	REPUBLIC OF SOUTH AFRICA *CIVIL AVIATION AUTHORITY*	*CAA* *Private Bag x08* *Waterkloof* *0145*
Tel: (012) 346-5566 *Fax: (012) 346-6059* *E-Mail: mail@caa.co.za*	**AERONAUTICAL INFORMATION CIRCULAR**	***AIC*** *18\28* *04-02-20*

GENERAL

LEGISLATION MATTERS

AMENDMENT TO CATS 121.04.2, 127.04.2 & 135.04.2 PARAGRAPH 2.1.4: "QUALITY CONTROL SYSTEM"

☞ *This AIC replaces AIC 18\28 dated 03-09-15 in total.*

At a recent meeting of CARCOM, its members recommended in terms of regulation 11.03.2(7) of the Civil Aviation Regulations, 1997, that the Commissioner for Civil Aviation issue certain amendments to Documents SA-CATS-OPS 121 (Air Transport Operations: Large Aeroplanes), SA-CATS-OPS 127 (Air Transport Operations: Helicopters), and SA-CATS-OPS 135 (Air Transport Operations: Small Aeroplanes), relating to the contents of the required operations manuals. The Commissioner for Civil Aviation has in terms of regulation 11.04.5 of the said Regulations accepted the said recommendation as it would be in the interest of aviation safety. The above-mentioned amendments are therefore being issued as amendments to Documents SA-CATS-OPS 121, SA-CATS-OPS 127, and SA-CATS-OPS 135 respectively, and small come into operation as from 1 May 2004.

SCHEDULE

1.1 ***AMENDMENT OF THE TECHNICAL STANDARDS RELATED TO PARTS 121, 127 AND 135***

It is proposed to expand section 2.1.4 'Quality Control System' of Technical Standards 121.04.2, 127.04.2 and 135.04.2 'Operations Manual':

1.2 ***MOTIVATION***

TSs 121.04.2, 127.04.2 and 135.04.2 stipulate in section 2.1.4 that 'A description of the quality control system adopted' be included in the operations manual. However, it does not describe in any detail what the nature of the information required should be, and neither does it provide any guidelines therefor.

1.3 ***GUIDANCE IN RESPECT OF A QUALITY CONTROL SYSTEM***

"2.1.4 Quality control system

(1) ***PURPOSE OF THE QUALITY SYSTEM***

The quality system should enable the operator to monitor compliance with the CAR and CATS, the operations manual, the operator's maintenance management policy and any other standards specified by that operator or the Commissioner to ensure airworthy aircraft and safe operations.

(2) ***REQUIREMENTS***

(a) The operator shall establish a quality system and designate a quality manager to give effect to the requirements of paragraph (1) above. Compliance monitoring must include a system of reporting back to the accountable manager, to ensure corrective action as necessary.
(b) The quality system must include a quality assurance programme that contains procedures, designed to verify that all operations are being conducted in accordance with all applicable requirements, standards and procedures.
(c) The quality system and the quality manager must be acceptable to the Commissioner.
(d) The quality system must be described in relevant documentation.

(e) Notwithstanding sub-paragraph (a) above, the Commissioner may accept the nomination of two quality managers, one for flight operations and one for maintenance, provided the operator has designated one single quality management unit to ensure that the quality system is applied uniformly throughout the entire operation.

(3) ***GENERAL***

In order to show compliance with paragraphs (1) and (2) above, an operator should establish his quality system in accordance with the instructions and information contained in the paragraphs below.

(4) ***DEFINITIONS***

The terms, used in the context of this requirement for an operator's quality system, have the following meaning:

(a) Inspection

An inspection is the act of observing a particular event or action, 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 that established standards are followed during the observed event or action.

(b) Audit

An audit is a methodical, planned review used to determine how a business is being conducted, and compares the results with how that business should have been conducted according to regulations and established procedures.

(c) Accountable Manager

The accountable manager is the person, acceptable to the Commissioner, who has corporate authority for ensuring that all operations and maintenance activities can be financed and carried out to a standard required by the Commissioner, and any additional requirements defined by the operator.

