DIRECTORATE OF FLIGHT SAFETY STANDARDS
TECHNICAL GUIDANCE MATERIALS

Liberia Civil Aviation Authority

AIRWORTHINESS INSPECTOR HANDBOOK(AIH)

PART 2

PROCEDURES

AUGUST 2021

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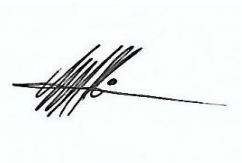
DIRECTORATE OF FLIGHT SAFETY STANDARDS (DFSS)	**HON. MOSES Y. KOLLIE**		**AUGUST 15, 2021**

PREFACE

This Airworthiness Inspector Handbook is one in a set of documents forming the technical guidance materials of the Directorate of Flight Safety Standards provided for the conduct of aviation safety oversight by Airworthiness Inspector in the performance of their duties.

It is emphasized that all matters pertaining to an Airworthiness Inspector's duties and responsibilities cannot be covered in this handbook. They are expected to use good judgment in matters where specific guidance has not been given.

This handbook will be treated as a dynamic document. Changes in aviation technology, legislation and within the industry will necessitate changes to requirements.

Comments and recommendations for Amendment action to this publication should be forwarded to Airworthiness Inspection Division which will evaluate the comments and recommendations as per "Procedure for Amendment of Airworthiness Inspector Handbook" detailed in this handbook.

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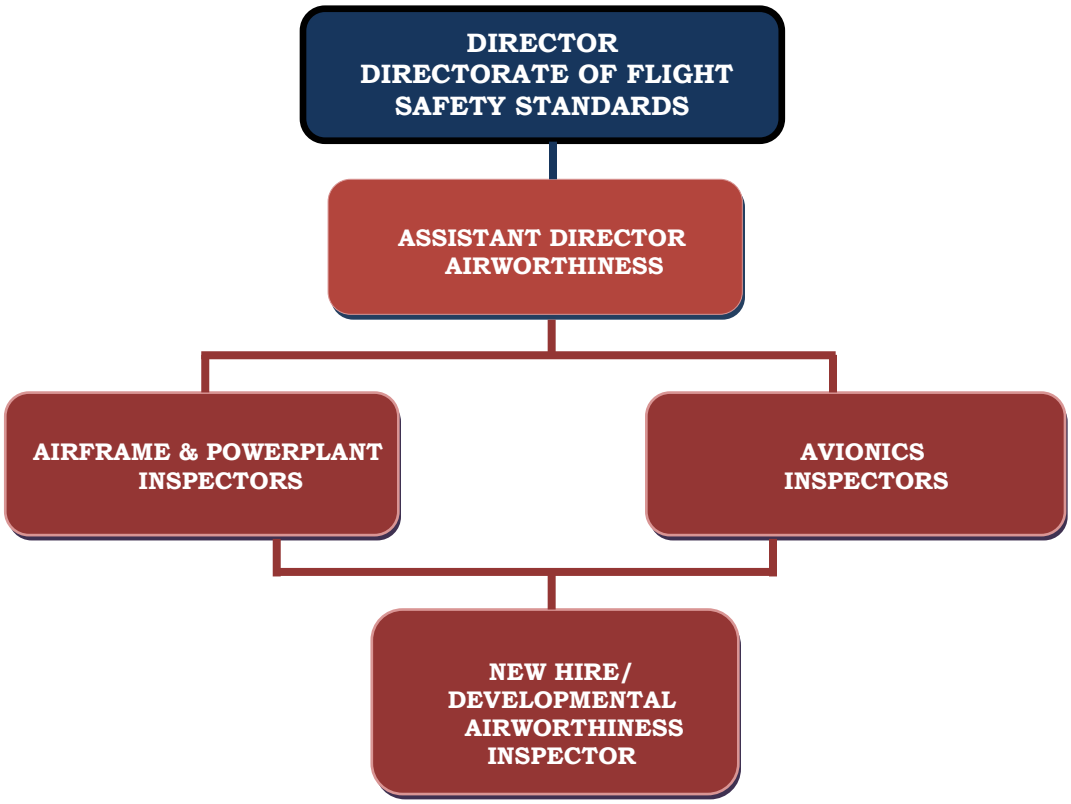
DFSS ORGANOGRAM

DIRECTORATEOF FLIGHT SAFETY STANDARDS

AIRWORTHINESS SECTION



ABREVIATIONS /ACRONYMS

AD	Airworthiness directive
AFM	Aircraft flight manual
AID	Airworthiness inspection division
AOC	Air Operator's Certificate
ASI	Aviation Safety Inspector
AWI	Airworthiness Inspector
AMO	Approved maintenance organization
AOC	Air operator certificate
APU	Auxiliary power unit
CAA	Civil aviation authority
C of A	Certificate of airworthiness
C of R	Certificate of registration
CDL	Configuration deviation list
CG	Centre of gravity
CMR	Certification maintenance requirements
CPC	Certification Project Coordinator
CVR	Cockpit voice recorder
DG	Director General
DGCA	Director General of Civil Aviation
EDTO	Extended diversion time operations
ETOPS	Extended range operations by aeroplanes with two turbine engines
FDR	Flight data recorder
FSSD	Flight Safety Standard Department
ICAO	International Civil Aviation Organization
ICAs	instructions for continued airworthiness
LCAA	Liberia Civil Aviation Authority
LCARs	Liberia Civil Aviation Regulations
MCAI	Mandatory continuing airworthiness information
MCM	Maintenance control Manual
MEL	Minimum equipment list
MMEL	Master minimum equipment list
MRB	Maintenance review board
MSG	Maintenance steering group
RNP	Required Navigation Performance;
RVSM	Reduced vertical separation minima
SB	Service bulletin
STC	Supplemental type certificate

DEFINITION

(a) When the following terms are used in this Handbook, they have the meanings shown. These definitions are appropriate to the use of the terms in this document only. Additional definitions can be found in Annexes 6 and 8.

(1) **Aeronautical product.** Any aircraft, aircraft engine, aircraft propeller or a part there of including any associated computer system and computing software.

(2) **Aeroplane**. A power-driven heavier-than-air aircraft, deriving its lift in flight chiefly from aerodynamic reactions on surfaces which remain fixed under given conditions of flight.

(3) **Aeroplane Flight Manual (AFM) / Rotorcraft Flight Manual (RFM).** The approved flight manual is the document approved by the CAA during the type certification acceptance process. The approved flight manual for the specific aircraft, as listed on the applicable type certificate data sheet, is the source document for operational limitations and performance parameters for an aircraft. The term, approved flight manual, can apply to either an AFM or an RFM. The CAA requires an approved flight manual for accepting an aircraft type certification.

(4) **Aeroplane system.** An aeroplane system includes all elements of equipment necessary for the control and performance of a particular major function. It includes both the equipment specifically provided for the function in question and other basic related aeroplane equipment such as that required to supply power for the equipment operation. The engine is not considered to be an aeroplane system.

(5) **Aircraft.** Any machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth's surface.

(6) **The Aircraft Maintenance Manual (AMM).** The AMM is the source document for aircraft maintenance procedures. The term AMM can apply to either an aeroplane or a rotorcraft manual. The CAA requires an AMM for aircraft type acceptance certification.

(7) **Aircraft operating Manual.** A Manual, acceptable to the State of the Operator, containing normal, abnormal and emergency procedures, checklists, limitations, performance information, details of the aircraft systems and other material relevant to the operation of the aircraft.

Note.— The aircraft operating Manual is part of the operations Manual.

(8) **Air operator certificate (AOC).** A certificate authorizing an operator to carry out specified commercial air transport operations.

(9) **Air Transport Association of America (ATA) Specification 100.** ATA Specification 100, Manufacturer's Technical Data, is an international industry numbering standard developed to identify systems and components on different aircraft in the same format and manner.

(10) **Airworthy.** The status of an aircraft, engine, propeller or part when it conforms to its approved design and is in a condition for safe operation

(11) **Airworthiness directive (AD).** A regulatory document which identifies aeronautical products in which an unsafe condition exists and where the "unsafe" condition is likely to exist or develop in other products of the same type design. It prescribes corrective

actions to be taken or the conditions or limitations under which the products may continue to be operated. The AD is the common form of mandatory continuing airworthiness information mentioned in Annex 8.

(12) **Airworthiness Standards.** For purposes of type certification, these are the detailed and comprehensive design and safety criteria applicable to the category of the aeronautical product (aircraft, engine, propeller) that satisfies, as a minimum, the applicable Standards of ICAO Annex 8. These design standards are detailed in nature and cover aspects such as, but not limited to: flight performance and characteristics, structural strengths and durability, general design and construction, powerplant and systems, aircraft and systems architecture, equipment specifications, overall function and reliability criteria, tests and inspections methods, and operating limitations and information.

(13) **Appropriate airworthiness requirements**. The comprehensive and detailed airworthiness codes established, adopted or accepted by a Contracting State for the class of aircraft, engine or propeller under consideration.

(14) **Airworthiness inspector Handbook.** A Handbook containing procedures, instructions and guidance for use by airworthiness personnel in the execution of their duties.

(15) **Certificate holder**. An individual or organization who meets the established requirements and functions at the level of competency and safety required by the State to undertake an aviation-related activity for which they have been licensed, certified, authorized and/or approved to perform.

(16) **Certification basis.** The applicable airworthiness and environmental standards established by a State as the basis by which the type design of an aeronautical product, or change to that type design was approved or accepted. The certification basis may also include special conditions of airworthiness, findings of equivalent level of safety, and/or exemptions when determined by the State to apply to the type design.

(17) **Certification maintenance requirement.** Maintenance that is required by design to help show compliance with the appropriate type certification requirements by detecting the presence of, and thereby limiting the exposure time to, a significant latent failure.

(18) **Comprehensive and detailed airworthiness code.** The collective requirement that consists of, but not limited to, the approval or acceptance of the type design to an airworthiness standard, conformity to production or manufacturing standards, performance of inspection, maintenance, repair and modification in accordance with standards that ensure the continuing airworthiness of the aircraft, and a system of surveillance or monitoring of safety by the Contracting State.

(19) **Confidence level.** Where the probability of occurrence of an event is inferred from a sample of measurements, the confidence can be determined that the true probability of occurrence of the event is greater than or less than the inferred probability, as appropriate. The confidence level is itself a statistical measure which is also expressed as a probability.

(20) **Environmental Standards.** The specifications and maximum levels defined in Annex 16 — *Environmental Protection* for the certification of aircraft noise and engine smoke and gaseous emissions, including the Standards for the prevention of intentional fuel venting into the atmosphere.

(21) **Configuration deviation list (CDL).** A list established by the organization responsible for the type design with the approval of the State of Design which identifies any external parts of an aircraft type which may be missing at the commencement of a flight, and which contains, where necessary, any information on associated operating limitations and performance correction.

(22) **Continuing airworthiness**. The set of processes by which an aircraft, engine, propeller or part complies with the applicable airworthiness requirements and remains in a condition for safe operation throughout its operating life.

(23) **Exception/Exemption**. A relief from compliance with the requirement(s) of airworthiness or environmental standards, or operating rules, based on the determination by a civil aviation authority that granting such relief will not adversely affect safety.

(24) **Extended diversion time operation (EDTO).** Any operation by an aeroplane with two or more turbine engines where the diversion time to an en-route alternate aerodrome is greater than the threshold time established by the State of the Operator.

(25) **EDTO – significant system.** An aeroplane system whose failure or degradation could adversely affect the safety particular to an EDTO flight, or whose continued functioning is specifically important to the safe flight and landing of an aeroplane during an EDTO diversion.

(26) **Extended diversion time operations, configuration, maintenance and procedures (CMP) standard**. The particular aeroplane configuration minimum requirements including any special inspection, hardware life limits, master minimum equipment list (MMEL) constraints and maintenance practices found necessary to establish the suitability of an airframe-engine combination for extended diversion time operation.

(27) **Equivalent level of safety.** As used in type certification, a finding where literal compliance with a specific airworthiness requirement cannot be demonstrated but compensating factors exist in the type design that can be shown to provide a level of safety equivalent to that intended by the certification basis.

(28) **Failure condition.** The effect on the aircraft and its occupants, both direct and consequential, caused or contributed to by one or more failures, considering relevant adverse operational or environmental conditions.

(29) **Inoperative.** Inoperative means that a system or component has malfunctioned to the extent that it does not accomplish its intended purpose and/or is not consistently functioning normally within its approved operating limits or tolerances.

(30) **Instructions for continued airworthiness.** A set of descriptive data, maintenance planning and accomplishment instructions, developed by a design approval holder in accordance with the certification basis for the product, providing operators with the necessary information for development of their own maintenance program and accomplishment instructions.

(31) **Latent failure.** A failure that is not detected and/or enunciated when it occurs.

(32) **Life-limited part.** Any part for which a retirement time, service life limitation, part retirement, retirement life limitation or life limitation exists, and is permanently removed from service when its operating limit (hours, cycles or calendar time) is exceeded.

(33) **Maintenance.** The performance of tasks required to ensure the continuing airworthiness of an aircraft, including any one or combination of overhaul, inspection, replacement, defect rectification, and the embodiment of a modification or a repair.

(34) **Maintenance organization's procedures Manual.** A document which details the maintenance organization's structure and management responsibilities, scope of work, description of facilities, maintenance procedures, and quality assurance, or inspection systems. This document is normally endorsed by the head of the maintenance organization.

