certificate, delivering or export of aircraft, evacuation of aircraft from impending danger, overweight aircraft carrying extra fuel or navigation equipment, aircraft flying to a location for maintenance.

M2-Chapter 3.2: The Inspection Division (AID) Functional Activities

- ▶ In relation to liaison functions the AID **should**:
 - a) participate in Type Certification Board activities;
 - b) participate in Maintenance Review Board activities for newly type certificated aircraft;
 - c) prepare and distribute to the public documents containing all issued MCAI and airworthiness advisory material;
 - d) confer at national and international levels on matters relating to the regulations and technical matters concerning airworthiness.

M2-Chapter 4:

Surveillance of Industry Organizations

► The State CAA Airworthiness Department **should:**

-Develop and implement periodic surveillance programmes based on the airworthiness complexity of the aviation industry.

-These programmes should include, but not be limited to, Design organizations (DOA), Manufacturing (POA), Air operators(AOC-CAMO), Maintenance organizations(AMO) and Maintenance training (AMTO) organizations.

M2-Chapter 4:

Surveillance of Industry Organizations

- ▶ Surveillance on Initial Airworthiness related activities **should** be a responsibility of the Engineering Division:

States with a **significant** aviation manufacturing industry should establish an airworthiness engineering division (AED) within the CAA airworthiness organization.

The **size and structure** of the AED should be appropriate to the aviation manufacturing industry and the various aeronautical products for which the State has the responsibility of **State of Manufacture and/or State of Design**.

M2-Chapter 4:

Surveillance of Industry Organizations

- ▶ Surveillance **should** focus on DOA and POA certification and conformity related activities (Part 21):
 - a) review and process an application for issuance of a type certificate for an aircraft, engine, or propeller, designed or manufactured domestically;
 - b) participate in and manage the activities of the type certification board (TCB) as they apply to manufacturing processes and techniques to be used;
 - c) inspect prototype aircraft, test specimens and test installation, as necessary. This includes the determination of the conformity of each part and test installation with its applicable design data, as well as with the approved test proposal; and the consequent issuance of conformity inspection reports;
 - d) evaluate proposals pertinent to manufacturing aspects of the design, repair and modification of an aircraft or its parts to ensure conformity with approved specifications;

M2-Chapter 4:

Surveillance of Industry Organizations

- ▶ Surveillance on Continuing Airworthiness related activities **should** be a responsibility of the Inspection Division (AID):

The organizational structure of an inspection organization (AID) within the CAA, will vary depending upon the level and scope of aviation activity within the State and whether an AED has also been established. The primary responsibilities of the AID should cover all matters concerning the continuing airworthiness of aircraft and should cover, at a minimum:

- Approval of maintenance organizations (AMO)
- Maintenance certification of air operators; (CAMO)
- Approval of maintenance training organizations (AMTO)

M2-Chapter 4:

Surveillance of Industry Organizations

► The AID **should**:

- a) Develop periodic surveillance work programmes based on the complexity of the State aviation industry taking into account the quantity of CAMO-AOCs, types of aircraft operated, AMOs, and approved aircraft maintenance training organizations (AMTO).
- b) Include periodic and unannounced surveillance visits of the certificate holders. The surveillance should cover compliance to approved or accepted procedures to obtain an accurate depiction of the day-to-day operations and also compliance with airworthiness requirements. In addition to periodic surveillance, the AID should focus follow-up surveillance visits on areas where deficiencies were noted on previous audits.
- c) Ensure all surveillance that is performed is properly documented and referenced and retained for future audits. Analysis of previous audit reports is recommended and may indicate a pattern of weakness the certificate holder may be experiencing.

M2-Chapter 4:

Surveillance of Industry Organizations

► The AID **should**: (cont'd)

d) Promptly advise the certificate holder in writing should discrepancies exist in regard to compliance with the State's national airworthiness requirements. The AID should include in their written reply a time period for the certificate holder to take corrective action on any discrepancies noted during the surveillance.

e) When the AID has been notified in writing of corrective action, a follow-up visit should take place to verify correction of the discrepancies and compliance with the airworthiness requirements.

f) If the certificate holder not address the discrepancies in the time period allotted by the AID or be unable to correct the discrepancy, enforcement action may be necessary.

g) There may be instances during the performance of surveillance where the AID may identify a serious safety concern. The AID should have procedures in place to take prompt action, should conditions warrant, that will ensure that aircraft are operated in an airworthy condition.

M2-Chapter 4:

Surveillance of Industry Organizations

- ▶ Surveillance **should** focus on **regulatory compliance and safety risk assessment** of AOC-CAMO (Part M), AMO (Part 145), AMTO (Part 147) related activities, such as:
 - a) Periodic and unannounced surveillance of maintenance-related facilities including line stations that perform maintenance of its air operators' aircraft, making appropriate directions and recommendations and approving amendments to the air operator's AOC-CAMO authorizations and to the MCM (CAME) as appropriate;
 - b) Periodic and unannounced surveillance of maintenance-related facilities of **AMOs** on the ramp and in the hangars, workshops, and repair facilities. This includes contracted work that the AMO may outsource;
 - c) Periodic and unannounced surveillance of its air operators' **aircraft** undergoing maintenance on the ramp and in the hangar and ensure work is being performed in accordance with the MCM , aircraft maintenance programme, maintenance organization procedure manual, current technical data, and by authorized maintenance personnel;

M2-Chapter 4:

Surveillance of Industry Organizations

- ▶ Surveillance **should** focus on **regulatory compliance and safety risk assessment** of AOC-CAMO (Part M), AMO (Part 145), AMTO (Part 147) related activities, such as: (cont'd)
 - d) Ongoing surveillance of its air operators' aircraft reliability programmes and to take action should results indicate degraded levels of safety;
 - e) Periodic and unannounced surveillance of its air operators' aircraft during operations to ensure aircraft are airworthy;
 - h) Investigation of possible violations of the national law or regulations regarding airworthiness and to enforce corrective and legal actions, if required.

