GENERAL ADVISORY CIRCULAR

Barbados Civil Aviation
Department

BCAD Document GAC-002

QUALITY SYSTEM PROGRAMME

Intentionally Left Blank

QUALITY SYSTEM PROGRAMME

1. PURPOSE

This General Advisory Circular (GAC) provides information and guidance material that may be used by Air Operator Certificate (AOC) or Aviation Maintenance Organisation certificate (AMO) holders to design or develop a Quality System Programme acceptable to the Director of Civil Aviation (DCA). The procedures and practices outlined in this GAC can be applied to the maintenance and security aspects of an AOC/AMO holder's organisation.

2. BACKGROUND.

Establishment of a Quality System is required by Barbados Civil Aviation (APPROVED MAINTENANCE ORGANISATION) Regulations NO.26 and Barbados Civil Aviation (AIR OPERATOR CERTIFICATION AND ADMINISTRATION) Regulation NO.78 The development and implementation of a Quality System Programme will benefit both the certificate holder and the flying public.

a. Definitions of terms and a description of the basic elements of a Quality System are included in this GAC. These definitions and programme elements are consistent with recognised quality auditing principles. Where appropriate, these terms have been tailored to conform to aviation standards and practices. Suggested procedures for documenting Quality System Programme procedures are also included in this advisory circular.

b. The standards described herein are intended to help certificate holders develop their own Quality System Programme. The Barbados Civil Aviation Department (BCAD) shall continue to encourage certificate holders to develop a Quality System Programme as a tool for continuously monitoring and evaluating practices and procedures. Public safety is enhanced if deficiencies are identified and immediately corrected when the certificate holder discovers them rather than when the BCAD discovers them.

c. Through surveillance and oversight, the BCAD verifies that certificate holders are upholding their responsibilities. BCAD inspectors are charged with the duty of advising and co-operating with each AOC/AMO holder in the inspection and maintenance of aircraft. The Quality System Programme is intended to facilitate the inspector's advisory and cooperative capacity by providing a procedure for identifying and resolving safety related issues. The Quality System Programme also will help certificate holders develop formal compliance monitoring programmes.

3. DEFINITIONS.

The following key terms and phrases are defined to ensure a standard interpretation and understanding of the Quality System Programme.

a. *Evidence*:

Evidence is a documented statement of fact, prepared by an AOC/AMO holder, that may be quantitative or qualitative and is based on observations, measurements, or tests that can be verified. For the purpose of compliance monitoring, evidence should generally be in the form of written documentation or reports that support the programme's analysis and review. This data is necessary to substantiate findings or concerns and to enable management or evaluators 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.

b. *Controls*:

(1) Controls are the key procedures, responsibilities and decision-making positions within an organisation, department, division, or functional area.

(2) As part of a quality evaluation, the controls of the area being evaluated should be verified and tested. In some instances, personnel performing the quality evaluation may have first to determine the features of a control.

c. *Finding:*

A finding is a conclusion by the AOC/AMO holder's personnel that demonstrates non-compliance with a specific standard.

d. *Concern*:

A concern is a conclusion by the AOC/AMO holder's personnel, supported by objective evidence that does not demonstrate a finding, but rather a condition that may become a finding.

e. *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 an observed event or action.

NOTE: The term inspection is defined in this GAC within the context of quality auditing principles. It does not address or define BCAD inspections.

f. *Audit*:

(1) An audit is a methodical, planned review used to determine how business is being conducted and compares results with how business should have been conducted in accordance with established procedures. The various techniques that comprise an effective audit are as follows:

(i) Interview personnel.

(ii) Review documents.

(iii) Observe operations.

(iv) Select samples.

(v) Inspect activities.

(vi) Document results.