The accountable manager is an essential part of the AOC-holder's management organisation. The term 'accountable manager' is intended to mean the Chief Executive Officer / President / Managing Director / Director-General / General Manager, or similar designations, of the operator's organisation, who by virtue of his or her position has overall responsibility (including financial) for managing the organisation.

The accountable manager will have overall responsibility for the AOC-holder's quality system, including the frequency, format and structure of the internal management evaluation activities, as prescribed in sub-paragraph (9)(h) below.

(d) Quality Assurance

Quality assurance means all those planned and systematic actions necessary to provide adequate confidence that operational and maintenance practices satisfy prescribed requirements.

(e) Quality Manager

The quality manager is the manager, acceptable to the Commissioner, responsible for the management of the quality system, the monitoring function and for requesting corrective action.

(5) ***QUALITY POLICY***

An operator shall establish a formal, written quality policy statement, constituting a commitment by the accountable manager as to what the quality system is intended to achieve. The quality policy should reflect the achievement and continued compliance with the CAR, together with any additional standards specified by the operator.

(6) ***QUALITY MANAGER***

(a) The function of the quality manager, to monitor compliance with-, and the adequacy of, procedures required to ensure safe operational practices and airworthy aircraft, as required by the CAR, may be carried out by more than one person by means of different, but complementary, quality assurance programmes.

(b) The primary role of the quality manager is to verify, by monitoring activity in the fields of flight operations, maintenance, crew training and ground operations, that the standards required by the Commissioner, and any additional requirements defined by the Operator, are being carried out under the supervision of the relevant nominated post holder.

(c) The quality manager should be responsible for ensuring that the quality assurance programme is properly established, implemented and maintained.

(d) The quality manager should

(i) be suitably qualified and experienced;
(ii) have direct access to the accountable manager;
(iii) preferably not be one of the nominated post holders; and
(iv) have access to all parts of the operator's and, as necessary, any sub-contractor's organisation. In the case of small/very small operators (see paragraph (10) below), the posts of the accountable manager and the quality manager may be combined. However, in such event, independent personnel should conduct quality audits.

(7) ***QUALITY SYSTEM***

(a) The operator's quality system should ensure compliance with, and adequacy of operational and maintenance activities requirements, standards and operational procedures.

(b) The operator should specify the basic structure of the quality system applicable to the operation.

(c) The quality system should be structured according to the size and complexity of the operation to be monitored (see also paragraph (11) below).

(d) As a minimum, the quality system should address the following:

(i) The provisions of the CAR.
(ii) The operator's additional standards and operating procedures.
(iii) The operator's quality policy.
(iv) The operator's organizational structure.
(v) Responsibility for the development, establishment and management of the quality system.
(vi) Documentation, including manuals, reports and records.
(vii) Quality procedures.
(viii) Quality assurance programme.
(ix) Schedule of the monitoring process.
(x) Audit procedures.
(xi) Reporting procedures.
(xii) Follow-up and corrective action procedures.
(xiii) Recording system.
(xiv) The training syllabus.
(xv) Document control.

(8) ***QUALITY ASSURANCE PROGRAMME***

The quality assurance programme should include all planned and systematic actions necessary to provide confidence that all operations and maintenance are conducted in accordance with all applicable requirements, standards and operational procedures. When establishing a quality assurance programme, consideration should, at least, be given to the sub-paragraphs (a) to (j) below:

(a) Quality Inspection

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

(i) Actual flight operations
(ii) Ground de-icing/anti-icing.
(iii) Flight support services.
(iv) Load control.
(v) Maintenance.
(vi) Technical standards.
(vii) Training standards

(b) Audit

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

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

(Aa) A statement explaining the scope of the audit.
(Ab) Planning and preparation.
(Ac) Gathering and recording evidence.
(Ad) Analysis of the evidence.

(ii) Techniques which contribute to an effective audit are:

(Aa) Interviews or discussions with personnel.
(Ab) A review of published documents.
(Ac) The examination of an adequate sample of records.
(Ad) The witnessing of the activities which make up the operation.
(Ae) The preservation of documents and the recording of observations.

(c) Auditors

(i) Auditors should preferably not have any day-to-day involvement in the area of the operation and/or maintenance activity which is to be audited. An operator may, in addition to using the services of full-

time dedicated personnel belonging to a separate quality department, undertake the monitoring of specific areas or activities by the use of part-time auditors.