(35) **Maintenance program.** A document which describes the specific scheduled maintenance tasks and their frequency of completion and related procedures, such as a reliability program, necessary for the safe operation of those aircraft to which it applies.

(36) **Maintenance release.** A document which contains a certification confirming that the maintenance work to which it relates has been completed in a satisfactory manner, either in accordance with the approved data and the procedures described in the maintenance organization's procedures Handbook or under an equivalent system.

(37) **Major modification**. In respect of an aeronautical product for which a Type Certificate has been issued, a change in the Type Design that has an appreciable effect, or other than a negligible effect, on the mass and balance limits, structural strength, powerplant operation, flight characteristics, reliability, operational characteristics, or other characteristics or qualities affecting the airworthiness or environmental characteristics of an aeronautical product.

(38) **Major repair.** Any repair of an aeronautical product that might appreciably affect the structural strength, performance, engine, operation flight characteristics or other qualities affecting airworthiness or environmental characteristics.

(39) **Mandatory Continuing Airworthiness Information (MCAI)**. The mandatory requirements for the modification, replacement of parts, or inspection of aircraft and amendment of operating limitations and procedures for the safe operation of the aircraft. Among such information is that issued by Contracting States in the form of airworthiness directives.

(40) **Master minimum equipment list (MMEL).** A list established for a particular aircraft type by the organization responsible for the type design with the approval of the State of Design containing items, one or more of which is permitted to be unserviceable at the commencement of a flight. The MMEL contains the conditions, limitations and procedures required for operating the aircraft with these items inoperative. The MMEL is used as a starting point in the development and review of an individual operator's MEL.

(41) **Minimum equipment list (MEL).** A list which provides for the operation of aircraft, subject to specified conditions, with particular equipment inoperative, prepared by an operator in conformity with, or more restrictive than, the MMEL established for the aircraft type.

(42) **Minor modification**. A modification other than a major modification.

(43) **Minor repair.** A repair other than a major repair.

(44) **Modification**. A change to the type design of an aeronautical product which is not a repair.

(45) **Operations Handbook.** A Handbook containing procedures, instructions and guidance for use by operational personnel in the execution of their duties.

(46) **Operator's maintenance control Handbook.** 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.

(47) **Organization responsible for the type design.** The organization which is the holder of the type certificate and has the responsibility of the design of the aeronautical product and the continuous compliance of the aeronautical product type design to the appropriate airworthiness requirements imposed by the type certificating authority. In some cases, (prior to Amendment 98 of Annex 8), it will be the holder of an equivalent document certifying approval of the type design by the certificating authority.

(48) **Propulsion system.** A system consisting of an engine, all ancillary parts installed on the engine, and all other equipment utilized to provide those functions necessary to sustain, monitor and control the power/thrust output of any one engine following installation on the airframe.

(49) **Repair.** The restoration to an aeronautical product to an airworthy condition as defined by the appropriate airworthiness requirements.

(50) **Safety management system.** A systematic approach to managing safety, including the necessary organizational structures, accountabilities, policies and procedures.

(51) **Special conditions of airworthiness**. The technical requirements added to the certification basis as a consequence of novel or unusual design feature(s) that exists in a type design and the absence or inadequacy of the applicable airworthiness standards to provide a basis for the certification of such features.

(52) **State of Design.** The State having jurisdiction over the organization responsible for the type design.

(53) **State of Manufacture.** The State having jurisdiction over the organization responsible for the final assembly of the aircraft.

(54) **State of Registry.** The State on whose register the aircraft is entered.

(55) **State of the Operator.** The State in which the operator's principal place of business in located or, if there is no such place of business, the operator's permanent residence.

(56) **Structural inspection.** A detailed inspection of the airframe structure that may require special inspection techniques to determine the continuous integrity of the airframe and its related parts.

(57) **Threshold time.** The range, expressed in time, established by the State of the Operator to an en-route alternate aerodrome, whereby any time beyond requires an EDTO approval from the State of the Operator.

(58) **Type certificate.** A document issued by a Contracting State to define the design of an aircraft type and to certify that this design meets the appropriate airworthiness requirements of that State.

Note: Some Contracting States also issue Type Certificates for engines and propellers

(59) **Type design.** The set of data and information necessary to define a product type for the purpose of airworthiness determination to any later product of the same type.

CHAPTER-1: CONTINUING AIRWORTHINESS MAINTENANCE PROGRAMME

1.1 PURPOSE

This chapter provides guidance for the LCAA to use in reviewing, approving and on-going evaluation of Continuous Airworthiness Maintenance Programmes (CAMP).

1.2 APPROVAL OF CONTINUOUS AIRWORTHINESS MAINTENANCE PROGRAMMES

1.2.1 BACKGROUND & POLICIES

Applicable Action Number
- 3307: Evaluate Maintenance Programme
- 3307A-D: Evaluate Maintenance Programme
- 4307: Evaluate Maintenance Programme
- 3311: Evaluate Airframe Maintenance Programme
- 3311A-D: Evaluate Airframe Maintenance Programme
- 3315: Evaluate Powerplant Maintenance Programme
- 3315A-C: Evaluate Powerplant Maintenance Programme
- 3318: Evaluate Reliability Programme
- 3318A-F: Evaluate Reliability Programme
- 3423: Evaluate Specific Aircraft Maintenance Schedule
- 3423A-C: Evaluate Specific Aircraft Maintenance Schedule
- 3602B: Inspect Maintenance Programme
- 3610: Inspect Reliability Programme
- 4307A-B: Evaluate Maintenance Programme
- 4318: Evaluate Reliability Programme
- 4318A-F: Evaluate Reliability Programme
- 4610: Inspect Reliability Programme

1.2.1.1 General

(a) Manufacturers of aircraft, engines, propellers and components are required to supply users with maintenance instructions.

(b) Owners and operators of this equipment should use these maintenance instructions to maintain their equipment in an airworthy condition.

(c) AOC holders operating large aircraft are required to maintain those aircraft in an airworthy condition by utilizing a CAMP.

1.2.1.2 Acceptable Maintenance Programmes

(a) The programmes presented by an AOC holder shall be specifically developed for the aircraft they are operating based on:

(1) Manufacturer recommended instructions for continued airworthiness (ICAs) such as, but not limited to, the maintenance review board (MRB) report, where available,

(2) Type certificate holder's maintenance planning document (MPD).

(b) Any appropriate chapter in the maintenance manual (i.e., the manufacturer's recommended maintenance programme. Most maintenance programmes are a combination of the above.

1.2.1.3 Maintenance Steering Guides

(a) When a new aircraft is developed the aircraft manufacturer organizes a maintenance review under published guidelines in the Maintenance Steering Guide (MSG).

(b) The MSG 2 or 3 could have been used depending on the date of development. Regardless, all AOC holders buying the aircraft as well as certification authorities participate in developing the manufacturers programme.

1.2.2 **RELIANCE ON MANUFACTURER**

1.2.2.1 **Specialized Knowledge**

(a) The development of a programme requires extensive knowledge of the—

(1) Manufacturing techniques used,
(2) Accessibility to specific areas,
(3) Inspection techniques, and
(4) Engineering design data.

This intimate knowledge of the aircraft is not normally found within an operator's workforce.

(b) For that reason, all operators rely on the manufacturers recommended programme for development of their programme.

1.2.2.2 **Maintenance Planning Guide**

(a) The manufacturer normally publishes its maintenance recommendations in a Planning Guide.

(b) Different manufacturers organize the Planning Guide indifferent ways but no matter the format it takes into consideration—

(1) Environment of operation

(2) Yearly utilization

(3) Economics

1.2.2.3 **Inspection Work Cards & Check Sheets**

(a) The manufacturer also publishes inspection work cards and/or check sheets that an operator can utilize in performing maintenance in accordance with the Planning Guide.

(b) The airframe manufacturer's planning document contains maintenance, inspection and servicing requirements. This includes—

(1) System checks,

(2) On wing engine checks,

(3) Zonal checks and

(4) Recommended time limitations for accessories and components.

1.2.2.4 **Other Maintenance Planning Documents**

(a) The engine manufacturer also publishes a planning document that contains additional on wing maintenance/inspection recommendations and off wing maintenance requirements.

(b) Accessory and component manufacturers publish overhaul manuals used to repair and/or overhaul an accessory or component when it is removed from the aircraft for cause.

1.2.3 **ACCEPTABLE PROGRAMME CONTENTS**

(a) An acceptable continuous maintenance programme will address the following—

(1) Airframe inspections

(2) Zonal inspections

(3) Corrosion Prevention and Control

(4) Damage tolerance considerations

(5) Aging aircraft considerations

(6) System tests

(7) Time limitations for components and accessories

(8) On wing engine programme

(9) Off wing engine programme

(10) Servicing

(11) Document control procedures

(b) AnacceptableContinuousMaintenanceProgrammewilltakethefollowingintoconsideration—

(1) Operational environment of the aircraft

(2) Daily utilization

(3) Number of cycles per day

(4) Availability and location of maintenance personnel

1.2.4 INSPECTOR REVIEW CONSIDERATIONS

(a) The review and approval of maintenance programme is one of the most time consuming projects a maintenance inspector can be assigned.

(1) If the owner/operator used the manufacturers planning documents, work cards and check sheets the approval process is expedited.

(2) The review would be limited to comparison to the manufacturer's recommendations and the owner/ operators operations considerations.

1.3 MAINTENANCE PROGRAMME EVALUATION PROCEDURES

1.3.1 SUBMISSION WITH FORMAL APPLICATION

(a) The LCAA requires that the proposed maintenance programmes be submitted at the formal phase of a certification along with all other required manuals and programmes.

(b) The AOC applicant or AOC holder must submit one print- copy and a digital copy of its proposed maintenance programme to the Directorate of Flight Safety Standards for review.

(c) If the manual is found acceptable, before approval, the applicant or AOC holder shall submit an additional print copy of the manual to the Directorate of Flight Safety Standards.

(d) The proposed maintenance programme document should be presented with—

(1) Copy of the MRB report if available and manufacturers planning guides (airframe/engines) used to prepare the programme.

(2) Cross-reference between work cards /check sheets and manufacturers planning documents.

(3) If any deviations to the manufacturers programme have been incorporated, written justification should be presented.

1.3.2 **INSPECTOR EVALUATION**

(a) During the approval of the proposed maintenance programme, the assigned Inspector should consider the following requirements for the content of the maintenance programme:

(1) MRB report approved by the State of Design;

(2) MPD issued by the type certificate holder or manufacturer;

(3) Airworthiness limitation items (ALIs) specified in the type certificate data sheet. These may include Certification Maintenance Requirements (CMRs), safe life airworthiness limitation items, and damage-tolerant ALIs;

(4) Specific operation requirements of the State of Operator when Liberia is not the State of the Operator.

(5) Mandatory life limits for engine life-limited parts specified by the manufacturer;

(6) Engine and auxiliary power unit (APU) off-wing maintenance as specified in the engine and APU work scope planning guides;

(7) ICAs specified for air-operator-installed equipment or required by supplemental type certificate (STC) modifications, including emergency equipment; and

(8) Any additional applicable experience.

(b) The assigned inspector should review the proposed programme by insuring:

(1) It conforms with manufacturers recommendations for the type of operation proposed by the operator.

(2) The basic requirements for a maintenance programme include but are not limited to:

(i) inspection;

(ii) scheduled maintenance;

(iii) overhaul and repairs;

(iv) structural inspection; and

(v) maintenance tasks and intervals specified and identified as mandatory in approval of the type design.

(3) When applicable, a continuing structural integrity programme (SIP) which includes at least:

(i) Supplemental inspections;

(ii) corrosion prevention and control;

(iii) structural modification and associated inspections;

(iv) repair assessment methodology; and

(v) widespread fatigue damage (WFD) review.

(4) Procedures for changing or deviating from (2) and (3) above for tasks that do not have mandatory designations from the State of Design; and

(5) When applicable, condition monitoring and reliability programme descriptions for aircraft systems, components and engines.

Note.— In the context of (5) above, "when applicable" means that the condition monitoring and reliability programmes are only applicable to aircraft types where the maintenance programme was derived using the maintenance review board process.

(6) The programme contains all of the following—

(i) Airframe inspections

(ii) Zonal inspections

(iii) Corrosion Prevention and Control

(iv) Damage tolerance considerations

(v) Aging aircraft considerations

(vi) System tests

(vii) Time limitations for components and accessories

(viii) On wing engine programme

(ix) Off wing engine programme

(x) Servicing

(xi) Document control

(xii) Revision control

(7) The assigned inspector shall be guided by Job Aid AW-047 Rev 01 in the Appendix to this chapter when reviewing the Maintenance Programme.

(8) For aeroplanes below 5700kg and helicopters below3175 kg the Inspector may, instead, use Job Aid AW-044 in the Appendix to this chapter.

1.3.3 NOTIFICATION TO OPERATOR/APPLICANT

(a) After the review is completed the assigned inspector will notify the AOC holder/applicant in writing through the Director of Flight Safety Standards/CPC —

(1) If problems are found:

(i) The notice will contain a list of the specific problems found outlining what will be required to correct the problems.

(ii) All such identified problems found shall be documented, retained on the AOC holder's/applicant's file and shall be resolved before approval is given.

(2) If and/or when the Maintenance Programme is found to meet all requirements:

(i) The pages of the List of Effective Pages shall be signed and stamped by the reviewing Inspector" along with the date.

