CHAPTER 10

Evaluation and Approval of a Maintenance Quality Assurance System

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1.0 PURPOSE

This Chapter is issued to provide guidance and information to the Authority Airworthiness Inspectors to evaluate and verify whether the Maintenance Organization (AMO) or Air Operators Maintenance Support Quality System meets the Civil Aviation Regulations requirements.

2.0 REFERENCES

2.1 Regulation 9.2.2.3 and IS 9.2.2.3 of the Nigeria Civil Aviation Regulations.

2.2 Regulations 6.2.1.14 and 6.5.1.2 of the Nigeria Civil Aviation Regulations.

2.3 Advisory Circular No. NCAA-AC-GEN005 (Quality Assurance System)

2.4 Checklist CL: O-AWS010

3.0 GUIDANCE AND PROCEDURES

3.1 General Information

3.1.1 A Quality System has two functions:

a) The "audit function" includes a follow up for those components removed, and the teardown report which both must be a part of the programme. It must also include examining the administrative and supervisory aspects of the operator's programme (including work done outside of the operator's basic organization). The audit must ensure that the Main Base, Sub Base, Line Station, and shops operate in accordance with company procedure. The audit function includes such things as:

(i) Ensuring that all publications and work forms are current and readily available to the user;

(ii) Ensuring that major repairs/alterations are classified properly and accomplished with approved data;

(iii) Ensuring that carryover items and deferred maintenance are properly handled;

(iv) Ensuring that vendors are properly authorized, qualified, staffed, and equipped to do the contractor function according to the operator's manual.

b) The "performance analysis function" includes daily and long-term monitoring and emergency

response related to the performance of affected aircraft systems, including aircraft engines and components. This function includes monitoring such things as:

(i) Daily mechanical problems for affected aircraft (daily monitoring);

(ii) Deferred maintenance items including the number of deferred items and/or the number of times a single item reoccurs without permanent corrective action taken. (daily monitoring);

(iii) Pilot reports compiled by Air Transport Association (ATA) code (long term monitoring);

(iv) Mechanical Interruption Summaries (long term monitoring);

(v) Contained engine failures (emergency response);

(vi) High number of unscheduled component removals (long-term monitoring).

3.1.2 The Maintenance Quality System should include a system of data collection and analysis that may or may not be part of a reliability programme.

3.1.3 The Maintenance Quality System also addresses operational matters, such as maintenance scheduling, control and accountability of work forms, conformity to technical instruction, and compliance with procedural requirements. Additionally, it examines the adequacy of equipment and facilities, parts protection and inventory, mechanic competency, and shop orderliness.

3.1.4 For maximum effectiveness, the Maintenance Quality System should be separated from other maintenance functions. Some operators establish a separate quality assurance organization for this purpose. Others assign this function to their inspection/quality control organization. When the analysis and surveillance responsibility is assigned to an organizational unit that has other duties, these functions should be performed independently of the other duties.

3.1.5 Mechanical performance analysis may be performed as part of a reliability programme or as an independent data collection and analysis system. The system should include charting or other appropriate methods for recording and accounting of pertinent data at specified intervals. This will ensure continuous programme operation. Data collection and analysis are essential elements for supporting the condition monitoring process.

3.1.6 The use of contract agencies tends to complicate an operator's Maintenance Quality System. When a contractor fails to provide the operator with essential information (such as failure characteristics, service times, etc.), gaps are created in the operator's data collection. This obstructs the system. Therefore, the programme must include procedures for transmitting essential information back to the operator.

3.1.7 When aircraft fleets are grouped for purposes involving data collection, the data from the total of the fleets may provide a valid comparison for behaviour of one of the fleets. However, data generated by a single airplane or a small fleet can be obscured by a larger fleet of the group.

3.1.8 When an operator uses a contractor for total maintenance support, the operator is responsible for the Quality System requirement. The operator must have enough personnel and resources to accomplish both the audit and performance analysis functions.

3.1.9 The complexity and sophistication of the Maintenance Quality System should relate to the certificate holder's operation. A small operator should not be expected to have a complex system similar to a large airline. However, small operators must have a system with continuous data collection that includes specified analysis points and repetitive examinations.

3.1.10 A data collection and analysis programme may use a manufacturer as a collection and analysis centre if agreed to by the Authority. The operator is still responsible for the development and implementation of corrective actions and the overall effectiveness of the programme.

3.1.11 When an operator or applicant enquires about a Maintenance Quality System, brief him about the program requirements. Inform the operator/applicant that an acceptable programme must have a continuous internal audit and analysis system that accomplishes the following:

a) Evaluates the organization's performance;

b) Identifies the performance deficiencies;

c) Determines and implements corrective actions;

d) Determines the effectiveness of corrective actions.

3.2 Evaluation Procedure

3.2.1 Review the Operator/Applicant's Programme. When the operator/applicant presents the complete programme, the assigned inspector ensures that the programme audits and analyzes the following:

a) Aircraft inspections;

b) Scheduled maintenance;

c) Unscheduled maintenance;

d) Aircraft, engine, prop and appliance repair and overhaul;

e) Maintenance manuals;

f) Failures, Malfunctions and Defects Reports;

g) Mechanical Interruptions;

h) Vendor facilities and capabilities;

i) Maintenance organization staffing;

j) Duplicate Inspection Items (Required Inspection Item Programme, RII).

k) Major Repair and Modifications Instructions for Continued Airworthiness

l) Airworthiness Directives and Service Bulletins

3.2.2 Review Operator's Manual – The assigned inspector ensures that the manual contains the following:

a) An organizational chart that defines the lines of authority;

b) Definitions of responsibilities and duties;

c) The means by which the information will flow within the operator/applicant's organization and between any contractor/vendors and the operator/applicant;

d) Examples of forms or reports that are used;

e) Procedures that include a record review covering the following items:

(i) Accountability for all inspection requirements;

(ii) Routine and non-routine Continuous Airworthiness Records;

(iii) Overhaul records;

(iv) Methods of Airworthiness Directives (ADs) compliance;

(v) Service bulletin compliance;

(vi) Major repairs and Modifications approval data.

3.2.3 Evaluate Available Staffing. Ensure that the staffing described in the manual is available and appropriate for the complexity of the operator/applicant's operation.

3.2.4 Analyze Results. Upon completion of the review, analyze the results and determine whether the operator/applicant's programme meets all requirements. If problems exist, discuss the discrepancies with the operator/applicant and advise them as to what areas need corrective action.

3.3 Results

3.3.1 After the review is completed the AWI will meet with the applicant or operator to discuss needed changes and recommendations to resolve discrepancies. This should be followed by a written notification.

a) If discrepancies are found:

(i) The notice will be accompanied by listing specific discrepancies found and recommendations, outlining what will be required to correct the discrepancies;

(ii) Treat re-submissions as revisions.

b) When the inspector is satisfied that the system meets the requirements:

(i) The AWI makes a recommendation for approval on the activity checklist and submits to the GM for approval;

(ii) Return the original approved quality system manual to the applicant or operator accompanied by a letter of approval;

(iii) Keep a written copy of the quality system manual on the operator ‘s file with the Authority;

3.3.2 These same procedures will be followed when a revision to the original or approved quality system manual is received from the air operator.