REPUBLICA DE CABO VERDE

AGÊNCIA DE AVIAÇÃO CIVIL

CIVIL AVIATION AUTHORITY

Technical Circular
CT-33-020

SUBJECT: EVALUATION AND APPROVAL OF A MAINTENANCE QUALITY ASSURANCE SYSTEM

DATE: 01/08/2008

1. PURPOSE

A. The purpose of this Technical Circular is to provide information and guidance relating to internal quality assurance procedures. Organisations seeking certification are required, under CV-CAR, to have such procedures in place. Any organisation requiring a certificate under CV-CAR part 9 and 6 can apply the procedures and practices outlines in this AC. They are equally applicable to flight, maintenance, or security operations, as appropriate.

2. REFERENCES

A. CV-CAR 9.B Maintenance Quality system regulation (Air Operators Certification and Administration)

B. CV-CAR 6.E Independent quality system regulation (Approved Maintenance Organization).

C. Technical Circular CT-33-007 Quality System Programme

3. BACKGROUND

A. Certificated organisations to have in place a Quality Management System with appropriate internal quality assurance procedures that constantly monitor, review and improve the organisation's performance.

B. Civil Aviation Regulations safety standards

(1) Cape Verde Civil Aviation Regulations (CV-CAR) require organisations, seeking certification, to develop and maintain a safety policy and plan. The standards for the safety policy and plan are structured around elements of ISO 9000, Quality Management and Quality Assurance Standards.

(2) The Civil Aviation Regulations require the development, implementation, and maintenance of the elements of the ISO standard that will promote improved aviation safety, and, as a result, provide an environment in which aviation will operate with greater safely.

(3) The Regulations do not address all elements of the ISO standard, however, organisations certificated under the new regulations will, if they so wish, have a sound basis on which to achieve ISO certification with its attendant benefits.

C. Quality Management System

(1) To comply with a certificated-organisation Part, organisations seeking certification, must develop, document, implement, and maintain a Quality (Safety) Management System with appropriate internal quality assurance procedures. They are the planned activities that make up the Quality Management System.

(2) The Quality Management System is the structure, responsibilities, processes, and procedures of an organisation that promotes and establishes an environment and culture of continuing improvement that will enhance the safety of the operations.

(3) The Quality Management System and internal quality assurance procedures establish and provide for the organisation's self regulation. This set-up allows for the change in relationship between the organisation (now self-regulating) and the Civil Aviation Authority (no longer inspecting, now monitoring).

(4) Internal quality assurance procedures will identify, document and correct instances of non-conformance, or non-compliance. These procedures must be put in place for all areas of the organisation's activities that are covered by the regulations. Internal quality assurance procedures, as well as providing confidence in the organisation meeting regulatory compliance, can improve the organisation's commercial performance and should be of benefit to both the organisation and its customers.

(5) Definitions of key quality terms and a description of the basic elements (internal quality assurance procedures) of a Quality Management System are included in this AC. These definitions and programme elements are consistent with recognised quality principles and standards. Where appropriate, these terms have been tailored to conform to aviation standards and practices.

D. Internal Quality Assurance Procedures

(1) The standards described in section 4 are intended to help organisations develop a Quality Management System and their own internal quality assurance procedures. Appendix 1, 2, and 3 provides sample outlines of key quality assurance procedures to give organisations further guidance.

(2) All Civil Aviation Regulations for the certification of organisations state that an organisation is entitled to a Certificate if it meets the requirements of the regulation. The Director must be satisfied that an applicant can conduct its proposed activities safely. The Quality Management System and associated quality assurance procedures will facilitate approval of the organisation's safety policy and programmes.

E. AAC Monitoring and Intervention

(1) The Civil Aviation Authority monitors the industry by carrying out surveillance and analysis to verify that operators are upholding their responsibilities. Internal quality assurance procedures are intended to assist the Civil Aviation Authority's monitoring process by identifying and resolving safety related issues. The internal quality assurance documentation and records provide a convenient point of entry to the organisation for auditing purposes.

(2) To assist internal and external auditors, and the organisation's personnel, it is recommended that a matrix is developed to cross-reference where the exposition addresses or meets the requirements of the relevant Regulation.

(3) The results of Civil Aviation Authority audits act as a barometer of the organisation's performance. It will be apparent from the level of findings and resolutions in the internal quality assurance documentation and records whether the Quality Management System and the safety policy are functioning satisfactorily. The performance of the organisation will dictate the level of Civil Aviation Authority intervention that is necessary.