M2-Chapter 5:

AIR-OPS interrelationship: Surveillance of the continuing airworthiness function of an air operator

- ▶ **Before** the issuance of an Air Operator Certificate the State of Operator **should**:

Prior to issue an AOC to a potential air Operator a certification five phases process has to be performed in order to verify that authorized specified operations are in compliance with the State of Operator regulatory framework.

A major consideration in the airworthiness review during the AOC certification process is the **determination of the capability** of the applicant to adequately **maintain its aircraft in an airworthy condition**.

Specifically, the air operator should **demonstrate maintenance arrangements** consistent with the nature and extent of the operations specified (Annex 6, Part I, 4.2.1.3)

M2-Chapter 5:

AIR-OPS interrelationship: Surveillance of the continuing airworthiness function of an air operator

- ▶ **Before** the issuance of an Air Operator the State of Operator **should**:
(cont'd)

For that purpose airworthiness inspections and evaluations should be carried out by qualified airworthiness inspectors under the overall **coordination of an inspector in charge** of the certification team of the air operator.

Specifically the team has to conduct a detailed evaluation and inspection of the applicant's **maintenance organization, maintenance control manual, maintenance programme, staffing, facilities, training and ability to carry out day-to-day operations**

Some inspections and approvals/evaluations in the AOC certification process may require airworthiness and flight operations inspectors to constitute a **joint task AIR-OPS**. These may include:

- a) MEL; b) (CDL); c) special operations (e.g. EDTO and RVSM); d) AFM changes/supplements; e) Safety management system.

M2-Chapter 5:

AIR-OPS interrelationship: Surveillance of the continuing airworthiness function of an air operator

- ▶ **Subsequent** to the issuance of an AOC, the State of Operator **should**:

Continue to monitor the operation through a systematic programme of safety oversight inspections.

Particularly, the CAA Airworthiness Department after initial **approval** (acceptance, if State of Operator) of the operator's **maintenance control manual** should systematically oversight its functional provisions **as the MCM/CAMO Exposition sets out the air operator intentions and procedures** with regard to **maintaining the airworthiness of its aircraft during its operational life**.

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AIR-OPS interrelationship: Surveillance of the continuing airworthiness function of an air operator

- ▶ **Subsequent** to the issuance of an AOC, the State of Operator **should**: (cont'd)

For this purpose the Continuing Airworthiness Requirements of the State (Part M) **should** require that the **operator's MCM/CAME**, **contains** at a minimum, the following information:

- a) a **description of the procedures** including, when applicable:
 - i) a description of the administrative **arrangements, including a contract**, between the operator and the approved maintenance organization (AMO);
 - ii) a description of the **maintenance procedures** and the procedures for completing and signing a maintenance release when maintenance is based on a system other than that of an approved maintenance organization.;
- b) **names and duties** of the person or persons required that will ensure that all maintenance is carried out in accordance with the maintenance control manual;
- c) a reference to the **maintenance programme** approved by the State of Registry;

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(...) **should** require that the operator's maintenance control manual **MCM/CAME** contain, at a minimum, the following information:(cont'd)

d) a description of the methods used for the completion and retention of the operator's **maintenance records**. The operator shall ensure that the following records are kept for the periods mentioned:

- i) the total **time in service** (hours, calendar time and cycles, as appropriate) of the aeroplane and all life-limited components;
- ii) the current status of **compliance with** all mandatory continuing airworthiness information;
- iii) appropriate details of **modifications and repairs**;
- iv) the **time in service** (hours, calendar time and cycles, as appropriate) since the **last overhaul** of the aircraft or its components subject to a mandatory overhaul life;
- v) the current status of the aircraft's **compliance with the maintenance programme**;
- vi) the detailed maintenance records to show that all **requirements for the signing of a maintenance release** have been met. The records in i) to v) shall be kept for a minimum period of 90 days after the unit to which they refer has been permanently withdrawn from service, and the records in vi) for a minimum period of one year after the signing of the maintenance release;

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(...) **should** require that the operator's maintenance control manual **MCM/CAME contain**, at a minimum, the following information:(cont'd)

- e) a description of the procedures for monitoring, assessing and **reporting to** the organization responsible for **the type design** maintenance and operational experience information on **faults, malfunctions, defects and other occurrences** that cause or might cause adverse effects on the continuing airworthiness of the aircraft
- f) a description of the procedures for **service information reporting** to CAA of State of Register/Operator;
- g) a description of procedures for assessing the **MCAI received from** the organization responsible for the **type design** maintenance and implementing any resulting actions;
- h) a description of the procedures for **implementing action** resulting from MCAI;
- i) a description of establishing and maintaining a **system of analysis and continued monitoring of the performance and efficiency of the maintenance programme**, in order to correct any deficiency in that programme (reliability);
- j) a **description of aircraft types** and models to which the manual applies;
- k) a description of procedures for **ensuring that unserviceabilities** affecting airworthiness are recorded and rectified.

Module 2: The CAA Airworthiness Organization

Q & A

Next Airworthiness Lecture:
Tuesday, 02 June 2020

26-28 - May
The
Organization of
the Civil Aviation
Authority.

02 - June
**Initial
Airworthiness
Activities.**

19 - MAY
Chicago
Convention and
Airworthiness
Related
Annexes: 1; 6; 7;
8 and 16.

9 - June
Continuing
Airworthiness
Activities

APAC- COSCAPS

Training Initiatives
18 May - 15 June

19 - May
Introduction
to the
Coscap
Program

16 - June
AIR Operator
AOC process.
The five
phases
methodology.