(2) As the above techniques show, an audit builds on the principles of inspection. The results of inspections assist in the audit objective of determining whether business is being conducted in accordance with established policies and procedures. During an audit, qualified personnel look for the existence of a systemic problem, but do not estimate the size of a problem. The results (findings and concerns) of an audit should be documented and presented to management. Management then decides how to address audit results.

g. *Evaluation*:

(1) An evaluation is an independent review of company policies, procedures and systems. An evaluation should be a comprehensive and continual process that considers the following:

(i) Results of audits.

(ii) Overall effectiveness of the management organisation in achieving stated objectives.

(iii) Ability of management to respond to new technologies, market strategies and social or environmental conditions.

(2) The evaluation process builds on the concepts of audit and inspection. An evaluation is an anticipatory process and is designed to identify and correct potential findings before they occur. Conclusions and recommendations made as a result of an evaluation should be submitted in writing to company management for appropriate action.

4. QUALITY SYSTEM PROGRAMME.

a. The Quality System Programme is based on the premise that certificate holders are primarily responsible for continuously monitoring and ensuring that their operations are safe and in compliance with the BCARs. The BCAD encourages AOC/AMO holders to establish and conduct quality evaluations that embrace the following four principles:

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

(2) A review that extends beyond regulatory compliance to determine the causes of deficiencies and detect needed enhancements to company operating practices before deficiencies occur.

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

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

b. The Quality System Programme stresses self-audit responsibilities of individual employees as well as the evaluation responsibility of top management to ensure that company policies and procedures provide for safety compliance and allow individuals to perform work properly.

5. PROGRAMME DESCRIPTION.

a. AOC/AMO holders should include the following essential elements in their programme:

(1) Independent/defined responsibility.

(2) Top management review.

(3) Continual process.

(4) Internal evaluation schedule.

(5) Corrective action plans.

(6) Records.

b. These elements are further described in the following paragraphs. It is also suggested that certificate holders developing a Quality System Programme consider preparing a programme plan that documents the programme's procedures and functional responsibilities. A recommended format for a typical programme plan is further explained in *Appendix 1*.

6. INDEPENDENCE DEFINED RESPONSIBILITY.

a. An AOC/AMO holder's Quality System Programme should identify the person and/or group within the organisation who has the responsibility and authority to:

> (1) Perform evaluations, audits and inspections as a part of an ongoing Quality System.

> (2) Identify and record any findings or concerns and the evidence necessary to substantiate findings or concerns.

> (3) Initiate, recommend, or provide solutions to findings or concerns through designated reporting channels.

> (4) Verify the implementation of solutions within a specific time.

> (5) Communicate and co-ordinate activities with BCAD personnel on a regular basis.

b. A top management representative should be given the responsibility to ensure that a Quality System Programme is properly established, implemented and maintained. This management position should be above the level that directly supervises work accomplishment or procedural development and, should have direct contact with the responsible manager.

c. As a part of identifying quality evaluation responsibility and independence, an AOC/AMO holder should identify resources and personnel dedicated to the Quality System Programme and should describe their organisational independence within the company in light of their internal monitoring functions. Individuals conducting quality evaluations should not be responsible for managing work in the areas being evaluated or the tasks being reviewed.

d. For some AOC/AMO holders, operating size may justify the costs associated with the necessity of having full time, dedicated resources and personnel in a separate Quality System Department or group.

e. For very small AOC/AMO holders, an appropriate Quality System Programme might consist of developing checklists and a schedule (monthly, quarterly, semi-annual, or annual) for accomplishing checklist items. Even in such cases, the review should include a written statement acknowledging the completion of the checklist items and the signature of a top management official. Under these conditions, occasional independent oversight of checklist item development and accomplishment should be considered.

f. AOC/AMO holders using outside resources in support of, or in fulfilment of, a Quality System Programme, should show that use of those outside resources is co-ordinated through a chain of command that reflects independence and contact with top management.