(ii) One approved copy is returned to the AOC holder and the other copy kept at the SRD Library with the digital copy.

1.4 ON-GOING EVALUATION OF MAINTENANCE PROGRAMS

This section provides guidance for ensuring that the operator's total Continuous Airworthiness Maintenance Program (CAMP) includes the maintenance/inspection tasks necessary to maintain its aircraft in an airworthy condition.

1.4.1 GENERAL

(a) A maintenance program combines the maintenance and inspection functions used to fulfill an operator/applicant's total maintenance needs. The LCARs Part 9 specifies that each operator/applicant must have a maintenance program adequate to perform the work and a separate inspection program adequate to perform the inspections along with qualified competent persons to certify the maintenance and to monitor performance.

(b) Definitions—

(1) **Airworthiness:** A condition in which the aircraft, airframe, engine, propeller, accessories, and components meet their type design and are in a condition for safe operation.

(2) **Scheduled (routine) maintenance:** A group of tasks, accomplished at specified intervals that prevent deterioration of the safety and reliability levels of the aircraft.

(3) **Unscheduled (non-routine) maintenance:** A group of tasks resulting from scheduled maintenance, reports of malfunctions, and data analysis used to restore equipment to acceptable safety and reliability levels.

(4) **Hard time (H.T.):** A maximum interval for performing maintenance tasks. This interval usually applies to overhaul, but can also apply to total life of parts or units.

(5) **On condition (O.C.):** Scheduled inspections, tests, or measurements to determine whether an item is in, and will remain in, a satisfactory condition until the next scheduled inspection, test, or measurement.

(6) **Condition monitoring (C.M.):** A maintenance process characterized by the absence of scheduled maintenance tasks. Items remain in service until a functional failure occurs. The overall reliability levels of these items are monitored by the maintenance quality system.

(7) **Servicing/Lubrication (SV/LU):** Any act of lubrication or servicing for the purpose of maintaining inherent design capabilities.

(8) **Operating crew monitoring (C.R.):** Any monitoring of system operation that is accomplished by the operating crewmembers during normal duties. These tasks are not a part of the scheduled maintenance program.

(9) **Operational check (O.P.):** A check to verify that an item is fulfilling its intended purpose. This check does not require quantitative tolerances and is strictly a failure-finding task.

(10) **Inspection/functional check (IN/FC):** An examination of an item against a specific standard or a quantitative check, to determine if one or more functions of an item performs within specified limits.

(11) **Restoration (RS):** That work (on or off the aircraft) that is necessary to return an item to a specific standard.

(12) **Discard (DS):** Removal of an item from service at a specified life-limit (safe life-limits/ economic life-limits).

(13) **Accountability:** For the purposes of this job task, "accountability" refers to the procedures established by the operator to control the issuance and return of completed job cards, non-routine coupons/sheets, and other work forms issued during any maintenance/inspection function.

(14) **Work packages:** Work packages contain detailed instructions, standards, methods, and techniques for performing a task may be presented as work forms, job cards, and/or other accepted methods. A work package satisfies accountability and record keeping requirements.

(15) **Structural Inspection:** A detailed inspection of the airframe structure that may require special inspection techniques to determine the continuous integrity of the airframe and its related parts.

1.5 MAINTENANCE PROGRAM

1.5.1 MAINTENANCE PROGRAM REQUIRED

(a) Operators operating under LCAR Part 9 with large aircraft or aircraft with seating capacity of 10 or more passengers are required to have a continuous airworthiness maintenance program.

(b) The total continuous airworthiness maintenance program must be detailed in the operator's manual system.

(c) The manual(s) must contain specific maintenance and inspection tasks, including—

(1) Methods,

(2) Standards, and

(3) Techniques for accomplishing these tasks.

1.5.2 ADDITIONAL SUPPORTING PROGRAMS

(a) There are additional programs required by the Directives, including training programs, Maintenance Quality System, record keeping and reporting systems, etc.

(b) These programs are a very important part of the total continuous airworthiness maintenance program, and are used to support the maintenance tasks.

1.5.3 OPERATIONS SPECIFICATIONS AUTHORIZATIONS

(a) An approved continuous airworthiness maintenance program is a necessary component to establish the operator as a maintenance entity, and when followed, ensure the continued airworthiness of an aircraft and its equipment.

(b) The scheduled maintenance program is derived from the approved requirements stated in operations specifications.

All operations specifications are considered to be as legally binding as the directives themselves.

(c) The operator must have work forms, job cards, and/or other methods to accomplish the scheduled maintenance program and have manual procedures for implementing each special authorization.

1.5.4 **SUPPORTING REFERENCE DOCUMENTS MUST BE PROVIDED**

(a) Since the operator is required to provide the appropriate manuals containing the continuous airworthiness maintenance program to the LCAA office, the majority of the task of evaluating the program is performed there.

(b) At a minimum, the applicant must provide with the formal application—

(1) The Maintenance Control Manual,

(2) Documents containing detailed instructions for accomplishing the scheduled maintenance/ inspection program

(3) Aircraft manufacturer's maintenance manuals incorporated by the operator, including the Illustrated Parts Catalog (IPC).

1.5.5 **DOCUMENTS MUST BE AVAILABLE AT THE OPERATOR'S FACILITY**

(a) The LCAA normally does not have, and is not required to have, all of the repair/overhaul manuals for engines, propellers, and appliances.

(b) The Aviation Safety Inspector (ASI) must therefore go to the operator's facility to ensure that the operator has the appropriate instructions and standards to accomplish its repair/overhaul maintenance functions.

1.5.6 **MAINTENANCE MANUAL SYSTEM**

(a) The operator's maintenance manual system must define every facet of the continuous airworthiness maintenance program, and is normally divided into three distinct categories—

(1) Maintenance Control Manual (MCM);

(2) Continuous Maintenance Program Manuals and documents

(3) Technical Maintenance Manuals

1.5.6.1 **Maintenance Control Manual**

This manual contains detailed information on procedures utilized by the operator to meet the requirements of the LCARs for maintenance management and control.

1.5.6.2 **Maintenance Programs**

(a) Continuous Maintenance Program Manuals detailing instructions for accomplishing the scheduled maintenance program.

(b) These manuals contain the scheduled maintenance program requirements for a particular type of aircraft and instructions for accomplishing the scheduled maintenance program and include the following—

(1) Instructions to accomplish scheduled checks (lettered, phased, numbered, etc.), including the job cards for accomplishing these checks

(2) Job cards for accomplishing recurring non-routine maintenance, i.e. engine change cards, propeller change cards, gear changes, etc.

(3) Time limitations and methods of determining time limitations for inspection, maintenance and overhaul.

1.5.6.3 **Technical Maintenance Manuals**

(a) Technical manuals are necessary for maintenance standards and methods.

These manuals consist of the current manufacturer's maintenance/overhaul manuals and/or other standards developed by the operator and accepted by the LCAA-DFSS.

(b) These manuals contain the standards for overhaul, repair, replacement, calibration, and other requirements to return the aircraft and its components to its original or properly altered condition.

1.6 KEY AREAS OF THE MAINTENANCE PROGRAM

1.6.1 AIRCRAFT INSPECTION REQUIREMENTS

(a) This area includes routine inspections and tests performed on the aircraft at prescribed intervals.

(b) In the past, operators have been approved to use maintenance programs developed by operators with similar equipment but greatly different operational environments.

(c) To ensure that the aircraft is maintained properly, it is imperative that whatever combination of inspection intervals are used, (calendar time, cycles, or hours), that the inspection is performed by which ever interval occurs first. This compensates for differences or changes in the operator's operational environment.

(d) For those operators that do not have calendar time requirements, they must equate the current aircraft utilization in hours to a calendar date.

(1) For example, an operator has operated 3,000hours in the past twelvemonths and has a 3,000-hour inspection interval.

(2) The inspection requirement should therefore be 3,000 hours or twelve months, whichever comes first.

1.6.2 SCHEDULED MAINTENANCE

(a) This area concerns maintenance tasks performed at prescribed intervals.

(b) Some scheduled maintenance tasks are accomplished concurrently with inspection tasks, i.e., Airworthiness Directive (AD) notes, service bulletins, etc., that are a part of the inspection element and may be included on the same form.

(c) Scheduled tasks include such items as—

(1) Replacement of life-limited items

(2) Replacement of components for periodic overhaul or repair

(3) Special inspection such as X-rays

(4) Checks or tests for on-condition items

(5) Lubrication

(d) Special work forms can be provided for

Instructions and standards for accomplishing each task must be provided to ensure that the work is done in accordance with established procedures and is properly recorded.

accomplishing these tasks, or they can be specified by a work order or other document.

(e) Special emphasis should be placed on record keeping requirements of a scheduled maintenance program, since past inspections have found that the status of a scheduled maintenance activity was not supported by adequate records.

(1) This has caused considerable problems in determining the current status of life-limited parts, AD requirements, overhaul records, etc.

1.6.3 UNSCHEDULED MAINTENANCE

(a) This area provides procedures, instructions, and standards to accomplish maintenance tasks generated by the inspection.

1.6.3.1 Aircraft Maintenance Records

(a) A continuous aircraft maintenance record can be used for occurrences and the resulting corrective actions between scheduled inspections.

(1) Inspection discrepancy forms (non-routine cards), process, unscheduled maintenance in conjunction with scheduled maintenance.

1.6.3.2 Technical Standards

(b) Instructions and standards for unscheduled maintenance are provided in the operator's technical manuals, consisting of the—

These manuals are a part of the approved continuous airworthiness maintenance programme, and must be used when performing maintenance.

(1) Aircraft structural repair manual, and

(2) Manufacturer's maintenance manuals for aircraft, engine, propeller, and appliances.

1.6.3.3 Major & Minor Repair

(a) When there is no technical information available and maintenance is required, the operator must develop or acquire the data needed to perform the maintenance.

This maintenance data must be evaluated as major or minor, according to the operator's procedures.

(b) Past inspections have revealed that procedures for determining major and minor repairs have been deficient, and that some repairs have been improperly categorized.

(1) As a result, major repairs have been performed without proper approved data.

(2) Special emphasis must be made by ASIs to ensure that operators classify repairs properly.

1.6.4 REPAIR/OVERHAUL OF ENGINE, PROPELLER & APPLIANCES

This area concerns shop operations which, although they encompass scheduled and unscheduled tasks, are remote from the maintenance performed on the aircraft as a unit.

1.6.4.1 **Aircraft Engine & Propeller Manuals**

(a) Aircraft engine and propeller manuals containing instructions for installation, operation, servicing, and maintenance are accepted by the LCAA.

(1) These manuals are accepted as part of type certification and are incorporated as part of the operator's manual system.

(2) They require no further review by the LCAA.

(b) The appliance manufacturer's manual that the operator chooses to incorporate as a part of its maintenance manual is not formally approved.

(1) It is considered by the LCAA to be acceptable data for accomplishing major or minor repairs.

(c) If the airframe, engine, or propeller manufacturer's instructions require special procedures, tolerances, or specifications, these instructions must prevail over the appliance manufacturer's instructions.

The LCAA-DFSS can formally issue supplemental information, including ADs, that supersedes all manufacturers' specifications.

1.6.5 **STRUCTURAL INSPECTION/AIRFRAME OVERHAUL**

(a) Most of the information required to develop an initial structural inspection program will be developed by the manufacturer.

(b) The scheduled inspection program provides the framework for all the scheduled maintenance packages. Structural inspections are normally integrated throughout the operator's scheduled maintenance program.

(c) The various levels of inspection must be clearly defined in the operator's program.

(1) For example, the area under consideration may require a visual inspection during preflight, where a higher inspection such as "A" or "B" check may require more than a visual inspection of the same area

(2) A comprehensive inspection or airframe overhaul is usually referred to as a "C" or "D" check, and may include all, or nearly all, of the scheduled tasks in a maintenance program.

1.6.6 **SUPPLEMENTAL STRUCTURAL INSPECTION DOCUMENT (SSID) REQUIREMENTS**

When the operator has aircraft that are identified in a particular supplemental structural Inspection document, the operator must incorporate these additional age related structural inspections into its scheduled inspection program.

1.6.7 **REQUIRED INSPECTION ITEMS (RII)**

This area concerns maintenance work, which, if improperly accomplished, could endanger the safe operation of the aircraft.

1.6.7.1 **RII in All Elements**

(a) RII is the critical quality control function in the maintenance program. RII items appear in all elements of the operator's continuous airworthiness maintenance program.

(b) They receive the same consideration regardless of whether or not they are related to scheduled or unscheduled tasks. The fact that an RII requirement arises at an awkward time or inconvenient location has no bearing on the need to accomplish it properly.

1.6.7.2 **Designated by the Operator**

(a) The operator must designate those items that need to be inspected, and must develop methods for performing the required inspections.

(b) The operator should include the following in determining what tasks to designate as RII items—

(1) Installation, rigging, and adjustments of flight controls and surfaces

(2) Installation and repair of major structural components

(3) Installation of an aircraft engine, propeller, or rotor and overhaul or calibration of certain components, such as engines, propellers, transmissions, and gearboxes, or navigational equipment, the failure of which would affect the safe operation of the aircraft

(c) It is the responsibility of the operator to evaluate the work program and identify RII items in a suitable manner. The ASI must evaluate the proposed list of RII items to determine if it is adequate.