(ii) An operator whose structure and size does not justify the establishment of full-time auditors may undertake the audit function by the use of part-time personnel from within his own organization or from an external source under the terms of an agreement acceptable to the Commissioner. In all cases, the operator should develop suitable procedures to ensure that persons directly responsible for the activities to be audited are not selected as part of the auditing team.

(iii) Where external auditors are used, it is essential that any external specialist is familiar with the type of operation or maintenance conducted by the operator.

(iii) The operator's quality assurance programme should identify the persons within the company who have the experience, responsibility and authority to –

(Aa) perform quality Inspections and audits as part of ongoing quality assurance;
(Ab) identify and record any concerns or findings, and the evidence necessary to substantiate such concerns or findings;
(Ac) initiate or recommend solutions to concerns or findings through designated reporting channels;
(Ad) verify the implementation of solutions within specific timescales; and
(Ae) report directly to the quality manager.

(d) Audit Scope

Operators are required to monitor compliance with the operational procedures they have designed to ensure safe operations, airworthy aircraft and the serviceability of both operational and safety equipment. In doing they should as a minimum, and where appropriate, monitor the following:

(i) The organisation.
(ii) Plans and company objectives.
(iii) Operational procedures.
(iv) Flight safety.
(v) Operator certification (AOC/Operations Specification).
(vi) Supervision within the organisation.
(vii) Aircraft performance.
(viii) All-weather operations.
(ix) Communications and navigational equipment and practices.
(x) Mass, balance and aircraft loading.
(xi) Instruments and safety equipment.
(xii) Manuals, logs, and records.
(xiii) Flight and duty time limitations, rest requirements, and scheduling.

(xiv) Aircraft maintenance/operations Interface.
(xv) Use of the MEL.
(xvi) Maintenance programmes and continued airworthiness.
(xvii) Airworthiness directives management.
(xviii) Maintenance accomplishment.
(xix) Defect deferral.
(xx) Flight crew.
(xxi) Cabin crew.
(xxii) Dangerous goods.
(xxiii) Security.
(xxiv) Training.

(e) Audit Scheduling

A quality assurance programme should include a defined audit schedule and a periodic review-cycle, area by area. The schedule should be flexible, and allow unscheduled audits when trends are identified. Follow-up audits should be scheduled when necessary to verify that corrective action was carried out and that it was effective. An operator should establish a schedule of audits to be completed during a specified calendar period. All aspects of the operation should be reviewed within every period of 12 months in accordance with the programme unless an extension to the audit period is accepted as explained below:

*(i) An operator may **increase** the frequency of audits at his or her discretion but should **not decrease** the frequency without the agreement of the Commissioner. It is considered unlikely that an interval between audits greater than 24 months would be acceptable.*

(ii) When an operator defines the audit schedule, significant changes to the management, organisation, operation, or technologies should be considered, as well as changes to the regulatory requirements.

(f) Monitoring

(i) The aim of monitoring within the quality system is primarily to investigate and judge its effectiveness and thereby to ensure that defined policy and operational, and maintenance standards are

continuously complied with. Monitoring activity is based upon quality inspections, audits, corrective action and follow-up.

(ii) The operator should establish and publish a quality procedure to monitor regulatory compliance on a continuing basis. This monitoring activity should be aimed at eliminating the causes of unsatisfactory

performance. Any non-compliance identified as a result of monitoring should be communicated to the manager responsible for taking corrective action or, if appropriate, the accountable manager. Such non-compliance should be recorded, for the purpose of further investigation, in order to determine the cause and to enable the recommendation of appropriate corrective action.

(iii) The quality assurance programme should include procedures to ensure that corrective actions are taken in response to findings. These quality procedures should monitor such actions to verify their effectiveness and having been completed.

(iv) Organisational responsibility and accountability for the implementation of corrective action resides with the department cited in the report identifying the finding.

(v) The accountable manager will have the ultimate responsibility for resourcing the corrective action and ensuring, through the quality manager, that the corrective action has re-established compliance with the standard required by the Commissioner, and any additional requirements defined by the operator.

