CHAPTER 9

Evaluation and Approval of Maintenance Control Manual

0.0 LIST OF EFFECTIVE PAGES

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1.0 PURPOSE

This Chapter is issued to provide guidance and information to be used by Airworthiness Inspectors when evaluating an operator's Maintenance Control Manual (MCM) for approval.

2.0 REFERENCES

2.1 Source Documents

I. ICAO Document 9760, 3rd Edition
II. ICAO Document 8335, 5th Edition
III. Nigeria Civil Aviation Regulations as amended.
IV. Annex 6: Part I, Section 11.2 and Part III, Section II, Paragraph 9.2

2.2 Job Aids

I. Checklist **CL : O - AWS009**
II. Operator's Draft/Approved OpSpecs

3.0 GUIDANCE AND PROCEDURES

3.1 General Information.

3.1.1 A Maintenance Control Manual is a document which describes the operator's procedures necessary to ensure that all scheduled and unscheduled maintenance is performed on the operator's aircraft on time and in a controlled and satisfactory manner.

3.1.2 Nig.CARs 9.4.1.4 requires each Nigerian AOC holder to provide to the Authority, and to the State of Registry of the aircraft, if different from the Authority, an AOC holder's Maintenance Control Manual and subsequent amendments, for the use and guidance of maintenance and operational personnel concerned. The operator is accountable for the manual and also required to ensure that the manual is amended and revised as necessary by means of establishing an appropriate revision control system and that copy of changes are distributed to holders of the manual.

3.1.3 The manual is part of the documents submitted by an AOC applicant during phase two (2) of AOC certification, and must be approved by the Authority prior to use. In the light of this, the manual must be evaluated by an Airworthiness Inspector to ensure that it meets all regulatory requirements, and that the procedures which must follow Human Factors principles would produce the desired result when implemented.

3.1.4 Nig.CARs 9.4.1.4 and ICAO Doc 9760 Part III, Chapter 7, Paragraphs 7.2.2 & 7.2.3 specify the following information as those that should be included in the MCM:

a) a description of the procedures required by air operators to ensure that:

   i. each aircraft is maintained in an airworthy condition;
   ii. the operational and emergency equipment necessary for the intended flight is serviceable; and
   iii. the Certificate of Airworthiness of each aircraft remains valid;

   Note: (i) –(iii) shall be met by the operator though the fulfilment of the requirements of Nig.CARs 9.4.1.2 which are split as various topics to be covered in the MCM as Appendix 1 of this chapter indicates.

b) a description of the administrative arrangements between the air operator and the AMO, when applicable, including how to review the arrangements, when applicable;
c) 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 AMO, when applicable;
d) the names and duties of the person or group of persons employed to ensure that all maintenance is carried out in accordance with the MCM;
e) a reference to the maintenance programme for each aircraft type operated as required by Nig.CARs 9.4.1.12;
f) a description of the methods used for the completion and retention of the air operator's Continuous Airworthiness Records as required by Nig.CARs 9.4.1.8;
g) in the case of aeroplanes over 5 700 kg or helicopters over 3 175 kg MTOM:

   i. a description of the procedures for monitoring, assessing and reporting maintenance and operational experience to the State of Registry as required by Nig.CARs 5.5.1.4;
   ii. a description of the procedures for complying with the service information reporting requirements of Nig.CARs 5.5.1.5; and
   iii. a description of the procedures for assessing continuing airworthiness information and recommendations available from the organization responsible for the type design, and for implementing resulting actions considered necessary as a result of the assessment in accordance with a procedure acceptable to the State of Registry;

h) a description of the procedures for implementing action resulting from MCAI and, if applicable, how their alternative means of compliance is requested and complied with;
i) a description of the establishment and maintenance of a system of analysis and continued monitoring of performance and efficiency of the maintenance programmes, in order to correct any deficiency in the programme;
j) a description of aircraft types and models to which the manual applies;
k) a description of procedures for ensuring that unserviceable systems and components affecting airworthiness are recorded and rectified;
l) a description of the procedures for advising the State of Registry of significant in-service occurrences; and
m) a description of and procedures for completing and signing a maintenance release for aircraft and parts thereof that have undergone maintenance;
n) a description of the procedures to ensure the aircraft is maintained in accordance with the maintenance programme;
o) a description of the training programme for the maintenance personnel employed by the air operator applicable to their assigned duties and responsibilities;
p) a description of the air operator's safety management system;
q) a description of the procedure to ensure that modifications and repairs comply with the State of Registry's airworthiness requirements; and
r) a description of the procedure used for the MCM revision and control.
s) An outline of specific subjects to be contained, as appropriate, in the AOCholder's MCM are prescribed in IS 9.4.1.4. The MCM shall also include other continuing airworthiness management procedures prescribed

in IS. 5.8.1.4.