1.6.7.3 **Examples of LCAA RII Findings**

(a) The following are examples of the types of RII item findings that seem to re-occur during inspections by the LCAA—

(1) No specific training programs developed for RII personnel

(2) No authorization list of RII inspectors

(3) RII items not accomplished

(4) RIIs performed by unauthorized persons

(5) Failure to comply with RII procedures

(6) Contract personnel not properly trained/qualified/authorized

(7) Lack of proper RII designated items

(8) Failure to have counterman procedures

1.7 SPECIAL MAINTENANCE/SAFETY CONSIDERATIONS

1.7.1 **FIRE HAZARDS**

(a) There exists, in transport category aircraft, a potential hazard consisting of fires in inaccessible areas of the aircraft and the resulting hazards to cabin occupants.

(1) During original certification of the aircraft, clean or uncontaminated material, such as insulation blankets, will not readily support combustion.

(2) However, after extended periods of service they have been found to be contaminated with lint, dirt, oily films, lubricant, fuel, and corrosion inhibitors that are conducive to ignition by low intensity ignition sources.

(b) Low intensity ignition sources can consist of the following—

(1) Arc tracking of aircraft wiring and/or fluorescent light ballasts

(2) Arcing light sockets and/or battery ground cables

(c) It is recommended that each Principal Maintenance Inspector (PMI) review the operator's continuous airworthiness maintenance program to determine if an effective quality control procedure is in place that would discover these insulation breakdowns.

(1) In addition, PMIs should ensure that the program addresses the periodic inspection of aircraft wiring and the removal of contaminants, especially in inaccessible areas.

(d) PMIs should also be aware of the conditions associated with Kapton insulation breakdown. Operators should be advised to exercise caution in exposing the aircraft wiring to the adverse conditions under which they have control, notably—

(1) Increased strain (tighter wire bends)

(2) Water

(3) Exposure to high pH content cleaning compounds

1.7.2 EMERGENCY &FLOTATION EQUIPMENT

The frequency of inspection is the interval defined in the airline's operation specification controlled maintenance programme.

(a) Operators are not allowed to deviate from compliance with Directives pertaining to the regular inspection of emergency and flotation equipment.

(1) Specific guidance on frequency of inspection and life-limits are contained in the respective manufacturer's maintenance manuals.

(2) Most life vest manufacturer's manuals address the age issue of life preservers.

(3) The manuals state that if the vests are over 10 years old and cannot pass the leakage test or require repair or replacement parts, that they are non-repairable.

(4) If a particular operator is experiencing failure rates at periods shorter than 10 years, that operator's inspection interval should be changed to adjust for certain environmental conditions or unique handling situations.

(b) ASI's should review their operator's maintenance program to ensure the effectiveness of the inspection intervals for emergency and flotation equipment and to ensure regulatory compliance.

The ASI should also review the operator's failure rate to determine if an adjustment to the inspection interval should be considered.

1.7.3 CHANGEOVER PROCEDURES

ASI's should audit the oral and written changeover procedures between arriving and departing maintenance shifts, required by their applicable manuals, to ensure that the exact status of all phases of "maintenance in progress" is accurately transferred between shifts.

1.8 MAINTENANCE PROGRAM INSPECTION PROCEDURES

1.8.1 REVIEW THE OPERATOR'S OPERATIONS SPECIFICATIONS

Review the operator's operations specifications to determine the applicable maintenance program requirements.

1.8.2 REVIEW THE OPERATOR'S MANUAL SYSTEM

Ensure that the manual system includes procedures for accomplishing the following—

1.8.2.1 Aircraft Inspection Requirements

(a) Ensure that the maintenance manual contains detailed instructions for accomplishing required inspections and checks.

(b) Compare a scheduled check (lettered, phased, numbered, etc.) work package to the operations specifications inspection requirements to ensure that all items are included and are scheduled at the appropriate inspection intervals.

(c) Sample items identified for inspection/check and ensure that the work packages have been developed to accomplish these items.

A "C" check work package is preferred due to its size and complexity.

(1) The work packages must be appropriate to the identified maintenance process, e.g. visual inspections, detailed inspections, functional checks, etc.

(d) Ensure that work packages include provisions for the accountability and recording of these inspection tasks.

(e) Ensure that there are provisions for accountability and recording of non-routine maintenance resulting from the findings of the scheduled inspection.

1.8.2.2 Scheduled Maintenance Requirements

(a) Sample items requiring scheduled maintenance to ensure the following—

(1) Work forms, job cards, and other methods have been developed

(2) Work forms, cards, and/or methods provide detailed instructions and standards for performing the scheduled maintenance, i.e. servicing/lubrication tasks, restoration tasks, replacement of parts or components with hard time limitations, etc.

(b) Ensure that there are provisions for the accountability and recording of the following—

(1) Scheduled maintenance tasks

(2) Non-routine maintenance resulting from the scheduled maintenance

1.8.2.3 Unscheduled Maintenance Requirements

(a) Ensure that the operator has procedures, instructions, and standards to accomplish maintenance that results from inspection findings, operational malfunctions, abnormal operations (hard landings, lightning strikes, etc.) or other indications of the need for maintenance, such as corrective action from failure analysis.

(b) Ensure that the operator has procedures for evaluating repair requirements to properly classify the repair as major or minor.

All repairs categorized by the operator as major require approved repair data.

(c) Ensure that the operator has provisions for accounting and recording all unscheduled maintenance activity, i.e. manual sections for handling unscheduled maintenance activity.

1.8.2.4 **Repair & Overhaul of Engines, Propellers & Appliances**

(a) Ensure that the operator has provided instructions and standards to accomplish repair and overhaul tasks for those items requiring repair and overhaul.

(b) Identify and select several aircraft components from the operations specifications or controlling documents with overhaul requirements. These components will be used during the on-site inspection to ensure that the operator has repair/overhaul specifications available.

(c) Ensure that the operator has provisions for certifying and recording the work.

(d) Document those items selected for future on-site inspection.

1.8.2.5 **Structural Inspection/Airframe Overhaul**

(a) Ensure that the operator has instructions and standards for performing structural inspections and airframe overhauls.

(b) Sample selected scheduled structural inspection/airframe overhaul items to ensure that work forms, job cards, and/or other methods are available for performing these tasks.

(c) Ensure that the operator has established provisions for accountability and recording of these tasks.

1.8.2.6 **Supplemental Structural Inspection Document (SSID) Requirements**

(a) Ensure that the operator has identified those aircraft required to be included in the Supplemental Structural Inspection Program.

Compare the operator's aircraft serial numbers with the serial numbers in the Supplemental Structural Inspection Document to ensure that all required aircraft are included.

(b) Ensure that the operator has instructions and standards for performing inspections on those aircraft subject to supplemental structural inspections identified in the Supplemental Structural Inspection Document.

(c) Ensure that the operator has provisions for accounting and recording the work.

(d) Identify and document any aircraft not being maintained according to the Supplemental Structural Inspection Document requirements.

1.8.2.7 **Required Inspection Item (RII) Requirements**

(a) The inspector should ensure the operator has—

(1) Designated those maintenance tasks requiring additional inspections (RII inspections)

(2) Developed procedures to meet the certification, training, qualification, and authorization requirements for RII personnel

(3) Procedures for ensuring the accomplishment of RII items

(4) Procedures for the buyback of items that failed the RII inspection and require re-inspection after additional corrective action

(5) Procedures and standards for accepting or rejecting RII items

(6) Procedures that prevent any person who performs an item of work from performing a RII inspection of that work

(7) Procedures for ensuring that the persons performing RII inspections are under the control and supervision of the inspection unit

(8) Procedures for ensuring a current list of RII inspectors is maintained, including all names, occupational titles, and inspections they are authorized to perform

(9) Procedures to prevent any inspector's decision regarding a required inspection from being countermanded.

(i) Exceptions include supervisory personnel of the inspection unit or a person at the level of administrative control that has overall responsibility for the management of the required inspection function and other maintenance.

(10) Shift change procedures for RII items to include designating the individual responsible for briefing the arriving shift's supervisors and personnel of the exact status of maintenance in progress.

(i) These procedures must also include accounting for the in-progress maintenance status in the operator's work packages.

1.8.3 OPERATOR'S FACILITY INSPECTION

From the components selected during the review of the repair/overhaul requirements, accomplish the following at the operator's facility—

1.8.3.1 Repair & Overhaul Manuals

(a) Ensure that the shop performing the repair/overhaul of these components has the overhaul manual available. Review this manual to ensure the following—

(1) The manual is appropriate to the make and model of the components being repaired/ overhauled

(2) The manual is part of the operator's manual system

(3) The manual is current. For manufacturer's manuals, contact the manufacturer to verify the date and contents of last revision.

(4) Special tool/test equipment requirements are appropriate to the work being accomplished

1.8.3.2 Tools & Test Equipment

Ensure that the shops have the specialized tools/test equipment as required by the manuals

1.8.3.3 Training Records

Determine if personnel are properly trained to perform the maintenance by reviewing the training records. These records may be found in the shop or in other locations established by the operator.

1.8.3.4 **Maintenance Release Procedures**

Ensure that the operator's procedures for approval for return to service and any other record- keeping requirements are being followed.

1.8.3.5 **Shift Change Procedures**

(a) Ensure that the operator has procedures that designate the individual responsible for briefing the arriving shift's supervisors and personnel of the exact status of maintenance in progress.

(b) These procedures must also include accounting for the in-progress maintenance status in the operator's work packages.

1.8.4 **COORDINATE NEGATIVE FINDINGS**

Due to the seriousness of any finding from this job task, the ASI must discuss any deficiencies with the appropriate LCAA supervisory personnel to verify the inspection findings.

If any discrepancies are noted in any of the above procedures, notify the appropriate supervisory/management personnel to initiate corrective action.

1.9 APPROVAL PROCESS

(a) Brief the Operator/Applicant. Provide the operator/applicant with the applicable information and advise the operator/applicant of the current policies and regulatory requirements.

(b) Review the Schedule of Events. If this task is performed as a part of the approval of an organization, review the Schedule of Events to ensure that this task can be accomplished within the schedule.

(c) Evaluate the Organization Documentation. The maintenance program must contain the following:

(1) A complete description of the operator's organization as it relates to the program, including the duties and responsibilities of the relevant individuals

(2) A list of persons with whom the operator/applicant has arranged for the performance of any work along with a general description of that work

(3) A proper separation of maintenance and inspection functions for the performance of auditing

(d) Evaluate the Inspection and Maintenance Programs. The maintenance program must contain inspection and maintenance procedures for the performance of maintenance and modifications. These procedures must, at a minimum, include the following:

(1) The method of performing routine and non-routine maintenance and modifications

(2) The method for performing duplicate inspections

(3) The method of approving inspection personnel performing required inspections by occupational title, name, and authorization

(4) Procedures for the re-inspection of work performed as a result of previous required inspection findings (buy back procedures)

(5) Procedures for the periodic inspection and calibration of precision tools, measuring devices, and test equipment

(6) Procedures for maintaining records and control of the inspections and calibrations

(7) Instructions and procedures to prevent any decision of an inspector regarding any inspection from being countermanded

(8) Procedures to ensure that inspections, maintenance, and modifications that are left incomplete as a result of a work interruption are properly completed before the aircraft is released to service

(9) Work forms, job cards, and detailed procedures for performing inspections and other maintenance

(e) Evaluate the Maintenance Records/System: The maintenance program must contain a maintenance record keeping system. The operator/applicant must meet the requirements. In addition, the operator must have a system for the retention and retrieval of maintenance records to provide the following:

(1) A description of the work performed

(2) The name of the person performing the work and/or the name of the organization if other than the operator/applicant's

(3) The name of the person approving the work

(f) Evaluate Personnel: The maintenance program must contain the following:

(1) Procedures to determine the qualifications of personnel, including management and supervisory personnel

(2) Procedures to ensure that only persons appropriately certificated, properly trained, authorized, qualified, and current certify maintenance

(3) Instructions to relieve any person performing maintenance for excessive periods of time without adequate rest periods

(g) Evaluate the Structural Inspection Procedures: This part of the maintenance program must include the following:

(1) Corrosion control procedures

(2) A detailed inspection of areas where maintenance is being performed to detect cracks, distortion, and corrosion, to examine attachment of parts, and to determine the condition of the area

(3) Maintenance Review Board/manufacturer's routine structural inspection requirements

(h) Analyze the Findings

(1) Evaluate all deficiencies to determine what, if any, corrective actions will be required.

(2) If there are deficiencies in the maintenance program, schedule a meeting with the operator/applicant to discuss needed program changes and deficiency resolutions.

APPENDIX 1-A: JOB AID: AW-044 – Evaluation of Maintenance Schedule

JOB AID: AW-044
Evaluation of Maintenance Schedule

FILE REFERENCE: _____

Date of Evaluation		**Control #**	
Name of Operator		**AOC #**	
State of Operator		**Type of Aircraft**	
Org. Identifier		**Aircraft Reg#**	
Location			
Destination			
Action Taken			

KEY PERSONNEL MET:

	NAME	TITLE
1.		
2.		
3.		
4.		
5.		

PLEASE CHECK THE APPROPRIATE BOX FOR THE FOLLOWING; SATISFACTORY (S), NOT SATISFACTORY (NS) OR NOT APPLICABLE (N/A). INDICATE REGULATORY OR OTHER REFERENCE(S) FOR NOT SATISFACTORY (NS) ITEMS WHERE APPLICABLE. PROVIDE FURTHER DETAILS IN THE REMARKS SECTION IF REQUIRED.