(g) Corrective Action

(i) Subsequent to the quality inspection/audit, the operator should establish: -

(Aa) the seriousness of any findings and any need for immediate corrective action;
(Ab) the origin of the finding;
(Ac) which corrective actions are required to ensure that the non-compliance does not recur;
(Ad) a schedule for corrective action;
(Ae) the identification of individuals or departments responsible for implementing corrective action; and
(Af) allocation of resources by the accountable manager, where appropriate.

(ii) The quality manager should:–

(Aa) verify that corrective action is taken by the manager responsible in response to any finding of non-compliance;
(Ab) verify that corrective action includes the elements outlined in paragraph (9)(g) above;
(Ac) monitor the implementation and completion of corrective action;
(Ad) provide management with an independent assessment of corrective action, implementation and completion; and
(Ae) evaluate the effectiveness of corrective action through the follow-up process.

(h) Management Evaluation

A management evaluation is a comprehensive, systematic, documented review by the management of the quality system, operational policies and procedures, and should consider the following:

(i) The results of quality inspections, audits and any other indicators.
(ii) The overall effectiveness of the management organisation in achieving stated objectives.
(iii) A management evaluation should identify and correct trends, and prevent, where possible, future non-conformities. Conclusions and recommendations made as a result of an evaluation should be submitted in writing to the responsible manager for action. The responsible manager should be an individual who has the authority to resolve issues and take action.
(iv) The accountable manager should decide upon the frequency, format, and structure of internal management evaluation activities.

(i) Recording

The operator should maintain accurate, complete, and readily accessible records documenting the results of the quality assurance programme. Records are essential data to enable an operator to analyse and determine the root causes of non-conformity, so that areas of non-compliance can be identified and addressed. The following records should be retained for a period of at least five years:

(i) Audit Schedules.
(ii) Quality Inspection and Audit reports.
(iii) Responses to findings.
(iv) Corrective action reports.
(v) Follow-up and closure reports.
(vi) Management Evaluation reports.

(j) Quality Assurance Responsibility for Sub-Contractors

Operators may decide to sub-contract out certain activities to external agencies for the provision of services related to areas such as:

(i) Ground de-icing/anti-icing.
(ii) Maintenance.
(iii) Ground handling.
(iv) Flight support (including performance calculations, flight planning, navigation database and despatch).
(v) Training.
(vi) Manual preparation.

The ultimate responsibility for the product or service provided by the sub-contractor always remains with the operator. A written agreement should exist between the operator and the sub-contractor, clearly defining the safety-related services and quality to be provided. The sub-contractor's safety-related activities relevant to the agreement should be included in the operator's quality assurance programme. The operator should ensure
that the sub-contractor has the necessary authorisation/approval, when required, and commands the resources and competence to undertake the task. If the operator requires the sub-contractor to conduct an activity that exceeds the sub-contractor's authorisation/approval, the operator is responsible for ensuring that the sub-contractor's quality assurance takes account of such additional requirements.

(9) ***QUALITY SYSTEM TRAINING***

(a) An operator should establish effective, well-planned and resourced quality-related briefings for all personnel. Those responsible for managing the quality system should receive training covering:-

(i) an introduction to the concept of the quality system;
(ii) quality management;

(iii) the concept of quality assurance;
(iv) quality manuals;
(v) audit techniques;
(vi) reporting and recording; and
(vii) the way in which the quality system will function in the organisation.

(b) Time should be provided to train every individual involved in quality management and for briefing the remainder of the employees. The allocation of time and resources should be governed by the size and complexity of the operation concerned.

(c) Quality management courses are available from the various national or international standards institutions, and an operator should consider whether to offer such courses to those likely to be involved in the management of quality systems. Operators with sufficient appropriately qualified staff should consider whether to carry out in-house training.

(10) ***QUALITY SYSTEM FOR ORGANISATIONS WITH 20 OR LESS FULLTIME EMPLOYEES***

(a) The requirement to establish and document a quality system and to employ a quality manager applies to all operators. References to large and small operators elsewhere in the requirements are governed by aircraft capacity and by mass. Such terminology is not relevant when considering the scale of an operation and the quality system required. Therefore, in the context of quality systems, operators should be categorised according to the number of full-time employees.