7. TOP MANAGEMENT REVIEW.
a. As a part of a Quality System Programme, top management should review quality evaluation results to verify that satisfactory corrective actions have been implemented. For the purposes of this programme, the term "top management" means a certificate holder's responsible manager, or a person in an equivalent position who has the authority to resolve issues and take action. Top

management should be aware of the plans, results (findings and concerns) and follow-up actions undertaken in its Quality System Programme.

b. The review of quality evaluation information by top management should be documented in reports or other appropriate records generated by the internal Quality System Programme. The AOC/AMO holder should decide the frequency, format and structure for informing top management of quality evaluation plans, results and follow-up actions. The programme should include a diagram that depicts the independence of personnel who perform or supervise internal evaluation functions, including some form of straight-line reporting authority to top management. The reporting structure should be documented by the AOC/AMO holder and become a part of its programme plan.

8. CONTINUAL PROCESS.
a. In order to effectively anticipate potential problem areas and correct them before actual findings occur, a Quality System Programme should be a continual programme, not merely spot check inspections of operating practices. Stand alone spot check inspections will do little more than identify symptoms of potential problems.

b. A continual process is needed to verify whether findings are isolated instances, or actual symptoms of policy, procedural, or managerial problems. An AOC/AMO holder's programme should continuously monitor policies, procedures and managerial systems to ensure a continued safe and efficient operation. A continual programme should include scheduled evaluations, follow-up evaluations as necessary and special evaluations when trends are identified.

9. QUALITY EVALUATION SCHEDULE.
a. To be properly organised, a continual process should be a structured activity. For this reason, it is essential for an AOC/AMO holder's Quality System Programme to include a defined schedule of activities. This planned schedule will serve to verify that the quality evaluation process is:

> (1) Complete and thorough.

> (2) Directed.

> (3) Credible.

> (4) Recognised by top management.

b. A proper quality evaluation schedule should include a planned periodic review cycle for specific areas covered by the certificate holder's Quality System Programme. However, the scheduling process should also be dynamic and allow for special evaluations when trends are identified. In addition, follow-up evaluations should be scheduled as necessary to verify that corrective action commitments were met and that they were effective in eliminating any reported findings or concerns. Planned, special and follow-up evaluations, all of which comprise an effective monitoring and evaluation schedule are further defined below.

c. Planned Cycle.

> (1) Establish a schedule of events that will be performed during a set calendar period under the Quality System Programme.

> (2) Divide the complete schedule into phases.

> (3) Schedule evaluations within each phase to allow enough flexibility for resources to be

committed as needed to special evaluations or follow-up evaluations.

d. Special Evaluations.

(1) Conduct special evaluations based on concerns or priorities identified by top management.

(2) Schedule special evaluations based on a review of industry trends, BCAD concerns, or identified internal trends.

e. Follow-up Evaluations.

(1) Schedule follow-up evaluations to ensure corrective action commitments were met.

(2) Conduct follow-up evaluations to verify that corrective actions eliminated the reported finding or concern.

(3) Perform follow-up evaluations in response to BCAD surveillance findings.

10. CORRECTIVE ACTION PLANS.

a. A Quality System Programme should include procedures to ensure that corrective action plans are developed in response to findings or concerns and for monitoring corrective action plans to verify their timely and effective implementation and completion. As an option, evaluation personnel may participate in the development of corrective action plans or make suggestions that contribute to the development of corrective action plans. However, organisational responsibility and accountability for the development of corrective action plans should reside with the technical departments cited in the finding or concern.

b. A proper corrective action plan should include the following elements:

(1) Identification of the finding or concern.

(2) Analysis of objective evidence to determine the root cause(s) of the finding or concern.

(3) Identification of planned corrective steps to take to ensure that the apparent violation or concern does not recur.

(4) Implementation schedule, including a time frame for putting corrective steps in place.

(5) Individuals or departments responsible for implementing the corrective steps.

c. The individuals responsible for managing a Quality System Programme should facilitate the corrective action process by performing the following functions:

(1) Ensuring corrective action plans are developed in response to findings or concerns.