		CHECKLIST ITEMS			
REFERENCE	1	GENERAL MANUAL PRESENTATION	S	NS	N/A
	1.1	Bound in a secure form (not loose).			

	1.2	Binder is 3 or 4 rings?			
	1.3	Exterior of binder clearly indicates manual content.			
	1.4	Approval page available.			
	1.5	Glossary (Abbreviations/Acronyms) available.			
	1.6	The word 'INTENTIONALLY LEFT BLANK' written on all blank pages.			
REFERENCE	**2**	**MANUAL CONTROL PROCESS**	**S**	**NS**	**N/A**
	2.1	Copies numbered for controlled issuance (Manual Distribution List).			
	2.2	Amendment issuance tracking process.			
	2.3	LCAA issued numbered volume.			
REFERENCE	**3**	**MANUAL REVISION PROCESS**	**S**	**NS**	**N/A**
	3.1	Revision Instructions adequate.			
	3.2	Revision page for revision entry.			
	3.3	List of effective pages provided and correct.			
	3.4	Last revision to individual pages identified.			
REFERENCE	**4**	**MANUAL REFERENCING SYSTEM**	**S**	**NS**	**N/A**
	4.1	Master table of contents easy to find and use.			
	4.2	Table of contents easy to find and use.			
	4.3	Index, if included, easy to find and use.			
	4.4	Tabbed as necessary for usability without difficulty.			
REFERENCE	**5**	**INDIVIDUAL PAGE PRESENTATION**	**S**	**NS**	**N/A**
	5.1	Page numbered in chronological sequence (by chapter or single document).			
	5.2	Last revision number/ date appears on each page.			
	5.3	Company name and Logo appears on each page except 5.4below.			
	5.4	If manufacturer's document is submitted in lieu of a company manual, does the manufacturer's name appear on each page.			
	5.5	For all manufacturers' documents submitted, a manufacturer's letter or reference document is provided to substantiate current revision number/date.			
REFERENCE	**6**	**PARAGRAPH NUMBERING**	**S**	**NS**	**N/A**

	6.1	Paragraphs and sub-paragraphs numbered or alphabetized for ease of reference.			
REFERENCE	**7**	**SUPPLEMENTAL CONTENT REFERENCING**	**S**	**NS**	**N/A**
	7.1	Tables referenced for ease of use.			
	7.2	Figures referenced for ease of use.			
	7.3	Appendices referenced for ease of use.			
REFERENCE	**8**	**MANUAL CONTENTS CONFORMANCE**	**S**	**NS**	**N/A**
	8.1	Company Organizational Structure with names of post holders			
	8.2	Duties and Responsibilities of Key positions.			
	8.3	REFERENCEs / a compliance statement.			
	8.4	Definitions and Terminology.			
REFERENCE	**8.5**	**IN-SERVICE MAINTENANCE**	**S**	**NS**	**N/A**
	8.5.1	Servicing according to ATA Chapters.			
	8.5.2	Walk Around Checks			
	8.5.3	Cabin Discrepancy Check List.			
	8.5.4	Pre-flight Check List.			
	8.5.5	Transit Check List.			
	8.5.6	Turnaround/Overnight Check List.			
	8.5.7	'A' Check List.			
REFERENCE	**8.6**	**OUT OF SERVICE MAINTENANCE (Schedule Maintenance)**	**S**	**NS**	**N/A**
	8.6.1	Schedule Maintenance Checks.			
	8.6.2	Supplemental Inspection Document.			
	8.6.3	Safe Life Limits.			
	8.6.4	Control Prevention and Preventive Document.			
	8.6.5	Supplemental Structural Inspection Document.			
	8.6.6	Lubrication according to ATA Chapters.			
	8.7	Systems Inspection Program Document			
	8.8	Structure Inspection And NDT Program Document			
	8.9	Modification and Inspection (Service Action Requirements For Aging Aircraft) Program Document			
	8.10	Power Plant Inspection Program Document			

Item Number	REMARKS

RECOMMENDED ACCEPTANCE / APPROVAL	**S .....** **NS .....**	**REASON LISTED FOR NS OPTION:**

INSPECTOR(S)			
NAME	**SIGNATURE**	**INSPECTOR STAMP**	**DATE**

APPENDIX 1-B: JOB AID: AW-047 – Evaluation of Maintenance Programme

FILE REFERENCE: _____

Date of Evaluation		**Control #**	
Name of Operator		**AOC #**	
State of Operator		**Type of Aircraft**	
Org. Identifier		**Aircraft Reg#**	
Location			
Destination			
Action Taken			

KEY PERSONNEL MET:

	NAME	TITLE
1.		
2.		
3.		
4.		
5.		

PLEASE CHECK THE APPROPRIATE BOX FOR THE FOLLOWING; SATISFACTORY (S), NOT SATISFACTORY (NS) OR NOT APPLICABLE (N/A). INDICATE REGULATORY OR OTHER REFERENCE(S) FOR NOT SATISFACTORY (NS) ITEMS WHERE APPLICABLE. PROVIDE FURTHER DETAILS IN THE REMARKS SECTION IF REQUIRED.					
		CHECKLIST ITEMS			
REFERENCE	**1**	**GENERAL MANUAL PRESENTATION**	**S**	**NS**	**N/A**

	1.1	Bound in a secure form (not loose).			
	1.2	Binder is 3 or 4 rings?			
	1.3	Exterior of binder clearly indicates manual content.			
	1.4	Approval page available.			
	1.5	Glossary (Abbreviations/Acronyms) available.			
	1.6	The word 'INTENTIONALLY LEFT BLANK' written on all blank pages.			
REFERENCE	**2**	**MANUAL CONTROL PROCESS**	**S**	**NS**	**N/A**
	2.1	Copies numbered for controlled issuance (Manual Distribution List).			
	2.2	Amendment issuance tracking process.			
	2.3	LCAA issued numbered volume.			
REFERENCE	**3**	**MANUAL REVISION PROCESS**	**S**	**NS**	**N/A**
	3.1	Revision Instructions adequate.			
	3.2	Revision page for revision entry.			
	3.3	List of effective pages provided and correct.			
	3.4	Last revision to individual pages identified.			
REFERENCE	**4**	**MANUAL REFERENCING SYSTEM**	**S**	**NS**	**N/A**
	4.1	Master table of contents easy to find and use.			
	4.2	Table of contents easy to find and use.			
	4.3	Index, if included, easy to find and use.			
	4.4	Tabbed as necessary for usability without difficulty.			
REFERENCE	**5**	**INDIVIDUAL PAGE PRESENTATION**	**S**	**NS**	**N/A**
	5.1	Page numbered in chronological sequence (by chapter or single document).			
	5.2	Last revision number/ date appears on each page.			
	5.3	Company name and Logo appears on each page except 5.4below.			
	5.4	If manufacturer's document is submitted in lieu of a company manual, does the manufacturer's name appear on each page.			

	5.5	For all manufacturers' documents submitted, a manufacturer's letter or reference document is provided to substantiate current revision number/date.			
REFERENCE	**6**	**PARAGRAPH NUMBERING**	**S**	**NS**	**N/A**
	6.1	Paragraphs and sub-paragraphs numbered or alphabetized for ease of reference.			
REFERENCE	**7**	**SUPPLEMENTAL CONTENT REFERENCING**	**S**	**NS**	**N/A**
	7.1	Tables referenced for ease of use.			
	7.2	Figures referenced for ease of use.			
	7.3	Appendices referenced for ease of use.			
REFERENCE	**8**	**MANUAL CONTENTS CONFORMANCE**	**S**	**NS**	**N/A**
	8.1	Maintenance tasks and the intervals at which these are to be performed, taking into account the anticipated utilization of the aeroplane			
	8.2	When applicable, a continuing structural integrity programme			
	8.3	Procedures for changing or deviating from 8.1 and 8.2 above.			
REFERENCE		**MANUAL CONTENTS CONFORMANCE (Conti…)**	**S**	**NS**	**N/A**
	8.4	When aircrafts, monitoring and reliability programme description for Aircrafts systems, components and power plants			
	8.5	Maintenance tasks and intervals that have been specified as mandatory in approval of the type design shall be identified as such.			
	8.6	The maintenance programme shall be based on maintenance programme information made available by the state of design or by the organization responsible for the type design and any additional applicable experience			
	8.7	Has the design and application of Maintenance Programme observed Human Factor principles? Ref. Human Factors Training Manual ICAO DOC 9683.			

Item Number	REMARKS		
RECOMMENDED ACCEPTANCE / APPROVAL	S …… NS ……	REASON LISTED FOR NS OPTION:	
INSPECTOR(S)			
NAME	SIGNATURE	INSPECTOR STAMP	DATE

CHAPTER-2: MAINTAINING C of A

2.1 GENERAL

(a) The guidance material in this chapter is intended to assist LCAA in fulfilling its obligations under Annex 8, in relation to the continuing validity/renewal of Certificates of Airworthiness. Annex 8, Part II, specifies that a Certificate of Airworthiness shall be renewed or shall remain valid, subject to the laws of the State of Registry, provided that the continuing airworthiness of the aircraft shall be determined by a periodical inspection at appropriate intervals having regard to lapse of time and service or, alternatively, by means of a system of inspection approved by the State which will produce at least an equivalent result.

(b) The practice of most Contracting States is to control the validity of Certificates of Airworthiness in one of two ways.

(1) the issue of a Certificate of Airworthiness with a non-expiring period of validity, continuing airworthiness being determined through a system of inspection approved by the State; or

(2) the issue of a Certificate of Airworthiness with a predetermined period of validity which can be renewed. The periods of time concerned are commonly between one and three years. Renewal is subject to a determination of continuing airworthiness by the regulatory authority of the State concerned.

(c) However, LCAA issues/validates C of A for the period of one year.

(d) Although of no direct relevance in a continuing airworthiness context, it is the practice of some States to make the continuing validity of a Certificate of Airworthiness subject to a condition that the aircraft remains on the register of the State concerned.

2.2 TECHNICAL AND ADMINISTRATIVE REQUIREMENTS

(a) Regardless of the procedure adopted by States in determining the continuing validity of Certificates of Airworthiness, the continuing airworthiness of an aircraft at any point in time is based on compliance with the requirements that follow. References to "aircraft" should be interpreted to include the structure, systems, components, instruments, equipment and power-units. It is required that:

(1) the aircraft remains in conformity with the type design approved by the State of Registry; any modifications or repairs have been completed in accordance with procedures and methods approved by the State of Registry, any replacement components, parts, equipment or material are in accordance with the design requirements, having been obtained from sources acceptable to the State of Registry and installed in accordance with any procedures which have been prescribed by the State,

Note. *- Annex 6, Part I, 8.4 requires operators of aeroplanes to ensure that a system of inspection is provided to ensure that all maintenance, overhaul, modifications and repairs which affect airworthiness are effected as prescribed in the maintenance manual or otherwise as made mandatory by the State of Registry. Guidance on maintenance manuals is contained in other parts of the manual.*

(2)

(i) the aircraft has been serviced and maintained to a program approved by the State of Registry in accordance with any methods and procedures which the State may have prescribed or approved.

(ii) if the aircraft is the subject of a reliability program, including in particular engine trend monitoring, corrective action has been instituted to rectify any adverse trends:

(iii) any certification maintenance requirements have been complied with at the prescribed intervals;

Note- *As part of the type certification process of a modern transport aircraft, system safety maintenance tasks, known as Certification Maintenance Requirements (CMR), may have been identified. Such tasks, and their associated intervals, limit the exposure time to significant latent failures that would, in combination with one or more events identified in a numerically based safety analysis, result in catastrophic failure conditions. No change to the content or frequency of these tasks should be approved without the agreement of the State of Design. Further guidance on CMR is provided in other parts of this handbook.*

(3) all modifications or inspections declared mandatory by LCAA and State of Registry (commonly referred to as airworthiness directives) have been complied with. With regard to inspections, this includes both inspections which require a onetime action and those with repetitive content;

Note- *The responsibilities of States of Registry in relation to continuing airworthiness requirements of this nature are contained in ICAO Annex 8.*

(4) any parts of the aircraft that have an ultimate service life limit declared by the organization responsible for the type design or the State of Registry have not exceeded their approved lives;

(5) if the aircraft has been released to service with any airworthiness significant systems, components or equipment unserviceable, this is in compliance with a Minimum Equipment List or similar document approved by the State of Registry;

(6) if the aircraft has been released into service with any structural parts missing, this is in compliance with procedures approved by LCAA;

Note- *Information of this nature is sometimes included as a Configuration Deviation List in the flight manual*

(7) all minor unrepaired damage is within limits acceptable to LCAA. Reference should be made to the structural repair manual for the aircraft type concerned to determine acceptable limits;

(8) all markings and placards included in the approval of the type design by LCAA are present;

(9) the aircraft mass and balance data is in conformity with the requirements of LCAA, including reweighing if appropriate and/or compliance with a system for recording progressive mass and balance change;

(10) for those States who include operational equipment, e.g. flight recorders, in their national requirements for the continuing validity of Certificates of Airworthiness, the equipment is serviceable. Any operational equipment installed for a particular type of operation should have an approval status acceptable to the State of the Operator, be installed in a manner acceptable to that State and be in a serviceable condition;

(11) the aircraft records are in conformity with the requirements of LCAA,

(12) in addition to the information specified in Annex 8, the flight manual includes any changes made mandatory by LCAA as required by Annex 6, Part I.