(4) If the organisation performs well the Civil Aviation Authority will have less need to monitor its compliance. As confidence is built up the level, and frequency, of audits can be reduced.

4. DEFINITIONS

The following key terms and phrases are defined to ensure a standard interpretation and understanding of the Quality Management System and internal quality assurance procedures.

A. Evidence. Evidence is a documented statement of fact that is based on observations, measurements, or tests that can be verified. For an internal audit, evidence should generally be written documentation or reports that support the Internal Quality Assurance procedures. This data is necessary to provide findings or concerns, to provide proof that findings and concerns are addressed, and to enable management, staff, or auditors to determine the root causes of any reported findings. Objective evidence generally comes from the following four elements—

(1) Documents or manuals reviewed
(2) Equipment examined
(3) Activities observed
(4) Interview data, provided this data can be substantiated by one or more of the above elements

B. Controls

(1) Controls are management and operational techniques, activities, and procedures that monitor the satisfactory performance of the internal quality assurance procedures, including the organisation's operating processes and procedures. Reviews, in process tests, checklists, spot checks and audits are all examples of Controls.

(2) As part of an internal quality audit or review, the controls of the area being evaluated should be verified and tested. Sometimes, personnel performing the internal quality audit or review may have to first determine the features of a control.

C. Finding

(1) A finding is a conclusion, supported by objective evidence that demonstrates non-compliance with a specific standard. A finding will generate a Corrective or Preventive Action.

(2) An internal audit or review may also produce a conclusion that is considered a finding by the operator, but is not a non-compliance with the regulation.

D. Concern. A concern is a conclusion, supported by objective evidence, that does not demonstrate a finding, but rather a condition that may become a finding. A concern may generate a Preventive Action.

E. Root cause
(1) The root cause is the underlying organisational cause, or causes, of any finding or concern. A root cause is always identified with a process, a procedure, methodology, or an organisation's structure or practices.
(2) In the analysis of safety, quality, or operational problems, the root cause, or causes, should be determined before any corrective action is planned.
(3) Often the root cause is not obvious. Consequently, a careful and considered analysis of all processes, activities, records, reports, and other evidence associated with a failure or complaint needs to be made to ensure the corrective action(s) address not only the immediate cause but any latent or organisational problems.

F. Inspection. An inspection is the act of observing, measuring, testing, or gauging one or more characteristics of a particular event or action. This is to ensure that correct procedures and requirements are followed during the accomplishment of that event, or action. The primary purpose of an inspection is to verify—
(1) that established standards are followed during an observed event or action; and
(2) that the end result conforms to the specified requirements of the event or action.

G. Audit. An audit is a methodical, planned, review used to determine how activities are being conducted, and compares results with how the activities should have been conducted according to established procedures. Audits are conducted for different purposes and have distinct identities that are defined for the purposes of this AC as:

(1) First party audits are those conducted internally by the organisation, using its own trained staff, to evaluate the organisation’s, or parts of the organisation's, performance. The results are used by management to confirm compliance with the documented standards and procedures to initiate corrective action when the standard is not met or preventive actions where there is potential for non-conformance or non-compliance.

The auditor must be independent of the function, operation or group being audited. For small operators it may be necessary to engage an outside agency. To contain costs, provided they can provide a substantive report and produce creditable findings and concerns, the outside agency could be—
(a) a relative
(b) another small operator
(c) a sub-contractor
(d) a business associate.

(2) Second party audits are carried out by an organisation on its suppliers or subcontractors. These audits are intended to satisfy the contracting organisation that the subcontractor meets the agreed quality requirements.
(3) Third party audits are those carried out by independent bodies such as regulatory authorities or commercial auditing companies. In the aviation industry one such body is the Civil Aviation Authority. They are intended to give the Authority an assurance that the organisation is in control and that the organisation’s Quality Management System and internal quality assurance procedures are working effectively. Third party audits will confirm that non-compliances are being identified and corrected by first, or second, party audit.