(2) Verifying corrective action plans include the elements outlined above.

(3) Monitoring implementation and completion of corrective action plans.

(4) Providing top management with an independent assessment of corrective action plan development, implementation and completion.

(5) Initiating scheduled and/or unannounced follow-up evaluations to ensure the effectiveness of corrective steps specified in corrective action plans.

11. RECORDS.

a. The AOC/AMO holder should maintain records documenting the performance and results of its Quality System Programme. Records are considered to be the principal form of evidence. Documented evidence is essential in analysing and determining the root causes of findings or concerns so that the AOC/AMO holder can identify potential areas of non-compliance. It is important to maintain accurate, complete and reliable records that document the activities and results of a quality evaluation.

b. The BCAD suggests that Quality System Programme files include the following data:

> (1) Scheduled evaluation reports.

> (2) Special evaluation reports, including the trends or other reasons associated with scheduling a special evaluation.

> (3) Follow-up evaluation reports.

> (4) Responses to findings or concerns contained in reports.

> (5) Corrective action plans submitted in response to findings.

c. Recognising that much of the information contained in Quality System Programme records could be proprietary in nature, a certificate holder should maintain and secure these records on its premises. All records should be made available to the BCAD for review. Proprietary information will be protected in accordance with applicable laws and regulations.

12. PROGRAMME PLAN OUTLINE.

Quality System Programme procedures and responsibilities should be documented in a programme plan. This paragraph provides suggestions for preparing and structuring a programme plan.

a. Preparing a Programme Plan.

(1) Preparing a programme plan is a recommended practice. AOC/AMO holders should review the size and complexity of their operation to determine how to structure an appropriate programme plan.

(2) A programme plan should describe the duties, responsibilities, procedures and organisation of a certificate holder's Quality System Programme. Terms and elements defined in programme plans should be consistent with those outlined in paragraphs 3 through 11.

(3) Copies of the programme plan should be distributed to appropriate company personnel, so they are aware of and are familiar with the Quality System Programme procedures. In addition, revisions should be made as necessary to ensure that the programme plan continues to reflect the AOC/AMO holder's current quality evaluation procedures and organisation.

(4) Documenting the procedures and responsibilities associated with any programme is considered a required practice. When AOC/AMO holders prepare a programme plan, the BCAD will be available to provide assistance if requested.

b. Structuring a Programme Plan. A sample outline of a programme plan using the programme elements discussed in this GAC is provided in Appendix 1. The outline provided in Appendix 1 should be viewed as a checklist of items that warrant consideration when a certificate holder is

designing a Quality System Programme. The number of items addressed and how they are documented will ultimately depend on the complexity of each certificate holder's operation.

13. PROGRAMME ACCEPTANCE.

The DCA must accept an AOC/AMO holder's Quality System Programme. AOC/AMO holders developing a Quality System Programme may ask for assistance from the BCAD. Preparing a programme plan, as discussed in paragraph 12, will provide the BCAD with an opportunity to review the proposed duties, responsibilities, procedures and organisation of the AOC/AMO holder's Quality System Programme. In all cases that involve Quality System Programme development, the BCAD will be available to provide advice, assistance, or direction to AMO holders.

14. DISCLOSURE TO THE BCAD.

The BCAD encourages certificate holders to openly share the results of their Internal Evaluation Programme with the BCAD.

15. CONCLUSION.

Development of Quality System Programmes, as discussed in this GAC, should ensure that company policies and procedures are responsive to growth and change and that AOC/AMO holders continually comply with appropriate safety requirements. Furthermore, the BCAD strongly encourages certificate holders to make Quality System Programmes an integral part of their everyday management process. Programmes that allow certificate holders to identify and correct their own instances of non-compliance and invest more resources in efforts to preclude their recurrence best serve aviation safety.

APPENDIX 1.