CHAPTER 3: MAINTENANCE RECORDS INSPECTIONS

3.1 OBJECTIVE

This chapter provides guidance for inspecting aircraft maintenance records for aircraft operating under an Air Operator Certificate (AOC).

3.2 LARGE AIRCRAFT

3.2.1 GENERAL

(a) Aircraft maintenance records include any records that document the performance of work on an aircraft. An operator's aircraft maintenance records must be inspected periodically to ensure that they meet the requirements of the operator's approved record-keeping system.

(b) While inspecting an operator's aircraft maintenance records, principal inspectors must determine that all the work was based on instructions, procedures, or information that has been approved previously or accepted by the LCAA. Such data can be in the form of—

(1) Manufacturer's manuals

(2) Service bulletins

(3) Service letters

(4) Data included in the operator's approved inspection and/or maintenance programs

(5) Manufacturer's/operator's approved engineering orders or authorizations

(6) Airworthiness directives

(7) Other accepted documents

(c) The AOC holder's manual must provide for a positive means of identification, such as an employee identification number, for any person performing or approving work.

3.2.2 RETAINING MAINTENANCE RELEASES

(a) Maintenance releases must be retained by the operator in accordance with their approved manual procedure.

(b) All of the records necessary to show that the requirements for the issuance of a maintenance release have been met must be retained for one year.

3.2.3 TOTAL TIME IN SERVICE RECORDS

(a) The total time in service record is a record starting from the date of manufacture and continuing through the life of the aircraft.

(b) When an engine is rebuilt and certified to zero time, total time in service becomes zero.

Note: *Only the manufacturer or the manufacturer's representative can zero time an engine.*

(c) Operators must have a current record of the status of life-limited items. This record indicates the present accumulated time in service of each life-limited item

Note: *Life-limited parts may not be rebuilt and certified to zero time.*

(d) An operator must maintain overhaul records of any item required to be overhauled. These records must be maintained until the work is superseded or repeated by work of equivalent scope and detail.

(e) Inspection status defines the work that has been and is scheduled to be performed per the inspection or maintenance program. The inspection status records must show the following—

(1) Type of most recent inspection

(2) The time at which that inspection was performed

(3) The time since the most recent inspection expressed in terms of hours, cycles, or calendar time

(4) The scheduled time and type of next inspection

(f) The operator must maintain a record of the current status of all one-time/recurring AD's applicable to the operator's equipment. In addition to specific instructions provided in the AD, typical sources of procedures for compliance with ADs include—

(1) Service bulletins

(2) Service letters

(3) Specific instructions provided in the Airworthiness Directive

Note: Only data specifically approved for AD accomplishment by the appropriate Aircraft Certification Office is authorized.

(4) Approved Engineering Orders or Authorizations

(g) An operator must prepare a report of each major repair and major modification—

(1) A copy of the major modification report must be sent to the LCAA Office for review.

(2) A copy of the major repair report must be kept available for inspection by the LCAA.

(h) Additionally, the operator must keep a list of all current major modifications.

(i) Since Approved Maintenance Organizations (AMO) only have to retain records of work performed for two years, some operators have reported that maintenance records are not always available from the AMO beyond the two-year retention period. Since the operator is always responsible for obtaining and retaining the records required by the Directives, operators should be advised to require a copy of the work documentation from the AMO at the time that the work is performed.

3.3 PROCEDURES

3.3.1 GENERAL

(a) Insure that the operator has retained the+ required maintenance/alteration/inspection records for each aircraft, including airframe, engine, propeller, and appliances.

(b) These records must include the following information)—

(1) A description of the work performed (data acceptable to the LCAA), including the date of completion

(2) The name of the person performing the work if that person is not an employee of the operator

(3) The name or other positive identification of the person approving the work

(c) Inspect records using JOB AID: AW-003 to ensure that manual procedures are being followed. During inspection, document and photocopy any confusing areas, obvious omissions or apparent discrepancies.

(d) Evaluate all deficiencies to determine if corrective actions will be required.

3.3.2 MAINTENANCE RELEASES

(a) Areas to be checked include the following—

(1) Ensure that the operator is retaining maintenance releases in accordance with the approved manual procedures.

(2) Ensure that the maintenance release signature is authorized by the operator.

(3) Review the signer's training record to ensure that the person is trained to the level identified in the operator's manual.

(b) Obtain and review the flight/maintenance logs to determine the effectiveness of the maintenance release procedures following scheduled inspections and non-routine maintenance. Review the records to ensure the following:

(1) Flight discrepancies are entered after each flight

(2) Corrective actions are related to the discrepancy

(3) Corrective actions and signoffs are entered in the maintenance record per manual procedures

(4) Repetitive discrepancies are handled according to the manual

(5) Deferred maintenance as authorized by the Minimum Equipment List (MEL) is deferred per the operator's MEL and manual instructions

(6) RII items (RII) are signed off per the manual instructions and the inspector was authorized by the operator to perform the inspection

3.3.3 SCHEDULED INSPECTIONS

(a) Select or obtain work packages for scheduled inspections and ensure the following—

(1) That scheduled inspections are properly signed off

(2) That generated non routine items are properly signed off

(3) That RII items are properly identified and signed off by properly authorized, qualified, certificated, and trained personnel

(4) That repairs are categorized correctly (major or minor) and that approved data is being used, as required

3.3.4 TOTAL TIME IN SERVICE RECORDS

(a) Compare the manual procedures with the actual accomplishment of the total time/cycles in service records for the airframe, engine, propeller and rotor—

(1) Select and obtain a total time/cycles in service record for a sample number of aircraft to ensure that cumulative flight times/cycles are added to the record.

(2) Make a spot check of the cumulative total time/cycle in service against the flight logs to ensure that daily entries correspond to the flight log.

(3) If the operator maintains a handwritten maintenance record for engines, compare the record entries to the aircraft flight log entries for the following—

(i) Overall accuracy

(ii) The possible transposition of flight time/cycles in service, numbers, etc.

3.3.5 **LIFE-LIMITED PARTS RECORDS**

(a) Compare the manual procedures for life-limited parts with the actual recording of the current status of life-limited parts.

(b) Select a random sample of records and ensure the following—

(1) All life-limited parts described on type certificate data sheets or in a manual referenced on the type certificate data sheets are noted

(2) The current status of each part is provided, to include—

(i) Total operating hours/cycles accumulated

(ii) Life-limit (total service life)

(iii) Remaining time/cycles

(iv) Modifications

(3) The time/cycles limits on the operator's list are the same as those on the type certificate data sheets

(4) Life-limits have not been exceeded. Select a sample of life-limited items that have been installed within the last 12 months and review records to ensure that life-limited time was carried forward from the previous service record.

(5) If overhauled, the overhaul record is available

(6) The life-limit of an item has not been changed as a result of the overhaul

3.3.6 **OVERHAUL RECORDS**

(a) Compare the manual procedures for maintaining the overhaul record with the actual overhaul record content—

(b) Select a random sample of overhauled items to ensure the following—

(1) Overhaul records are available for items selected

(i) The records contain a description of the overhaul

(2) The records show the time since last overhaul

(i) The component was approved for return to service by an authorized person

(3) Review removal/installation records of overhauled components to determine if the overhaul was done within the authorized time limits.

Note: *Regulations require these records to be maintained until the work is superseded by work of equivalent scope and detail.*

3.3.7 **INSPECTION STATUS RECORDS**

(a) Compare the manual procedures for maintaining the current aircraft inspection status with available records to ensure that the recorded daily flight hours/cycles are used to obtain the current inspection status.

(b) Take a random sample of aircraft inspection records to ensure that scheduled inspections times/ cycles were not exceeded (over-flown).

3.3.8 **AIRWORTHINESS DIRECTIVES**

(a) Request a random sample of aircraft AD compliance records to ensure the following—

(1) The records contain all applicable ADs for the sampled aircraft

(2) That AD requirements were accomplished within the effective times of the AD

Note: *Special emphasis should be put on checking recurring ADs.*

(3) The AD record contains current status and method of compliance. The current status must include the following—

(i) A list of all ADs applicable to the aircraft

(ii) Date and time of compliance

(iii) Time and/or date of next required action (if recurring AD)

(4) The record is being retained indefinitely

(5) The method of compliance is the same as specified in the AD

Note: *If any ADs have an alternative method of compliance, ensure that the operator has obtained prior approval for that alternative method.*

(6) The date of compliance is identical with the date on the current status list

(7) The mechanic/inspector was properly trained and authorized to accomplish the work

(8) The accomplishment was properly signed off.

3.3.9 **MAJOR MODIFICATION & MAJOR REPAIR RECORDS**

(a) Compare the manual procedures for maintaining a list of major modifications and the reports for major repairs with the actual work records.

(b) Compare a random sample of major repair and alteration records to the alteration and repair list and/or reports to ensure that the—

(1) List and/or reports contain the date of accomplishment and a brief description of the work

(2) Respective maintenance records show that the work was accomplished per approved data

3.4 INSPECTING AIRCRAFT CONFIGURED FOR 9 OR LESS PASSENGERS

(a) This section provides guidance for inspecting maintenance records of aircraft with a seating capacity of nine (9) or less passenger seats utilized by AOC holders.

3.4.1 **GENERAL**

(a) Aircraft maintenance records include any record documenting the performance of work on an aircraft. Principal Inspectors must inspect an operator's aircraft maintenance records to ensure that the records meet the requirements of the LCARs.

(b) During surveillance of an operator's aircraft maintenance records, the inspector must determine that all of the work was based on instructions, procedures, or information that has been approved previously or accepted by the LCAA. Such data could be in the form of—

(1) Manufacturer's manuals

(2) Service bulletins (SB)

(3) Service letters

(4) Data included in the operator's approved inspection and/or maintenance programs

(5) Other LCAA authorizations

(6) Airworthiness Directives (AD)

(7) Other accepted documents

3.4.1.1 **Inspection & Continuous Maintenance Programs**

(a) Operators operating under an inspection program are not authorized to approve aircraft for return to service. Therefore, the name and the certificate numbers of the person performing the work and the person approving the work must be provided.

(b) In the case of an operator operating under a continuous airworthiness maintenance program, a positive means of identification, such as employee identification number, is required for any person performing or approving work.

(c) Operators operating under a continuous airworthiness maintenance program must retain the record of each maintenance release for one year after the work is performed.

(d) Operators under an inspection program do not require maintenance releases.

3.4.1.2 **Total Time-in-Service Records**

(a) Total time-in-service continues for the life of the aircraft.

(1) Engine rebuilding and certifying to zero time-in-service must not be confused with a zero time since overhaul certification.

(2) Zerotimesinceoverhaulcertificationdoesnoteffectthecalculationoftotaltimeinservice.

(3) When an engine is rebuilt to zero time, the total time-in-service is zero.

(b) Operators must have current status of life-limited items. This record indicates the present accumulated time-in-service of each life-limited item.

(c) The operator must be able to verify the accumulated time-in-service of all life-limited items. This is done by providing records for the item showing each segment of its operation in service since its manufacture. This may be accomplished by one of the following—

(1) A record audit trail providing a record of the time-in-service of the item

(2) A time audit trail providing a record of continuous time-in-service

3.4.1.3 **Overhaul Records**

(a) An operator must maintain overhaul records of any item required to be overhauled by the operator's inspection/maintenance program and/or operations specifications issued by the LCAA.

(b) These records must be maintained until the work is superseded or repeated by work of equivalent scope and detail.

(c) Inspection status defines the work that has been and is scheduled to be performed in accordance with the inspection or maintenance program.

3.4.1.4 **Inspection Status Records**

(a) The inspection status records must show the following—

(1) Type of most recent inspection

(2) The time at which that inspection was performed

(3) The time since the most recent inspection expressed in terms of hours, cycles, or calendar time

(4) The scheduled time and type of the next inspection

3.4.1.5 **Airworthiness Directives Records**

(a) The operator must maintain the current status of all applicable AD's for the operator's equipment.

(b) Some acceptable sources of procedures for compliance with AD's are—

(1) Service bulletins

(2) Service letters

(3) Specific instructions provided in the AD

(4) Other LCAA authorizations

3.4.1.6 **Major Modification & Repair Records**

An operator is required to retain major modification and repair records.

3.4.1.7 **AMO Records**

(a) Approved Maintenance Organizations (AMO) performing work for operators are required by Directives to accomplish the work in accordance with the operator's program.

Note 1: *Operators should understand that it is their responsibility to require a copy of the work documentation for their records from the AMO at the time that the work is performed.*

(b) AMO's are required to retain records of work for 2 years. Some operators have reported that maintenance records are not always available from AMO's beyond the 2 year retention period.

Note 2: *The operator is always responsible for obtaining and retaining these records.*

3.4.2 **PROCEDURES**

(a) Ensure that the operator has retained the required maintenance/alteration/inspection records for each aircraft, including airframe, engine, propeller, rotor, and appliances.

(b) Inspect record system. Ensure that the operator's records are being maintained in accordance with a record-keeping system.

(c) Analyze Findings. Evaluate all deficiencies to determine if corrective actions will be required.

(d) Debrief Operator. Discuss the results of the inspection. Advice the operator of deficiencies discovered during the inspection and discuss how to resolve them.