H. Audit Construction. The various elements that comprise an effective audit are as follows:
   (1) Audit preparation by the auditor(s)
   (2) The opening or entry meeting:
      (a) introduce the audit team and confirm the scope of the audit;
      (b) outline the audit process to be used and the schedule;
      (c) confirm the resources, people and facilities needed for the audit are aware and available for the audit.
   (3) The examination:
      (a) interview personnel, review documents, observe and inspect operations and select samples;
      (b) document evidence;
      (c) document findings and concerns.
   (4) The closing or exit meeting:
      (a) present findings and concerns;
      (b) establish a programme to close-out findings.
   (5) A written audit report containing:
      (a) descriptions of all the findings and observations with the supporting evidence;
      (b) the agreed corrective and preventive actions;
      (c) the schedule for follow up and the closure of the corrective and preventive actions.

5. BASIS OF THE QUALITY MANAGEMENT SYSTEM

A. The Quality Management System supports the requirement of the regulations that operators are primarily responsible for continuously monitoring and ensuring that their operations are safe and in compliance with the regulations.

B. A certificated organisation is required to establish a Quality Management System that embraces the following principles:

   (1) A continual process that incorporates the techniques of inspections, audits, and reviews to assess the adequacy of managerial controls in key programmes and systems

   (2) An ongoing process that identifies deficiencies, develops corrective action plans to correct these deficiencies, and performs follow-up reviews

   (3) An independent process that, organisationally, has straight-line reporting responsibility to top management

C. The Civil Aviation Authority encourages organisations to extend their internal quality assurance procedures beyond regulatory compliance to determine the causes of other deficiencies in company operations. From these determinations the necessary enhancements to company operating practices can be made before deficiencies occur.

D. The quality policy must stress the self-audit responsibilities of individual employees as well as the organisation's management. Each employee has an equal responsibility to ensure that company policies and procedures provide for safety compliance and allows individuals to perform work properly.

E. The internal quality assurance procedures should not be misunderstood as a process that will replace the existing third party audit requirements that are carried out by the Civil Aviation Authority.

6. INTERNAL QUALITY ASSURANCE PROCEDURE GUIDELINES

A. The Quality Management System of certificate holders must include the internal quality assurance procedures in their exposition.

B. The Quality Management System should include the following essential elements in the internal quality assurance procedures—

(1) definition of the organisation's management commitment and responsibilities to the quality plan and procedures. It is required that the organisation nominate a Senior Person, known in this AC as the Management Representative, to establish an independent and focused Quality Management System (see appendix 4); and

(2) a documented, approved, safety policy and plan to identify, implement, and maintain safety policy procedures that—

(a) meet the requirements of the regulations;

(b) are relevant to the applicant’s organisational and business goals, and; (iii) meets the expectations and needs of its customers; and

(3) a procedure for—

(a) corrective action to ensure existing problems that have been identified within the system are corrected, and;

(b) for preventive action to ensure that potential causes of problems that have been identified within the system are remedied; and

(4) establish a procedure to ensure the Quality Management System and the internal quality assurance procedures are subjected to continual, regular and structured review; and

(5) an internal audit programme to audit the applicant’s organisation for conformity with the procedures in its exposition and achievement of the goals set in its safety policy; and

(6) a procedure to ensure quality indicators, including defect and incident reports, and personnel and customer feedback, are monitored to identify existing problems or potential causes of problems within the system; and

(7) a records system that clearly documents what has taken place, allowing statistical analysis to monitor the continuing suitability and effectiveness of the Quality Management System and the organisation’s operation. The records will be used to indicate trends to allow the organisation to—

(a) raise preventive actions to avoid potential problems, and;

(b) determine the best goals to set for the future; and

(8) a document control procedure to manage, develop, document, change, and distribute the organisation’s quality and operational procedures.

These elements are further described in the following sections 6.1 through 6.8.

6.1. THE QUALITY ASSURANCE TEAM OR MANAGEMENT REPRESENTATIVE

A. An organisation's internal quality assurance procedures should identify a person or a group of persons, within the organisation, that has the responsibility and authority to:

(1) develop, implement and maintain the Quality Management System;

(2) manage the organisation's internal audit programme;

(3) identify and record any findings or concerns, and the evidence necessary to confirm findings or concerns;

(4) initiate, recommend, or provide solutions to findings or concerns through consultation with the management owning the non-conforming process or activity;

(5) communicate and co-ordinate activities with external auditors

(6) analyse the root causes of concerns and findings for presentation to management for a review of trends and potential areas of concern;

(7) conduct and record regular Management Reviews to ensure corrective and preventive actions are addressed and closed out within a specific time.

B. The Management Representative or the Quality Assurance Team must have the delegated authority and responsibilities to allow them to work within the organisation to implement and maintain the internal quality assurance procedures. The Management Representative or the Quality Assurance Team will have a direct reporting line to the highest level of management necessary to sustain the management commitment to the organisation's Safety policy and plan.