PROGRAMME PLAN SAMPLE OUTLINE

Objective and Policy:

The objective should be a statement that clearly defines the purpose and structure of the AOC/AMO holder's Quality System Programme. Policy statements following the objective should indicate that quality evaluation is independent, that it actively involves top management and, that it is an ongoing process designed to identify potential problem areas.

Definition of Terms:

Terms that will be used consistently in the Quality System Programme should be defined. For example, a certificate holder should have a procedure for categorising results (that is, a finding or concern). These categories, as well as other terms applicable to the quality evaluation function, should be clearly defined and documented so that company personnel can understand and properly interpret them. Definitions should be similar to those specified in paragraph 3.

Duties and Responsibilities:

The duties and responsibilities of quality evaluation personnel should be documented. The AOC/AMO holder should specify which personnel are responsible for performing the following tasks:

> (1) Supervise the quality evaluation function.

> (2) Perform evaluations, audits and inspections as a part of quality evaluation.

> (3) Identify and record any findings or concerns.

> (4) Collect the objective evidence necessary to substantiate findings or concerns.

> (5) Initiate, recommend, or provide solutions to findings or concerns through designated reporting channels.

> (6) Monitor the development and implementation of corrective action plans.

> (7) Maintain and update quality evaluation files.

> (8) Verify the implementation of solutions.

> (9) Communicate and co-ordinate Quality System Programme activities with BCAD personnel on a regular basis.

This section of the programme plan should show personnel responsible for the tasks listed above are not responsible for the accomplishment or management of work in the areas being evaluated or the tasks being revised. The manager or supervisor of the internal evaluation function should either be a top management representative or have straight-line reporting authority to top management.

When full time dedicated resources and personnel are not practical, developed procedures should show that persons having direct responsibility for the areas to be evaluated are not involved in the selection or supervision of the internal evaluation team. In addition, identified personnel should be exempt from their other duties and completely dedicated to the Quality System Programme while they participate on an evaluation team.

Organisation Chart:

An organisation chart that clearly shows the position of the Quality System Programme in the certificate holder's organisation should be prepared. This position should reflect the programme's independence within the corporate structure and straight-line reporting to top management.

Reporting Procedures:

Reporting procedures should include company requirements that top management reviews quality evaluation information. Top management should be informed, through straight-line reporting channels, about the schedules, plans, results and follow-up corrective actions of the Quality System Programme. The procedures outlined in this section of the programme plan should specify the frequency, format and structure for reporting information to top management. A procedure explaining how the review by top management will be documented should also be developed.

Specified Areas Covered:

A certificate holder should specify the areas within the scope of review under the Quality System Programme. The BCAD believes that the most effective Quality System Programme will encompass a complete review of the certificate holder's operation.

Schedule Process:

The scheduling process should be comprised of the following three elements:

(1) Scheduled evaluations over a predetermined calendar period.

(2) Special evaluations when trends are identified or priorities are set by top management.

(3) Follow-up evaluations to verify the effectiveness of corrective action plans.

The programme plan should include procedures for planning, developing and co-ordinating the quality evaluation schedule. The responsibility for planning and developing schedule activities should also be defined.

Records:

The Quality System Programme should have a defined recordkeeping process. Procedures should specify how records are filed and maintained. Standard forms or formats for filing reports also should be specified. The BCAD suggests that Quality System Programme records be comprised of the following:

(1) Scheduled evaluation reports.

(2) Special evaluation reports.

(3) Follow-up evaluation reports.

(4) Responses to findings or concerns contained in reports.

(5) Corrective action plans submitted in response to findings.

(6) Reports concerning the completed corrective action.

Training:

If feasible, the certificate holder should specify that evaluators have some type of training in recognised quality auditing and evaluation principles and techniques. This training could be any one or combination of the following:

      (1) In-house prepared courses.

      (2) College courses.

      (3) Home study course materials.

      (4) Industry available seminars and workshops.

      (5) Selected BCAD courses.

Intentionally Left Blank