3.4.2.1 **Continuous Maintenance Program**

(a) For operators operating under a continuous airworthiness maintenance program, these records must include the following—

(1) A description of the work performed (data acceptable to the LCAA), including date of completion

(2) If the person performing the work is not an employee of the operator, the following personnel data must be provided—

(i) Name

(ii) Certificate number

(iii) Kind of certificate held

(iv) The signature or other positive identification of the person approving the work

3.4.2.2 **Inspection Program Records**

(a) For operators operating under an inspection program, these records must include the following—

(1) A description of the work performed (data acceptable to the LCAA), including date of completion.

(2) For the person performing the work, the following personnel data must be provided—

(i) Name

(ii) Certificate number

(iii) Kind of certificate held

(iv) The signature and certificate number of the person approving the work

3.4.2.3 **Maintenance Release Records**

(a) Ensure that the operator has maintained records of maintenance releases—

(1) For operators operating under a continuous airworthiness maintenance program, records of maintenance releases must be maintained for at least one year.

(2) Operators operating under an inspection program are not required to have maintenance releases, but are required to maintain their aircraft in accordance with LCAR Part 6.

3.4.2.4 **Total Time-in-Service Records**

Inspect the total time-in-service records to ensure that the operator maintains records for total time- in-service for the airframe, engine, propeller, and rotors.

3.4.2.5 **Life-Limited Parts Records**

(a) Inspect life-limited parts records to ensure that the operator maintains records for life-limited parts for the following as applicable—

(1) Airframe

(2) Engine

(3) Propeller

(4) Appliances

(5) Rotor

3.4.2.6 **Overhaul Records**

Inspect overhaul records to ensure that the operator has records of all parts required to be overhauled that include the time since last overhaul (hours, cycles, or calendar date).

3.4.2.7 **Inspection Status Records**

(a) Inspect inspection status records.to ensure that the operator has records of the current inspection status that include the following information—

(1) Type, date and time (hours, cycles, or calendar date) of inspection and next due date

(2) Aircraft total time-in-service

3.4.2.8 **Airworthiness Directive Records**

(a) Ensure that the operator has records of AD compliance that include the following information—

(1) The AD number, with its latest revision number and date

(2) The method of compliance

(3) The next due date and time of a recurring AD

(b) Include the surveillance of AD in all work programs where an operator performs maintenance. Accomplish AD verification by the following methods—

(1) Accomplish actual surveillance of the AD. To ensure that the AD is properly complied with, a review of all paper work such as Environmental Assessment (EA), Engineering Order (EO), work cards, maintenance manual references and service bulletins should be included.

(2) Accomplish physical verification of previous AD.

3.4.2.9 **Major Modification & Repair Records**

(a) Compare the manual procedures for maintaining a list of major modifications and the reports for major repairs with the actual work records.

When major modifications or major repairs are identified and not recorded on the list or report, request the—

- Actual maintenance accomplishment record and
- Approved data from the operator.

(b) Compare a random sample of major repair and alteration records to the alteration and repair list and/or reports to ensure that the—

(1) List and/or reports contain the date of accomplishment and a brief description of the work

(2) Respective maintenance records show that the work was accomplished per approved data

APPENDIX 3-A: JOB AID: AW-003 – Aircraft Records Inspection (Maintenance)

Aircraft Records Inspection (Maintenance)

FILE REFERENCE: _____

Date of Evaluation		**Control #**	
Name of Operator		**AOC #**	
State of Operator		**Type of Aircraft**	
Org. Identifier		**Aircraft Reg#**	
Location			
Destination			
Action Taken			

KEY PERSONNEL MET:

	NAME	TITLE
1.		
2.		
3.		
4.		
5.		

PLEASE CHECK THE APPROPRIATE BOX FOR THE FOLLOWING; SATISFACTORY (S), NOT SATISFACTORY (NS) OR NOT APPLICABLE (N/A). INDICATE REGULATORY OR OTHER REFERENCE(S) FOR NOT SATISFACTORY (NS) ITEMS WHERE APPLICABLE. PROVIDE FURTHER DETAILS IN THE REMARKS SECTION IF REQUIRED.					
		CHECKLIST ITEMS			
REFERENCE	1	AIRWORTHINESS DIRECTIVES/MANDATORY SERVICE BULLETINS	S	NS	N/A
	1.1	Is there a master list (Summary Sheet) of all ADs/ Mandatory Service Bulletinsfor the aircraft, its engines and/or components?			

	1.2	Does the list account for all ADs and/or Mandatory Service Bulletins issued forthat make/model?			
	1.3	Have applicable ADs and Mandatory Service Bulletins been complied with?			
	1.4	Are ADs/Mandatory Service Bulletins accomplished within specified times?			
	1.5	Are ADs/Mandatory Service Bulletins accomplished using specified instructions?			
	1.6	Is there a specific maintenance record for each AD/ Mandatory Service Bulletin?			
	1.7	Are one time and recurring ADs/Mandatory Service Bulletins identified?			
	1.8	Are recurring ADs/Mandatory Service Bulletins incorporated into the scheduledMaintenance Programme?			
	1.9	Has an alternate method of compliance been used to comply with ADs/Mandatory Service Bulletins?			
	1.10	If alternate method used. was proper approval obtained?			
REFERENCE	**2**	**MANUAL CONTROL PROCESS**	**S**	**NS**	**N/A**
	2.1	Copies numbered for controlled issuance?			
	2.2	Amendment issuance tracking process?			
	2.3	Is there a maintenance document for each one incorporated?			
REFERENCE	**3**	**TOTAL TIME IN SERVICE RECORDS/INSPECTION RECORDS**	**S**	**NS**	**N/A**
	3.1	Does the aircraft's records contain a total time in service record, listing the current time in service/cycles, current inspection status of the aircraft, its enginesand components			
	3.2	Are the service records in accordance with the approved maintenance programme?			
	3.3	Do the records contain the last inspection work packages with both routine andnon-routine items for both engines and airframe?			
	3.4	Were all inspections accomplished within the time/cycles established by theapproved maintenance schedule?			
	3.5	Were the records retained in accordance with regulatory requirements?			
REFERENCE	**4**	**LIFE LIMITED PARTS STATUS RECORDS**	**S**	**NS**	**N/A**
	4.1	Is there a list of current life limited parts for the aircraft, its engines or components?			

	4.2	Does the list indicate the present operating time limit for each life limited part,indicate its number ofhours, or accumu ated cyclesand show thenumber of hours or cycles remaining?			
REFERENCE		**LIFE LIMITED PARTS STATUS RECORDS (Conti…)**	**S**	**NS**	**N/A**
	4.3	Is the list in accordance with maintenance manual?			
	4.4	Are there maintenance records for each life limited part Justifying its total time in service?			
	4.5	Have life-limited parts been changed within their prescribed limit?			
REFERENCE	**5**	**OVERHAUL RECORDS**	**S**	**NS**	**N/A**
	5.1	Do the aircraft records contain a list of all components required to be overhauled?			
	5.2	Does the list show the time/cycles for the required overhaul?			
	5.3	Does the list show the current time/cycle of each component?			
	5.4	Is there a maintenance record for each overhaul showing a description of thework accomplished, name of the person performing the work, and the name ofthe person approving the work?			
	5.5	Were all required overhaul items overhauled within the limits established by theapproved maintenanceschedule?			
	5.6	Are there Documentation forms for all items installed on the aircraft?			
	5.7	Were all overhauls accomplished in accordance with manufactures data andapproved for return to service by a certificated entity?			
REFERENCE	**6**	**MAJOR REPAIR & MAJOR MODIFICATION RECORDS**	**S**	**NS**	**N/A**
	6.1	Is there a master list of all major repairs/major modifications performed to theaircraft its engines or components?			
	6.2	Is there a maintenance record for all Major Repairs and Major Modificationsaccomplished?			
	6.3	Was the work accomplished in accordance with approved data?			
	6.4	Was the work approved for return to service by a certificated entity?			
REFERENCE	**7**	**JOURNEY/TECHNICAL LOG PAGES**	**S**	**NS**	**N/A**
	7.1	Do the aircraft records contain copies of all log pages?			

	7.2	Are any pages missing and if so were the missing times accounted for?			
	7.3	Are any pages missing and if so were the missing times accounted for?			
	7.4	Do all pages reviewed have proper sign offs, maintenance entries and accuratetimes?			
REFERENCE	**8**	**MEL ITEMS**	**S**	**NS**	**N/A**
	8.1	Do the aircraft records contain copies of all deferred/ continued maintenanceitems?			
	8.2	Do the retained records show both the initiation and corrective action?			
	8.3	Were all deferred items within the scope of the approved MEL?			
	8.4	Were proper "O" and "M" procedures followed?			
	8.5	Were all items cleared in a timely manner?			

Item Number	INSPECTOR'S REMARKS

INSPECTOR(S)			
NAME/ASI#	**SIGNATURE**	**ORG REP NAME**	
		ORG REP SIGNATURE	

CHAPTER 4: MAINTENANCE IN PROGRESS (SPOT CHECK)

4.1 BACKGROUND AND OBJECTIVES

This chapter provides guidance for observing and analyzing in-progress maintenance operations for compliance with specific methods, techniques, and practices in the operator's inspection and maintenance program.

4.2 GENERAL

(a) Definition: Work package - Job task control units developed by the operator for performing maintenance/inspections. A typical work package may include the following:

(1) Component change sheets

(2) Inspection work cards

(3) Non-routine work cards

(4) Appropriate sections of the maintenance procedures manual

(5) Engineering Orders (EOs)

(b) It is important that Airworthiness Inspectors are familiar with the type of aircraft to be inspected before performing the inspection. This can be accomplished through formal and on the job training.

(c) Airworthiness Inspectors possess various degrees and types of expertise and experience. An AWI who needs additional information or guidance should coordinate with personnel experienced in that particular specialty.

4.3 INITIATION AND PLANNING

4.3.1 INITIATION

(a) Spot inspections can be scheduled as part of the work program, but may be initiated whenever a problem is noted, including deficiencies noted during other types of inspections.

4.3.2 PLANNING

(a) Spot inspections derived from the planned work program

(1) The number of spot inspections in the work program depends on the type and number of operator aircraft. After determining the type of aircraft to be inspected, confirm the aircraft availability and scheduled maintenance functions with operator personnel.

(2) If the maintenance to be observed is known, review the operator's maintenance procedures manual to become more familiar with the maintenance task. Review the following:

(i) Duplicate Inspection Items, if applicable

(ii) Forms used to document maintenance task

(iii) Latest manual revision and date

(iv) Special tools and equipment used to perform the maintenance task

(v) Any other manual requirements relating to the maintenance task

(3) For regional offices in which the maintenance procedures manuals are not in the office, review the applicable sections of the operator's maintenance manual at the facility prior to performing this task.

(4) Examining previous inspection findings provides the AWI with background information regarding problem areas found during other spot inspections. This information can give an indication of how effective past corrective actions were in resolving previously identified problem areas.

(5) Information such as Airworthiness Directives (ADs), Service Difficulty Report Summaries, Maintenance Bulletins and Action entries should be reviewed, when available, so as to become familiar with current service difficulty information. While performing the spot inspection, ensure that these conditions do not exist on the aircraft.

(b) Spot inspections not derived from the planned work program. There are many situations while performing other surveillance activities that afford the opportunity to perform spot inspections. For example, if a discrepancy is found during a ramp inspection that requires maintenance, a spot inspection of that maintenance function could be performed.

4.3.3 **GENERAL GUIDELINES**

(a) Work-in-progress inspections are not normally conducted on a prior-notice basis.

(b) There are many situations while performing other surveillance activities that afford the opportunity to perform spot inspections.

(1) For example, if a discrepancy is found during a ramp inspection that requires maintenance, a spot inspection of that maintenance function could be performed.

(c) During performance of the maintenance in progress inspection, special attention should be paid to the following areas, as applicable—

(1) AD's current status, including the method of compliance;

(2) Overhaul records, including documentation containing the overhaul details and replacement time;

(3) Major repair/alteration classifications and the use of approved data; and

(4) Replacement time of life-limited parts.

4.3.4 **SELECTING A MAINTENANCE TASK**

(a) Discuss with the maintenance supervisor what maintenance is currently being performed to determine what portions of that current maintenance/inspection should be observed.

(b) Special emphasis should be placed on observing maintenance tasks that involve RII items. Problem areas to look at include—

(1) Persons performing inspections outside of authorizations or limitations

(2) RII items not being properly identified or accomplished

4.3.5 **PERFORMANCE STANDARDS**

(a) Each operator has a maintenance/inspection program for its individual maintenance operations. For maintenance to be performed on the operator's aircraft, there must be corresponding provisions and procedures in the operator's maintenance manual.

(b) Each operator should have special procedures in the manual that ensures persons outside of the organization perform maintenance in accordance with the operator's maintenance manual.

(c) When deviations from accepted procedures are noted, it must be brought to the attention of maintenance management so that corrective action must be taken immediately.

4.3.6 **HEAVY INSPECTIONS**

(a) Special emphasis should be given to increased surveillance of transport category aircraft undergoing "C," "D," or similar "heavy inspections." This increased surveillance is due to the "aging" fleets of many air operators and reflects concern over structural fatigue and corrosion.

(b) During the observance of a "heavy inspection," ASI's must pick an inspection area where maintenance has been started and where there could be possible fatigue or corrosion problems (especially an area that is not usually open to inspection, such as under the galley or lavatories).

(c) If inspecting an area where maintenance is in progress, the following should be evaluated—

(1) While performing their job functions, are personnel accomplishing their job task per the work package.