Note. — Where an operator's safety management system (SMS) is already addressed in some other document, an appropriate reference to such document together with its relevant interfaces with the MCM can be described instead. Guidance material on SMS can be found in the Safety Management Manual (SMM) *(Doc 9859).*

3.1.5 In addition, ICAO document 8335 Part III, Chapter 6, Paragraphs 6.3.2 and 6.3.3 required the following to be incorporated into the MCM:

a) operations and maintenance personnel duties, responsibilities and authorities relating to maintenance, inspection and servicing;
b) details of the maintenance system to be followed, including procedures for performing routine and non-routine maintenance inspections, alterations, repairs and servicing;
c) airworthiness certification and inspection standards and procedures for aircraft, parts and components;
d) details of the reliability programme;
e) procedures for preparing the maintenance release, the circumstances under which this release is issued and the personnel authorized to sign it;
f) methods, technique and practices for accomplishing preventive maintenance and alterations;
g) procedures to ensure that required maintenance or inspections are handled by appropriately trained, qualified and certificated/licensed personnel;
h) procedures to assess the cause and any potentially hazardous effects or defects, or combination of defects, and to analyze occurrences in order to initiate any necessary further investigation and analysis. Mandatory occurrence reporting to the CAA may be required by State regulations;
i) procedures to prevent the personnel who performed maintenance work on aircraft from also conducting required inspections of such work;
j) procedures to ensure that work interruptions do not adversely affect maintenance work and required inspections;
k) methods used for designating critical items requiring inspection;
l) the responsibilities, authority and names of personnel who have been duly appointed to conduct inspections;
m) procedures to ensure that inspections are completed satisfactorily before aircraft are released to service;
n) procedures for refueling and defueling aircraft;
o) fire precaution procedures during refueling and defueling;
p) procedures for preventing or eliminating fuel contamination;
q) methods for servicing and maintenance prescribed by, or requiring the prior approval of, the chief of maintenance;
r) procedures for ensuring that the organization responsible for type design, usually the manufacturer, receives adequate reports of occurrences involving that aircraft type so that it can issue changes to the instructions for continued airworthiness; and
s) procedures for assessing and incorporating instructions for continued airworthiness and maintenance or inspection information issued by:

i. the organization responsible for the type design; or
ii. the State of Design; or
iii. the State of Registry.

3.1.6 As a minimum, the following should be covered in the manual in respect of each type and model of aircraft used:

a) frequency schedules of each check, overhaul or inspection of airframes, engines, propellers (where applicable), equipment, instruments and component systems;
b) procedures and standards for maintenance, inspection and servicing;

c) approved service life, where applicable, for various components, parts, accessories, etc.;
d) list of approved permissible unserviceability (CDL, if available, and MEL);
e) arrangements whereby personnel or organizations other than the applicants can be approved to perform maintenance and/or inspections of aircraft;
f) time limits between required inspections;
g) procedures for maintaining the aircraft mass and centre of gravity report;
h) procedures and standards for acceptance or rejection of items requiring inspection;
i) procedures for preventive maintenance and servicing;
j) time limitations for replacing instruments, components, appliances, etc.;
k) procedures to ensure that certain aircraft systems and navigation equipment are fully serviceable for the appropriate special authorizations in the operations specifications;
l) procedures for the procurement and sourcing of replacement parts;
m) procedures to ensure that appropriate maintenance, records and inspection have been complied with; and
n) details of performing various inspection tests, checks, etc.

All these listed procedures must be in the MCM of an operator that has chosen to adopt a Maintenance Authorisation.

A general Format for MCM is detailed in Appendix 1 of this chapter

3.1.7 In general, the contents of the MCM could vary depending on the following:

a) system of maintenance the operator has chosen to adopt for the maintenance of all the aircraft in her fleet. For instance, an operator that has indicated to use a Maintenance Authorisation shall be required to also incorporate into the MCM applicable requirements of AMO procedures Manual provided in Nig.CARs IS 6.5.1.1;
b) Special operations such as Extended Diversion Time Operations (EDTO)-an evolution of ETOPS, Reduced Vertical Separation Minima (RVSM), etc. In this case, the MCM should address the maintenance procedures arising from these operations. In most cases, the operator may choose to address these requirements separately in the applicable manual dedicated for such special operation.

3.1.8 From the foregoing, it is imperative that prior to the commencement of the MCM review, the Airworthiness Inspector should have studied the AOC applicant's PASI Form and Draft Operations Specifications in order to understand the AOC applicant's intended type of operation. This knowledge would help determine if the applicant has addressed all relevant subjects in the MCM with regards to the intended operation.

3.1.9 The design of the MCM shall observe Human Factors Principles. Some of the basic aspects requiring Human Factors optimization include:

a) written language, which involves not only correct vocabulary and grammar, but also the manner in which they are used;
b) typography, including the form of letters and printing and the layout, which has a significant impact on the comprehension of the written material;
c) the use of photographs, diagrams, charts or tables replacing long descriptive text to help comprehension and maintain interest. The use of colour in illustrations reduces the discrimination workload and has a motivational effect;
d) consideration of the working environment in which the document is going to be used, when print and page size are determined.

3.1.10 As part of the MCM review process, the operator would be required to submit a Statement of Compliance which explains the way the applicable requirements of the regulation, including those on the minimum contents of the MCM, are met.

3.2 Administrative Procedures

a) Cursory review of the MCM should have been carried out and found satisfactory before in-depth review would commence.
b) AWI should study the AOC applicant's draft OpSpecs/PASI Form; or in the case of an AOC holder submitting a reissued manual, study the existing current OpSpecs. This is required in order to understand the applicant's operation or intended operation, and use the information to ensure that all policies and procedures with respect to such operation are covered in the MCM.
c) Checklist **CL:0-AWS009** should be appropriately completed and signed whether the manual is found satisfactory or not.
d) Discrepancies observed during the manual review and recommendations should be conveyed to the applicant or operator in writing.