(b) Operators who employ five or less full-time staff are considered to be ***'very small',*** *while those employing between six and 20 full-time employees are regarded as* ***'small'.***

(c) Complex quality systems could be inappropriate for small or very small operators and the clerical effort required to draw up manuals and quality procedures for a complex system may stretch their resources. It is therefore accepted that such operators should tailor their quality systems to suit the size and complexity of their operation and allocate resources accordingly.

(d) For small and very small operators it may be appropriate to develop a quality assurance programme that employs a checklist. The checklist should have a supporting schedule that requires completion of all checklist items within a specified timescale, together with a statement acknowledging completion of a periodic review by top management. An occasional independent overview of the checklist content and achievement of the quality assurance should be undertaken.

(e) The small operator may decide to use internal or external auditors or a combination of the two. In these circumstances it would be acceptable for external specialists and or qualified organisations to perform the quality audits on behalf of the quality manager.

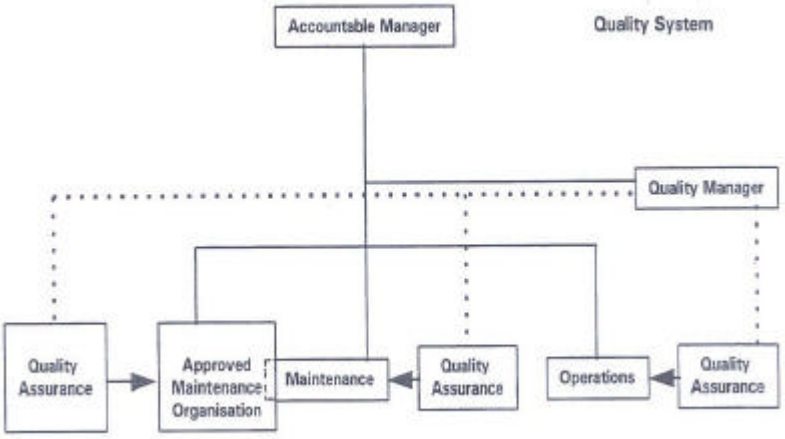
(f) If the independent quality audit function is being conducted by external auditors, the audit schedule should be shown in the relevant documentation.

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

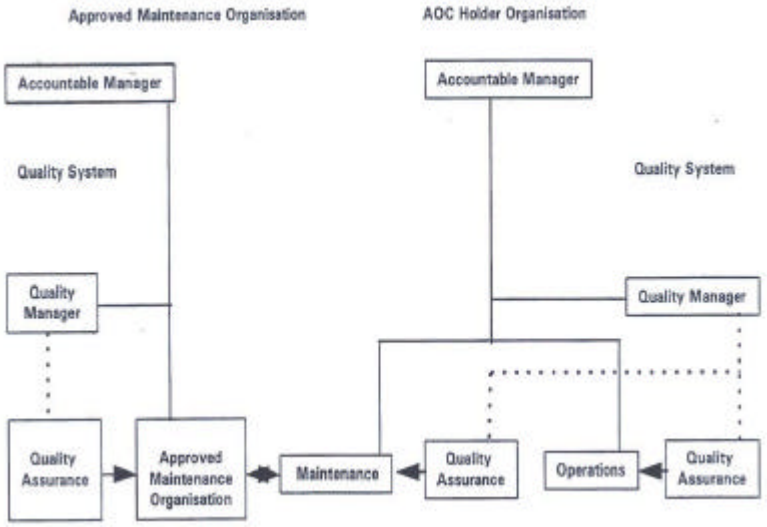
(11) ***EXAMPLE ORGANOGRAMS***

The following diagrams illustrate two typical examples of quality organisations:

(a) Quality system within the AOC holder's organisation when the AOC holder also holds a Part 145 approval:



(b) Quality systems related to an AOC holder's organisation where aircraft maintenance is contracted out to a PART 145 approved organisation which is <u>not</u> integrated with the AOC holder:



REFERENCES/SOURCE DOCUMENTS:

A. FAA "AIR CARRIER INTERNAL EVALUATION PROGRAMS"
B. JAR-OPS 1.035
C. CAA FLIGHT OPERATIONS PART 121 AUDIT CHECKLIST
D. SAA OPS MANUAL

COMMISSIONER FOR CIVIL AVIATION