C. For some organisations, operating size may justify the costs associated with the necessity of having full-time, dedicated, resources and personnel in a separate Quality Assurance Department or group. However, when full-time, dedicated, resources and personnel are not practical, the organisation should develop procedures that preclude persons directly responsible for the areas to be evaluated from participating in the selection of the audit team.

D. For very small organisations, an appropriate internal quality assurance procedure should consist of developing check-lists and a schedule for accomplishing the check-list items. Each checklist must be signed. The operator must schedule an occasional independent review of the check-lists and the checklist items.

6.2. SAFETY POLICY

A. The organisation should establish a clear policy that safety is part of its business. It should develop procedures that reflect a commitment to safety and will promote and demonstrate a clear corporate safety culture. The policy should define a set of beliefs, norms, attitudes, roles, and social and technical practices concerned with minimising exposure of employees, managers, customers, and members of the general public to conditions considered dangerous or hazardous.

B. The characteristics that define a safety culture and that decision-makers should observe when modelling the corporate safety culture include:

(1) senior management places strong emphasis on safety as part of the strategy of controlling risks;
(2) decision-makers and operational personnel hold a realistic view of short- and long-term hazards involved in the organisation's activities;
(3) those in top positions do not use their influence to force their views or to avoid criticism;
(4) those in top positions foster a climate in which there is a positive attitude towards criticisms, comments, and feedback from lower levels of the organisation;
(5) there is an awareness of the importance of communicating relevant safety information at all levels of the organisation – both within it and with outside entities;
(6) there is promotion of appropriate, realistic, and workable regulations relating to hazards, to safety, and to potential sources of damage, with such regulations being supported and endorsed throughout the organisation; and
(7) personnel are well trained and well educated and fully understand the consequences of unsafe acts.

6.3. CORRECTIVE AND PREVENTIVE ACTIONS

A. Corrective Actions. Internal quality assurance procedures should include a procedure to ensure that corrective actions are developed in response to findings or concerns. The procedure should include:
(1) recording the corrective action;
(2) the allocation and acceptance of ownership;
(3) monitoring each corrective action to verify timely and effective implementation and completion;
(4) test that the corrective action is long-term and ensures the issue does not recur;
(5) regular reviews of root causes of all corrective actions.

B. Preventive Actions. The preventive action procedure is identical to the corrective action procedure. The only difference is that preventive action anticipates and corrects potential failures. Often a corrective action will generate one or more, associated, preventive actions to ensure a complete and long term fix.

6.4. MANAGEMENT REVIEW

A. Management must, at regular intervals, review—

(1) the internal quality assurance procedures, the quality indicators, and inspection and test results to verify the Quality Management System is working;
(2) that the corrective and preventive actions have been recorded, implemented, and closed out;
(3) that the operation and quality assurance programmes are under constant review and improvement.

B. The organisation must prepare and conduct a programme to regularly review all company policies, processes, and procedures. The review should be carried out by dedicated staff. It will encompass all the activities, procedures, and processes of the organisation. The programme should be a comprehensive and continual process that considers the following:
(1) The overall effectiveness of the organisation in achieving its stated objectives.

(2) The ability of the internal quality assurance and the operational procedures to respond to new technologies, to market strategies, to legislative or regulatory changes, and to social or environmental conditions.
(3) Are the current processes and procedures up-to-date, effective, and relevant?

*Note: For the purposes of this procedure, the term **management** means the team or person who has the authority to resolve issues and take action.*

C. The management reviews with supporting documents will be recorded. The organisation will determine and document, as a quality assurance procedure, the frequency, format, and structure for informing management of internal quality assurance plans, trends, results, and follow-up actions. The procedure will define the responsibilities and the independence of personnel who perform or supervise the management reviews.

6.5. THE AUDIT PROGRAMME

A. A mandatory element of the Quality Management System is the organisation's audit programme. The Audit internal quality assurance procedure will:

(1) define the audit types and associated procedures;

(2) maintain and manage a cyclic schedule of audits;

(3) manage the review, reporting, and close-out of findings and concerns;

(4) identify the personnel to conduct the audit;

(5) provide training for the audit personnel

B. Planned Audits.

(1) Audits that will be performed during a set calendar period.