Note: it is strongly advised that prior to returning the manual to the operator, a one-on-one discussion with relevant representative of the applicant should be carried out in order to clearly explain the deficiencies and recommendations. This is because it would help the applicant ensure that all indicated deficiencies are clearly corrected, and ensures the manual is approved on time.

e) When the manuals are found satisfactory, duplicate copies should be forwarded to the appropriate General Manager with a memo and the completed Checklist mentioned in (c) above for approval.

Note: If the applicant is an operator that is yet to be issued AOC and has not been assigned to any DAWS group, approval of the manual would fall under the purview of the General Manager, Air Operator Certification & Surveillance (AOC & S). On the other hand, if it is an existing operator, approval of the manual would fall under the purview of the appropriate DAWS General Manager in charge of the operator.

f) Approval of the duplicate manual by the appropriate General Manager shall be accomplished as follows:

i. Review the completed checklist to ensure that all required items have been correctly ticked by the AWI. This is done by doing a cursory review of the manual general presentation, and randomly checking if some of the assessments made by the AWI are correct;
ii. If the review in (i) above is found satisfactory, the section for Manager Airworthiness in the checklist should be completed, signed and dated;
iii. Approval pages of the manuals should be signed, dated and stamped;
iv. All the List of Effective Pages (LEPs) should be signed, dated and stamped;
v. Minutes should be made on the memo from the AWI indicating the action taken, and any further action required of the AWI;

g) AWI should return the applicant's copy of the approved manual with a cover letter; and
h) the Authority's copy of the manual should be sent to Technical Library.

3.3 In general, procedures for a specific task or activity should address the following question:
Who does what, how, when and in coordination with whom?
Note.— This list is indicative and not exhaustive.

WHO:

a) Define, as clearly as possible, the entities (e.g. CAA department or job position concerned) in charge of each task.

b) Define who has the authority to decide, particularly with respect to enforcement aspects.
c) Define who has the authority to approve the results, reports, etc. or to sign letters, reports, licences, certificates, etc.

WHAT:

a) Define each step of the process and each task to be performed.
b) Indicate the expected result (report, licence, certificate, etc.).
c) When applicable, indicate (and attach to the procedure) the template to be used or the format of the result.
d) As necessary, establish the link with other procedures.

HOW:

a) Provide the necessary practical details and methodology, as applicable, for each task.
b) Indicate the sequence of actions.
c) Indicate the type of documents to be reviewed and how.
d) Describe ways and means to ensure the traceability of the activity (including the documents, often copies thereof, to be retained).
e) Refer to applicable checklists or forms used for the conduct of the activity at the points in the procedure where they are to be used.

WHEN:

a) If the procedure is part of a process, the step of the process at which the said procedure takes place.
b) For repetitive action (e.g. continuing surveillance), the periodicity and the maximum interval between two actions.
c) The maximum time period for completion of each task or the deadline for completion of each step.

IN COORDINATION WITH WHOM — If external entities participate in the activity, they need to be identified as clearly as possible.

APPENDIX 1

MCM CONTENT FORMAT

0.1 Nig.CARs IS 9.4.1.4 outlines the specific subjects to be contained in an AOC holder's MCM. In this subtopic, these subjects would be listed, and the key points the Airworthiness Safety Inspector is expected to look for during the manual review shall be delineated. The manual may be put together in or separate subject user volumes provided all subjects are covered as indicated in the Regulations.

0.2 The format presented here is not all exhaustive. The operator should include additional subject depending on the type of operation approval sought, and the procedures must be in agreement with regulatory requirements.

0.3 All procedures must address the following questions: What? Where? When? Who? How?

0.4 In general, all pages of the manual should contain the following at the header and footer: page number (with Chapter or Section numbers), issue number, revision number with effective page, name of organization and logo.

1.0 ADMINISTRATION AND CONTROL OF THE MCM

1.1. Approval Page:

The manual should have an approval page containing the following basic information:

i. Title of Manual;
ii. Reference Number/Code;
iii. Issue Number;
iv. Name of person that prepared the manual and appropriately signed and dated;
v. Name of person from the company that has reviewed the entire manual to ensure that it meets Regulatory standards. This should also be signed and dated;
vi. Company approval by the Accountable Manager. It should contain the name of the Accountable Manager, and appropriately signed and dated;
vii. A section for the Authority's approval.

1.2. List of Effective Pages (LEP)

LEP is a means of identifying each page of the MCM and it is used to ensure that every page contains current information.

Thus, LEP should contain all effective page numbers, their current revision number and date.

1.3. Table of Contents

The table of contents is used in the manual to enhance data access and information retrieval by allowing a quick scan on the entire Manual when looking for a key item. A good table of content will get the reader to the first page of the topic in question. The table of content is created after the Manual has being completed. The table of content should contain a list of the Manual topics identified by the number and Manual page number.

1.4. Introduction to the Manual

Information in this section should include:

i. a list and brief description of the various Maintenance Control Manual parts, their contents, applicability and use;
ii. a statement that the manual complies with all applicable Authority regulations and requirements and with the terms and conditions of the applicable Air Operator Certificate**;**

iii. a statement that the manual contains maintenance and operational instructions that are to be complied with by the relevant personnel in the performance of their duties;
iv. Explanations and definitions of terms, words and abbreviations used in the manual

1.5. Manual Distribution List & Control

The document should include a distribution list to ensure proper distribution of the manual and to demonstrate to the Authority that all personnel involved in continuing airworthiness have access to the relevant information. This does not mean that all personnel have to be in receipt of a manual but that a reasonable number of manuals are distributed within the organization so that the concerned personnel may have quick and easy access to this manual.

Accordingly, the MCM which is identified by serialized numbers should be distributed to:

i. The operator's management personnel and any unit which job function is described in the manual;
ii. All approved maintenance organization involved in the maintenance of the operator's aircraft fleet; and
iii. The Authority.

The manual should also indicate the personnel who must ensure that it is distributed to all persons in the distribution list after the manual has been approved by the Authority.

1.6. Amendment Control

This should contain a description of the MCM amendment and revision control procedures to include the following minimum information:

i. Explanation of the various factors that could result into the amendment/revision of the manual;
ii. Frequency of carrying out revisions/amendments;
iii. Explanation of who is responsible for amendment/amendment of the manual, its submission to the Authority for approval and distribution to all manual holders after the Authority's approval;
iv. Statement that all amendments shall become effective only after approval by the Authority;
v. Maximum period within which the approved amendments/revisions shall be inserted into the manual (Usually 30 calendar days);
vi. A record of amendments and revisions with insertion dates and effective dates;
vii. A statement that hand-written amendments and revisions are not permitted except in situations requiring immediate amendment or revision in the interest of safety;
viii. A system for recording temporary revisions;
ix. A description of the system for the annotation of pages and their effective dates. Usually, all amendments will be shown by providing a vertical line in the right margin of all affected pages to indicate where changes in paragraphs or wording have been made. This is followed by a change in the revision number and dates in the pages;
x. If an amendment requires additional pages, these pages will bear the page number of the preceding page and be suffixed alphabetically (*This is recommended, for it would save the operator the rigorous process of amending the preceding pages because of the spill over*);
xi. Highlights of revisions to the manual issue.

2.0 GENERAL ORGANIZATION

2.1. Corporate Commitment by the AOC.

The following statement may be used without amendment. Any changes to the statement should not alter the intent.

"*I, the Accountable Manager have the corporate authority to ensure that all maintenance activities required to keep all aircraft operated by (Insert Name of Airline) can be financed and provided to the standard required, and that all necessary resources are available to ensure compliance with this Maintenance Control Manual.*

I will establish and promote policies for safety management and quality systems for this airline and its employees in accordance with this manual.

This manual defines the procedures upon which the Air Operator Certificate approval of [Insert Name of Airline] is based as required by Part 9 of Nigeria Civil Aviation Regulations 2015.

The manual, along with the procedures contained in it, are approved by the NCAA, and must be complied with as applicable in order to ensure that all the activities to ensure the maintenance of all aircraft operated by the airline is provided to the standard required by NCAA.

The procedures included or referred to in this manual do not override the necessity of complying with any new or amended Regulations/Requirements published by the NCAA from time to time where these new or amended Regulations/Requirements are in conflict with these procedures.

The AOC approval will continue whilst the NCAA is satisfied that these procedures are being followed. NCAA reserves the right to suspend, vary or cancel the AOC approval of this airline, as applicable, if NCAA has evidence that the procedures are not being followed and the standards are not being upheld".

This statement should include the Accountable Manager's name, signature and date.

Note: Whenever the Accountable Manager is changed, it is important that the new Accountable Manager reviews and signs the statement at the earliest opportunity as part of his/her acceptance by NCAA.

2.2. General Information

a) Brief Description of the Organization:

This paragraph should describe broadly how the organization is organized under the management of the Accountable Manager, and should refer to the organizational charts.

The description of the organization must also include the approximate size of organization, geographic location of the facilities and/or their operations base when not co-located, and what type of service is offered to the public. This is helpful to determine if the policies contained in the manual are appropriate with the size and complexity of the operation.

b) Relationship with Other Organizations:

This paragraph may not be applicable to all organizations.

Where the organization belongs to a group (Subsidiaries /Mother companies), explanation should be given on the relationship the organization has with other members of that group. Example, link between Nkem Airline, Nkem AMO, Nkem leasing, Nkem Finance, etc.

It should also be indicated here if the organization belongs to a consortium (i.e. an association, typically of many companies). If applicable, the other members of the consortium should be indicated, as well as the scope of organization of the consortium [e.g. Operations, Maintenance, design (modifications & repairs), productions, etc...]. The reason for this is because consortium maintenance may be controlled through specific contracts and through consortium's policy and/or procedures that might unintentionally override the maintenance contracts.

In addition, in respect to international consortiums, the Authority should be consulted and their agreements to the arrangement clearly stated. This paragraph should then make reference to any consortium's continuing airworthiness related manual or procedure and to any CAA agreement that would apply.

c) Aircraft Fleet Composition

This paragraph should quote the aircraft type operated, number of each aircraft type and their registration numbers.

Depending on the number of aircraft, a separate system or document that contains a current list of aircraft registrations may be referenced. The paragraph, in this case should explain where the current list of aircraft managed is available for consultation.

In all cases, the MCM should always indicate the number of each aircraft type operated.

d) Type of Operation

This paragraph should give broad information on the type of operations such as: commercial, aerial work, long haul/short haul, regional, international, scheduled/charter; and if applicable, specific indication of the regions/countries/continents operated into.

e) Maintenance Arrangement Details.