(2) To facilitate and ensure the audit is thorough, divide the organisation into audit components based on the organisation's operational or functional structure. Dependant on the size of the organisation the audit cycle might be greater than one year, however, eighteen months is the maximum.

(3) Schedule the audit within each component to allow enough flexibility for resources to be committed.

C. Special Audits or Spot Checks Conduct special audits, or spot checks, based on concerns or priorities identified by the organisation, external audits, or customer complaints. Schedule special audits, or spot checks, based on a review of the organisations, or industry, trends.

D. External Audits External audits are initiated and conducted by agencies with a regulatory interest in the operation of the organisation. For example but not limited to, the Civil Aviation Authority, Occupational Safety and Health, and the Inland Revenue Department. The content and focus of an organisation's internal and special audits will be largely determined by the need to anticipate or respond to the requirements and findings of the external audits.

6.6. QUALITY INDICATORS

A. Each organisation will develop measure and monitor their own quality indicators. Some examples of typical quality indicators are:

(1) Reports derived from the analysis of operational logs and records kept of incidents, occurrences, accidents, and other safety indicators;

(2) Root cause analysis from corrective and preventive action records;

(3) Performance measurements of both the Quality Management System and the organisation's operation;

(4) Customer complaints;

(5) Customer surveys, external and internal.

6.7. RECORDS

A. Records documenting the performance and results of carrying out the internal quality assurance procedures will be maintained by the organisation. Records are the principal form of evidence. Documented evidence is essential in analysing and determining the root cause of findings or concerns so that potential areas of non-compliance or non-conformance can be identified by the organisation. The record must be accurate, complete, reliable, and accessible. It is recommended that following quality records should be maintained—

(1) audit reports;

(2) management reviews and associated minutes, reports and programmes;

(3) corrective and preventive action with supporting documentation;

(4) analysis of root causes and the ensuing trends and management reports;

(5) customer feedback, being–

(a) customer complaints

(b) customer surveys

(c) industry news sheets

(d) observations through day-to-day contact comment during audit

(6) training plans and records; and

(7) the master copy of all policy and procedures.

6.8. DOCUMENTING QUALITY ASSURANCE PROCEDURES

A. Controlled documented internal quality assurance and operational procedures are a mandatory element and requirement of a Quality Management System and for all aviation certificated organisations.

B. Each organisation shall review the size and complexity of their operation to determine the scale of processes and procedures that will maximise the benefits of their Quality Management System and their operations. Consequently they will improve their safety level and the business results.

C. Each organisation will require several, possibly many, processes to sustain their operation. Each process will consist of one or more procedures.

D. The Quality Management System is a process. The internal quality assurance procedures that are mandatory for an effective Quality Management System are defined in section 4 of this AC.

E. Each internal quality assurance procedure should:

(1) be concise and complete enough to be a useful guide for a user with the appropriate skills to perform the task(s) within the procedure;

(2) state specifically how the organisation will address and meet the requirements of Regulations, Acts, TCs or an other reference standard or document initiating the procedure. For example, it is not sufficient, to pass approval or audit, for a procedure to simply state: Organisation ABC will comply with Regulation XYZ.

(3) be current and met the requirements of referenced document(s). For example. the regulation;

(4) be accessible to all users of the process;

(5) comply with a defined (by the organisation) standard format, for example—
(a) Title *
(b) Purpose * (outline the objective of the procedure);
(c) Scope (what the procedure applies to);
(d) Responsibility (who is responsible for what?);
(e) References (what other documents, (Regulations, Acts, standards, other procedures) affect or are related to this procedure?);
(f) Definitions (definitions of terminology introduced by this procedure, or statements that may lead to misinterpretation)
(g) Procedure * (what is actually done to ensure compliance?);
(h) Flowchart(s) (to support or clarify the procedure);
(i) Records (what records? For example but not limited to, checklists, reports, reviews, measurements.)

Note.: Each heading must be considered, but this list is not definitive, however, the headings denoted by an asterisk are mandatory.

7. CONCLUSION

A. The development, implementation, and conscientious application and maintenance of a Quality Management System and the associated internal quality assurance procedures, as discussed in this AC, will ensure that a certificated organisation is responsive to growth and

change, and the organisation continually complies with appropriate safety and regulatory requirements.

B. Furthermore, it is strongly recommended that organisations make the Quality Management System an integral part of their everyday management process. Aviation safety is best served by procedures that allow organisations to identify and correct their own instances of non-compliance and invest more resources in efforts to preclude their recurrence.

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