This paragraph should explain the arrangement made by the operator to ensure that all scheduled and unscheduled maintenance are carried out on all aircraft operated. This should identify if the operator:

i. Is also approved as an AMO; or
ii. Contracted out maintenance; or
iii. Uses a Maintenance Authorisation; or
iv. A combination of (a) to (c).

The scope of maintenance to be carried out under any of these maintenance systems must be indicated for each aircraft type, as well as the name and approval number of the AMOs.

f) Management of Aircraft Continued Airworthiness

This paragraph should indicate how the operator wishes to comply with the Continuing Airworthiness Management requirements of Nig.CARs 5.8. It should include the name of responsible person/organization saddled with this responsibility.

If the operator seeks this approval under the AOC, the procedures for fulfilling the requirements of Continuing Airworthiness Management Exposition in Nig.CARs 5.8.1.4 should be described in this Manual. Otherwise, a reference to a separate document developed and approved by the Authority should be made.

On the other hand, if the operator contracts out this function, a description of the procedures for selecting a CAMO, and developing contracts with the CAMO should be described.

g) Line Station Locations

This paragraph should give a description of all line station locations and available facilities in each station.

2.3. Maintenance Management Personnel

Information required in this paragraph includes:

a) The Names, and Job Titles of Management Personnel:

This should contain the names of management persons (regulatory required nominated post holder and others) employed to ensure that all maintenance is carried out in accordance with the MCM. This paragraph should also describe procedures, acceptable to the Authority, for officiating arrangements when the approved nominated post holders and other management personnel are not readily available to perform their duties.

If the operator chooses to adopt a Maintenance Authorisation, the management personnel required by Nig.CARs 6.4.1.1 should be included here as applicable.

There should also be a statement that the Authority would be officially notified in writing of any changes to the approved nominated post holders or vacancy in any position help at the earliest opportunity but not exceeding 10 days (Nig.CARs 9.2.2.2(f)(3))

b) Minimum Qualifications for all the Management Personnel.

This should also contain a statement that all nominated post holders must be approved by the Authority.

c) Duties and Responsibilities:

This paragraph should contain the duties and responsibilities of the management personnel (this must include the minimum requirements stated in Nig.CARs 9.2.2.2 and/or those of 6.4.1.1 as applicable). It should also emphasis that all nominated post holders for continuing airworthiness are responsible to ensure that all maintenance is carried out on time to approved standards.

d) Inter-relationship in Duties and Responsibilities:

A description of the inter-relationships between the responsibilities of the maintenance management personnel and operations personnel who may be required to perform maintenance related activities contained in this manual.

Note: All approved nominated post holders must be seen to report directly to the Accountable Manager.

e) Maintenance Coordination

The post holder who shall be in charge of maintenance coordination must be included here. This is usually the Director of Maintenance.

f) Organizational Chart:

This should further explain the requirements above;

g) Manpower Resources:

Resources can be made from a combination of permanent and contracted personnel.

This paragraph should identify measures that are utilized to control an effective resources/workload balance ensuring that the organization can demonstrate adequate resources to meet the demands of workload in tandem with the size and number of aircraft, type of operation, etc. This entails demonstrating among other things, how the organization ensures there is sufficient employees to plan, perform, supervise, inspect and certify maintenance/release to service, audit for compliance with procedures, etc. (*Broad figures should be given in a table to show the number of personnel in each employee category dedicated to the performance for all maintenance activities described in the manual. The number of those in contract or permanent employment should be indicated)*.

Where contracted personnel are utilized, this section should identify the organization's policy and control of contracted personnel.

h) Training Policy

The training policy of all personnel involved in the control and performance of all activities related to maintenance of the aircraft as indicated in this manual shall be identified. This policy must explain how these personnel are given indoctrination training, basic trainings specific to their duties and responsibilities, the recurrent training and how frequent it shall be carried out. Emphasis should also be given on how the need for recurrent or remedial training is assessed, how the training recording and follow-up is performed, and the person responsible for implementation of these requirements.

A description of the training program for the management staff, certifying staff, non-certifying staff (technicians), quality assurance staff, technical records and planning staff, logistics (store officers), and other maintenance personnel whose duties and responsibilities are stated in this manual should be given. Note that developing areas of technology, Human Factors and Safety Management Systems should feature in the training policy and programme

This must also include the competency verification methods of contracted personnel, and how they shall receive indoctrination training (*This is important because the personnel are required to follow the procedures in this manual in the performance of duties*).

This section should also include a statement that no personnel that have not received the required initial training and recurrent training, or whose competence has not been verified as satisfactory shall be utilized in the performance of duties.

i) Quality & Safety Systems Policy

The organization shall establish policy and procedures for a quality and safety system taking account of the size of the organization and any contractual arrangement

If the organization also has an AMO approval or uses a Maintenance Authorisation, description of the procedures for fulfilling the quality systems requirements of Parts 9 (9.2.2.3) and Parts 6 (6.2.1.12), and the Safety Management Systems requirements of Part 20 shall be made.

The operator has option to develop separate policy and procedures documents for these systems. In such case, references to the documents shall be made here.

2.4. Notification Procedure to the Authority Regarding Changes to the Maintenance Arrangements Locations, Personnel, Activities, or Approval:

This must include the job title of the personnel who shall notify the Authority of these changes and the maximum number of days within which the notification must be made.

The operator should commit in a statement that any of these changes shall not be incorporated until accessed and approved by the Authority.

3.0 MAINTENANCE PROCEDURES

3.1. Aircraft Logbook Utilization & MEL Application:

3.1.1 Aircraft Technical Log/Continuing Record System Utilization

a) General:

This paragraph introduces the purpose of the aircraft technical log system and/or continuing airworthiness record system.

b) Instruction for Use

This paragraph should provide instructions for using the aircraft technical log and/or continuing airworthiness record system. It should insist on the respective responsibilities of the maintenance personnel and operating crew. This should include when and how defects are entered, how defects are rectified, the procedures for entering the status of scheduled maintenance, etc.

Details of procedural arrangements for communicating technical log data and engineering decisions between the Operator and the Continued Airworthiness Management Organization/Technical Records & Planning Department should also be identified in this paragraph.

c) Aircraft Technical Log Approval:

The mandatory items that must be incorporated into the Tech log as required by Nig.CARs 9.4.1.9 should be listed here. This paragraph should also explain who is responsible for submitting the aircraft technical log subsequent amendment to the Authority for approval and what is the procedure to be followed.

Samples of the technical log and/or continuing airworthiness record system may be as an Appendix in order to provide enough detailed instructions.

3.1.2 MEL Application

Although the MEL is a document that is not normally controlled by the continuing airworthiness management system, and that the decision of whether or not a MEL tolerance normally remains the responsibility of the operating crew, this paragraph should explain in sufficient detail the MEL application procedure. This is because the MEL is a tool that the personnel involved in maintenance have to be familiar with in order to ensure proper and efficient communication with the crew in case of a rectification defect to be deferred.

a) General

This paragraph should explain broadly what a MEL document is. The information could be extracted from the aircraft flight manual

b) MEL Categories

The standard MEL Categories should be explained in this paragraph. It is essential for the personnel involved in maintenance to be familiar with it for the management of MEL deferred defect rectification.

c) Application:

This paragraph should explain how the maintenance personnel identify a MEL limitation to the crew. This should refer to the technical log procedures.

d) Acceptance by Crew

This paragraph should explain how the crew notifies his acceptance or non-acceptance of the MEL deferment in the technical log

e) Management of the MEL Time Limits

After a technical limitation is accepted by the crew, the defect must be rectified within the time limit specified in the MEL. There should be a system to ensure that the defect will actually be corrected before that limit. This system could be the aircraft technical log for those [small] operators that use it as a planning document, or a specific follow-up system, in other cases, where control of the maintenance time limit is ensured by another means such as data processed planning systems.

f) MEL Time Limitation Overrun

The Authority may grant the owner/operator to overrun MEL time limitation under specified conditions. Where applicable this paragraph should describe the specific duties and responsibilities for controlling these extensions.

The Authority may permit the operator to take in-house extension for an MEL item once. When that is done, the operator must notify the Authority in writing on the in-house extension taken. Any further extension on the same MEL item must be approved by the Authority.

Note: Categories A and D MEL items cannot be extended.

3.2 Aircraft Maintenance Programme Development, Amendment & Utilization

3.2.1 General

This introductory paragraph should remind that the purpose of a maintenance program is to provide maintenance planning instructions necessary for the safe operation of the aircraft.

3.2.2 Content

This paragraph should explain what is [are] the format[s] of the company's maintenance program[s] for each aircraft type in the fleet operated.

3.2.3 Development

a) Sources

This paragraph should explain what are the sources [MRB, MPD, Maintenance Manual, etc.] used for the development of an aircraft maintenance program.

b) Responsibilities

This paragraph should explain who is responsible for the development of an aircraft maintenance program.

c) Manual Amendments

This paragraph should demonstrate that there is a system for ensuring the continuing validity of the aircraft maintenance program. Particularly, it should show how any relevant information is used to update the aircraft maintenance program. This should include, as applicable, MRB report revisions, consequences of modifications, manufacturers and Authority's recommendations, in service experience, and reliability reports.

d) Utilization

This paragraph should describe the procedures to be followed to ensure that maintenance of the aircraft is accomplished in accordance with the applicable aircraft Maintenance Program.

e) Acceptance by the Authority

This paragraph should explain who is responsible for the submission of the maintenance program to the Authority and the procedures to be followed. This should, in particular, address the issue of the Authority's approval for variation to maintenance periods. The paragraph should then specify what types of changes are concerned and what the approval procedures are.

3.3 Time and Continuing Airworthiness Records, Responsibilities, Retention

a) Hours and cycles recording

The recording of flight hours and cycles is essential for the planning of maintenance tasks. This paragraph should explain how the organization responsible for maintenance and the operator has access to the current flight hours and cycle information and how it is processed.

b) Records

This paragraph should give in detail the type of company documents that are required to be recorded and what are the recording period requirements for each of them. This can be provided by a table or series of tables that would include the following:

i. Name of document,
ii. Retention period,
iii. Responsible person for retention,
iv. Place of retention

c) Preservation of Records

This paragraph should set out the means provided to protect the records from fire, floods, etc. as well as the specific procedures in place to guarantee that the records will not be altered during the retention

period [especially for the computer record]. At least one back-up system must be in place if computer is used. Each terminal should contain programme safeguards against unauthorized alteration of the database and should also have traceability features (e.g. requiring the use of a magnetic or optical card in conjunction with a personal identity number (PIN) known only to the individual concerned).

d) Transfer of Continuing Airworthiness Records

This paragraph should set out the procedure for the transfer of records, in case of purchase/lease-in, sale/lease-out and transfer of an aircraft to another organization. In particular, it should specify which records have to be transferred and who is responsible for the coordination [if necessary] of the transfer.

The method of compliance of Nig.CARs 9.4.1.8 must be described here.

3.4 Accomplishment and Control of Mandatory Continued Airworthiness Information (Airworthiness Directives)

a) Airworthiness Directives Source

This paragraph should explain what the Airworthiness Directives sources are, who receives them in the company, and processes in place to ensure that the Airworthiness Directives are received immediately they are made released by the sources.

b) Airworthiness Directives decision

This paragraph should explain how and who analyses the Airworthiness Directives information, and what kind of information is provided to the contracted maintenance organizations in order to plan and to perform the maintenance action required by the Airworthiness Directives. It is necessary to include a specific procedure for emergency Airworthiness Directives management.

c) Airworthiness Directives Control

This paragraph should specify how the organization manages to ensure that all the applicable Airworthiness Directives are performed and that they are performed on time. This should include a close loop system that allows verifying that for each new or revised MCAI and for each aircraft:

1) the Airworthiness Directives is not applicable or,
2) if the Airworthiness Directives is applicable:

   i. The Airworthiness Directives is not yet performed but the time limit is not overdue;
   ii. The Airworthiness Directives is performed, and any repetitive inspection are identified and performed

This may be a continuous process or may be based on scheduled reviews

3.5 Analysis of the Effectiveness of the Maintenance Programme

This paragraph should show who is responsible for this analysis, when the analysis is done (frequency) and what tools are used in order to carry out monitoring of and analysis of the efficiency of the maintenance program. Such tools may include:

a) pilots' reports (PIREPS),
b) air returns
c) spare consumption,
d) repetitive technical occurrence and defect,
e) technical delays analysis (through statistics if relevant),
f) manufacturer's recommendations;
g) reliability monitoring;
h) technical incidents analysis (through statistics if relevant), etc...

The paragraph should also indicate how these data are analyzed, who does the analysis, what is the decision process leading to taking action, and what kind of action could be taken. This action may include:

a) amendment of the Maintenance Programme;
b) amendment of maintenance or operational procedures, etc.

If the aircraft is expected to have a Reliability Programme, a reference to the Programme should be made here.

3.6 Non-Mandatory Modification Embodiment Policy

This paragraph should specify how the non-mandatory modification information are processed through the organization, who is responsible for their assessment against the operator's own need and operational experience, what are the main criteria for decision and who takes the decision of implementing [or not] a non-mandatory modification.

Examples of non-mandatory modifications include Service Bulletins, Vendor Service Bulletins, Service Letters, etc.

3.7 Minor and Major Repair/ Modification Standards

This paragraph should set out a procedure for the assessment of the approval status of any modification before embodiment. This will include the assessment of the Authority's or design organization's approval. It should also identify the type of approval required, and the procedure to follow to have a modification/repair approved by the Authority.

3.8 Defect Reports

This paragraph should describe the procedures the Operator follows to ensure that Airworthiness of the aircraft and the serviceability of both operational and emergency equipment are accomplished through the rectification to an approved standard of any defect and damage affecting safe operation:

a) Analysis

This paragraph should explain how the defect reports obtained through various sources are processed. Analysis should be conducted in order to give elements to activities such as maintenance program evolution and non-mandatory modification policy.

b) Liaison with Manufacturers and Regulatory Authorities

Where a defect report shows that such defect is likely to occur to other aircraft, a liaison should be established with the Authority, manufacturer and the State of Design, so that they may take all the necessary action.

Procedures for accomplishing the requirements of Nig.CARs 5.5.1.4 & 5.5.1.5 should be described here.

c) Deferred Defect policy

This paragraph should indicate that all defects must be rectified immediately they are recorded. However, in special circumstances where undue delay or cancellation of flights would result, or where spares may not immediately be available, then the deferment of rectification may be possible, taking into account the MEL and CDL.

Where defects such as cracks and structural defect which are not addressed in the MEL and CDL are recorded, it may be necessary in certain cases to defer the rectification of the defect.

This paragraph should establish the procedure to be followed in order to be sure that the deferment of any defect will not lead to any safety concern. This will include appropriate liaison with the manufacturer and the Authority.

d) Rectification of Defects

This paragraph should include procedure in place to ensure that defects which are not deferrable are satisfactorily rectified before an aircraft is put to service.

3.9 Engineering Activity.

Where applicable, this paragraph should expose the scope of the organization's engineering activity in terms of approval of modification and repairs. It should set out a procedure for developing and submitting a modification/repair design for approval to the Authority and include reference to the supporting documentation and forms used. It should identify the person in charge of accepting the design before submission to the Authority.

Where the organization has a DOA (Design Organization Approval) capability, it should be indicated here; and the related manuals should be referred to.

3.10 Reliability Programmes:

This paragraph should explain appropriately the management of a reliability programme. It should at least address the following:

a) extent and scope of the operator's reliability programmes;
b) specific organizational structure, duties and responsibilities;
c) establishment of reliability data;
d) analysis of the reliability data;
e) corrective action system (maintenance programme amendment);
f) scheduled reviews (reliability meetings, the participation of the Authority).

This paragraph may be, where necessary, subdivided as follows:
a) Airframe
b) Propulsion
c) Component

3.11 Technical Dispatch

This subject should contain at least a description of the technical dispatch procedures, including procedures for ferry-flight authorizations, all weather operation, or any other special operation.

The purpose of the technical dispatch procedures is to ensure that only those aircraft that conform to applicable airworthiness and operational requirements are dispatched. This system also forms the basis upon which the pilot will determine aircraft serviceability in respect of airworthiness directives, maintenance, weight and balance control or operational requirements.

The system should be designed to prevent the dispatch of an aircraft unless all equipment necessary for the specific flight is serviceable, maintenance performed on the aircraft was complete and properly certified, and identifies any test flight requirements.

3.11.1 Maintenance Release & Airworthiness Release

This paragraph should explain the difference between a maintenance release and airworthiness release. It should contain a description of the procedures for preparing them and under what circumstances they are to

be signed.

Method of compliance of Nig.CARs 9.1.1.1(a)(6) & (35), 9.4.1.3 (d), 9.4.1.8(a)(6) & (b), 9.4.1.10(a), etc., should be described here.

3.11.2 Pre-Flight Inspections

This paragraph should show how the scope and definition of pre-flight inspection, which is usually performed by the operating crew, is kept consistent with the scope of the maintenance performed by the maintenance organization. It should show how the evolution of the pre-flight inspection content and of the maintenance programme is concurrent.

The following paragraphs are self-explanatory. Procedures should be developed to ensure that any of these activities does not affect airworthiness of the aircraft.

a) Preparation of aircraft for flight;
b) Sub-contracted ground handling function;
c) Security of Cargo and Baggage loading;
d) Control of refueling, Quantity/Quality;
e) Control of snow, ice dust and sand contamination to an approved standard.

Item (d) above must contain:

i. procedures for refueling and defueling aircraft;
ii. fire precaution procedures during refueling and defueling; and
iii. procedures for preventing or eliminating fuel contamination, etc.

3.12 Aircraft weighing

This paragraph should state in which occasion an aircraft has to be weighed taking into account the Authority's requirements and the State of Registry requirements. Weighing may also be required after a major modification. This paragraph should describe who performs the weighing, according to which procedure, who calculates the new weight and balance, and how the result is processed in the organization.

3.13 Check Flight Procedures

This paragraph should describe the criteria for performing a check flight, taking into account the State of Registry requirements and the applicable instructions for continued airworthiness (ICA).

3.14 Certificate of Airworthiness

In this paragraph, the operator must describe the procedures that must be followed in order to apply to the Authority for Certificate of Airworthiness Issuance/renewal. It must include when the application shall be made, who makes the application, the list of documents that must be prepared and/or submitted to the Authority for evaluation/inspection, and preparation and availability of the aircraft for the Authority's inspection.
Procedures should provide for the removal from service any aircraft that does not have a valid and an in-force Certificate of Airworthiness.
When an aircraft is removed from service permanently or for an extended period, procedures should be in place to notify the Authority
Requirements of Nig.CARs 5.4.1.5 should be met here

3.15 Special Flight Permit Application Procedure

This paragraph should describe the procedures to follow when applying to the Authority for issuance of Special Flight Permit. It must contain the Form(s) to be completed, Certificate of Fitness for Flight and the process of completing and signing these documents. It must also explain under what condition a Special Flight Permit shall be required.
Requirements of Nig.CARs 5.4.1.7 must be met

3.16 Personnel Records

This paragraph should operator contain at least a description of the kinds of personnel records to be retained by the organization.

3.17 Appropriate Portions of the AOC Holder's Operations Manual

3.18 Appropriate portions of the AMO Procedures manual in IS 6.5.1.1 for Maintenance Authorisation

4.0 CONTRACTED MAINTENANCE

4.1 Procedures for Contracted Maintenance

a) Maintenance Contractor Selection Process

This paragraph should explain how a maintenance contractor is selected by the Operator. Selection should not be limited to the verification that the contractor is appropriately approved for the specific type of aircraft, but also that the contractor has the industrial capacity to undertake the required maintenance. The selection procedure should preferably include a contract review process in order to ensure that:

i. the contract is comprehensive and that it has no gaps or unclear areas;
ii. everyone involved in the contract (the operator and at the maintenance contractor) agrees with the terms of the contract and fully understands their responsibilities;
iii. that functional responsibilities of all parties are clearly identified.

b) Procedures for the development of maintenance contracts

This paragraph should describe the procedures that the organization follows to develop maintenance contracts. In particular, it should cover the responsibilities, tasks and interaction with the contracted maintenance organization. This paragraph should also describe, when necessary, the use of work orders for unscheduled line maintenance and component maintenance.

5.0 APPENDICES

5.1 Sample of Documents, Tags and Forms Used

This shall contain the following:

a) Sample of documents;
b) List of sub -contractors;
c) List of contracted approved maintenance organization
d) List of contracted approved Continuing Airworthiness Management Organizations;
e) List of contracts for sub-contracted work;
f) Sample of Tags
g) Sample of Forms
h) Etc.

6.0 RESULTS

6.1 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 maintenance control manual to the applicant or operator accompanied by a letter of approval;

(iii) A copy of the approved maintenance control manual of the operator is kept with the Authority;