(2) Does the Aging Aircraft/Corrosion Control program provide the necessary guidance to evaluate and respond in a timely manner to structural fatigue and corrosion?

(d) If inspecting an area where maintenance has already been accomplished, the following should be evaluated:

(1) Are there any structural fatigue or corrosion problems evident?

(2) If there are, were they identified by the person(s) responsible for that area?

(3) If they were identified, was corrective action initiated and completed?

(e) While inspecting these areas that are not normally accessible, look for evidence of structural major repairs.

(1) If a major repair was accomplished, review the approved data for that repair.

4.4 PROCEDURES

4.3.7 **SELECT APPROPRIATE AIRCRAFT FOR INSPECTION**

(a) Determine the following from the operator's maintenance schedules—

(1) Aircraft availability;

(2) Aircraft type; and

(3) Type of maintenance being performed.

4.3.8 **PREPARE FOR THE INSPECTION**

(a) Review the following—

(1) Maintenance manual procedures for maintenance being performed (if available)

(2) Operations specifications time limitations, when applicable to the maintenance task

(3) Previous inspection findings

(4) Applicable maintenance alert bulletins

(5) Service difficulty information

(6) Any new Directive and/or AD requirements affecting the aircraft to be inspected

4.3.9 **PERFORM THE MAINTENANCE IN PROGRESS INSPECTION**

Reference: See Appendix 4-A

4.3.9.1 **Start of Inspections**

(1) Identify yourself to the maintenance supervisor and discuss the nature of your inspection.

(2) Discuss with the maintenance supervisor/person in charge the status of the selected maintenance task.

(3) Select a particular maintenance task within the work package.

4.3.9.2 **Maintenance Procedures Available?**

(a) Ensure that current maintenance procedures are available to the person(s) performing the work by accomplishing the following—

(1) Asking maintenance personnel for the maintenance procedures used to accomplish the work

(2) Recording the date of the maintenance procedures being used to perform the maintenance task for future comparison with the maintenance manual master copy

(b) Ensure that the maintenance is performed according to established procedures by comparing actual performance to the operator's approved maintenance/inspection manual procedures.

4.3.9.3 **Proper Tools Available?**

(a) Ensure that the proper tools are being used by accomplishing the following—

(1) Observing that special tools referenced in the maintenance manual are being used

(2) Checking calibration due dates on precision tools, measuring devices, and testing equipment requiring calibration

4.3.9.4 **Adequate Facilities Available?**

(a) Ensure that the operator has the facilities to properly perform the maintenance task.

(b) Ensure that systems being maintained are not exposed to environmental conditions that could contaminate or damage components.

4.3.9.5 **Maintenance Recording Accomplished?**

Ensure that maintenance recording is accomplished according to the operator's record keeping system.

4.3.9.6 **Maintenance Task Deficiencies?**

Note any maintenance task deficiencies and include any copies of the documents that revealed the deficiencies

4.3.9.7 **RII Qualified?**

For those maintenance tasks involving RII functions, determine that the persons observed performing these functions are appropriately certificated, authorized, and qualified.

4.3.9.8 **CLOSE-OUT OF INSPECTION**

(a) Evaluate inspection findings to determine if safety issues exist.

(b) Discuss the results with the organization’s management representative.

(c) Enter any identified safety issues in the directorate of Flight Safety Standards Database for analysis and resolution.

APPENDIX 4-A: JOB AID: AW-004A – Maintenance in Progress Inspection

Maintenance in Progress Inspection

FILE REFERENCE: _____

Date of Evaluation		**Control #**	
Name of Operator		**AOC #**	
State of Operator		**Type of Aircraft**	
Org. Identifier		**Aircraft Reg#**	
Location			
Destination			
Action Taken			

KEY PERSONNEL MET:

	NAME	TITLE
1.		
2.		
3.		
4.		
5.		
6.		
7.		

PLEASE CHECK THE APPROPRIATE BOX FOR THE FOLLOWING; SATISFACTORY (S), NOT SATISFACTORY (NS) OR NOT APPLICABLE (N/A). INDICATE REGULATORY OR OTHER REFERENCE(S) FOR NOT SATISFACTORY (NS) ITEMS WHERE APPLICABLE. PROVIDE FURTHER DETAILS IN THE REMARKS SECTION IF REQUIRED.

REFERENCE	1	CHECKLIST ITEMS	S	NS	N/A
	1.1	Were current maintenance procedures available to personnel performing thework?			
	1.2	Were personnel performing the task familiar with the task requirements?			
	1.3	Were the procedures used in accordance with the maintenance manual?			
	1.4	Were all required special tools and /or inspection aids available for use?			
	1.5	Were all tools/measuring instruments requiring calibration within the calibration limit?			

	1.6	Was the environment adequate for the work being performed?			
REFERENCE		**CHECKLIST ITEMS**	**S**	**NS**	**N/A**
	1.7	Were adequate stands/special handling equipment available and used?			
	1.8	Was the lighting adequate for the work being accomplished?			
	1.9	Was the work task accomplished in a satisfactory manner?			
	1.10	Were all discrepancies found recorded on the proper non-routine sheets?			
	1.11	Were all discrepancies found properly repaired?			
	1.12	If required, was a re-inspection or second set of eyes used before closing the area?			
	1.13	Was the area properly closed?			
	1.14	Were the work task cards properly signed off?			
	1.15	Before leaving, were all discrepancies noted discussed with the maintenanceperson in-charge?			

Item Number	INSPECTOR'S REMARKS

INSPECTOR(S)			
NAME/ASI#	SIGNATURE	ORG REP NAME	
		ORG REP SIGNATURE	

APPENDIX 4-B: JOB AID: AW-004AB – Maintenance in Progress (Avionics) Inspection

Maintenance in Progress (Avionics) Inspection

FILE REFERENCE: _____

Date of Evaluation		**Control #**	
Name of Operator		**AOC #**	
State of Operator		**Type of Aircraft**	
Org. Identifier		**Aircraft Reg#**	
Location			
Destination			
Action Taken			

KEY PERSONNEL MET:

	NAME	TITLE
1.		
2.		
3.		
4.		
5.		
6.		
7.		

PLEASE CHECK THE APPROPRIATE BOX FOR THE FOLLOWING; SATISFACTORY (S), NOT SATISFACTORY (NS) OR NOT APPLICABLE (N/A). INDICATE REGULATORY OR OTHER REFERENCE(S) FOR NOT SATISFACTORY (NS) ITEMS WHERE APPLICABLE. PROVIDE FURTHER DETAILS IN THE REMARKS SECTION IF REQUIRED.					
		CHECKLIST ITEMS			
REFERENCE	**1**	**MAINTENANCE CREW CERTIFICATES**	**S**	**NS**	**N/A**
	1.1	Maintenance crew certificate appropriate for assigned duty?			
	1.2	Has the operator established recurrent maintenance training?			
	1.3	Are the maintenance personnel trained to use maintenance tools?			
	1.4	Quality control crew certificate appropriate for assigned approval?			
REFERENCE	**2**	**MANUALS**	**S**	**NS**	**N/A**
	2.1	Were the required manuals available?			
	2.2	Manual in secure form?			
	2.3	Last revised manual used by maintenance personnel?			
	2.4	Revisions instructions adequate?			
	2.5	List of effective pages provided and correct?			
REFERENCE	**3**	**MAINTENANCE TOOLS**	**S**	**NS**	**N/A**
	3.1	Does the operator use appropriate maintenance tools?			
	3.2	Maintenance tool calibrated in a timely manner?			
	3.3	Does maintenance tool use last software version?			
REFERENCE	**4**	**SPARES**	**S**	**NS**	**N/A**
	4.1	Does the operator have adequate spares to support the operation?			
	4.2	Are spares properly placed throughout the operator			

		system?			
	4.3	Are spares tagged appropriately?			
	4.4	Are un-serviced LRU tagged accordingly?			
REFERENCE	**5**	**FACILITY LOCATION**	**S**	**NS**	**N/A**
	5.1	Is the facility maintained free from dust?			
	5.2	Is the facility maintained in reasonably consistent temperature?			
	5.3	Were there adequate equipment and facilities for the complexity and function performed?			
REFERENCE	**6**	**MAINTENANCE PROCEDURES**	**S**	**NS**	**N/A**
	6.1	Does Maintenance staff follow proper procedure?			
	6.2	Does maintenance staff demonstrate competent performance in their function?			
	6.3	Maintenance discrepancy entry properly described?			
	6.4	Maintenance discrepancies properly corrected?			
	6.5	Proper signoffs?			
	6.6	Maintenance corrections properly approved by certified Quality control personnel?			
	6.7	All maintenance accomplished on lower minimum required?			
	6.8	Company maintenance programme according to manufacture maintenance manuals (MPD)?			
	6.9	Are Serviceable unit properly tagged?			

Item Number	REMARKS

INSPECTOR(S)			
NAME/ASI#	**SIGNATURE**	**ORG REP NAME**	
		ORG REP SIGNATURE	

CHAPTER 5: AIRCRAFT RAMP INSPECTION

5.1 OBJECTIVE

This chapter provides general guidance for sampling the quality of maintenance and the degree of compliance with the operator's maintenance procedures on in-service airline aircraft.

5.2 GENERAL

5.2.1 PREPARATION

(a) CAA Inspection Personnel

(1) It is important that Airworthiness Inspectors (AWIs) become familiar with the type of aircraft to be inspected before performing the inspection.

(2) This can be accomplished by on the job training.

(b) Coordination

Airworthiness and Operations Inspectors possess various degrees and types of expertise and experience. An AWI who needs additional information or guidance should coordinate with personnel experienced in that particular specialty.

5.2.2 PERFORMING THE RAMP INSPECTION

(a) Many aircraft have less than one-hour ground time. To ensure that the inspection is performed adequately, it is suggested that two inspectors perform this task in exterior and interior phases.

(b) A cabin inspection should be performed, when possible, without disturbing the loading and unloading of passengers. The inspection can still be performed when some passengers are on board during through flights, but good judgment must be exercised by inspecting areas away from the passengers.

(c) This inspection must be accomplished without interfering with the turnaround of the aircraft. The following lists of item are just some of the activities that could cause a delay in the turnaround time if interfered with.

(1) Boarding and deplaning of passengers

(2) Servicing

(3) Fueling

(4) Maintenance

(5) Baggage handling

(6) Any other operator activity

(d) Any discrepancies noted must be brought to the attention of appropriate personnel immediately, to allow the operator the opportunity to take corrective action without interrupting the flight schedule. The AWI must verify that all corrective actions taken were in accordance with the requirements of the operator's maintenance procedures manual.

5.2.3 **INSPECTOR CREDENTIALS**

(a) LCAA Inspector credentials provide the ASI with an identification media that allows access to most secured areas.

(b) ASIs must display this credential on an outer garment to be permitted entry to and while in airport secured areas.

5.2.4 **AIRPORT ACCESS**

(a) Access through physical barriers may require assistance from airport security.

(b) When an ASI anticipates the need for access for more than one consecutive day, the ASI should try to obtain temporary airport identification.

(1) At airports where an ASI is normally assigned, the ASI should acquire permanent airport identification.

(2) LCAA Inspector credential and airport identification cards/badges do not allow ASIs to bypass any screening points.

(c) When difficulties arise in obtaining access to airport secured areas, the ASI should contact, through their Aviation Security directorate, the Aviation Security Office, for that airport so that problem can be addressed.

In a rush situation, the ASI should find an appropriate badge holding employee and request an escorted service to their destination.

(d) This task is scheduled as part of the work program. Additional inspections are initiated as needed based on special circumstances.

5.2.5 **AD COMPLIANCE**

(a) The ramp inspection provides the ASI with a good opportunity to ensure that the compliance dates and requirements of new Airworthiness Directives (ADs) and regulatory revisions have been met.

(1) ADs, Service Difficulty information, Maintenance/Airworthiness Bulletins, and Action entries should be reviewed, when available, so as to become familiar with current service difficulty information.

5.2.6 **MAINTENANCE RELEASE**

(a) Directives require that maintenance be recorded whenever it is performed prior to an approval for return to service.

(b) The operator's maintenance procedures manual should describe the procedures for ensuring that these recording requirements are met, including the specific instructions on when an airworthiness release or appropriate maintenance log entry is required.

5.2.7 **CORRECTION OR DEFERRAL**

(a) All mechanical discrepancies entered in the maintenance log must be either corrected or deferred using the methods identified in the operator's maintenance procedures manual.

(b) The Minimum Equipment List has certain procedures and conditions that must be met prior to deferring the item(s).

(1) These procedures are identified by "O","M", and "O/M" and are normally contained in the operator's approved Minimum Equipment List. There are occasions in which the list references these procedures to another document.

(2) When reviewing the records for Minimum Equipment List compliance, the ASI must determine what procedures are required for deferral and ensure that these procedures are accomplished.

(3) The ASI must ensure that all applicable repetitive Minimum Equipment List procedures are accomplished for those items that are deferred and are continuing to be deferred through the station.

These repetitive maintenance procedures must be signed off in the maintenance log as evidence that the procedures were accomplished.

5.2.8 **MONITORING SYSTEM**

(a) Operators frequently use a system to monitor items that have been inspected previously and found to be within serviceable limits. These items are still airworthy, yet warrant repair at a later time or when items no longer meet serviceable limits. This method of deferral may require repetitive inspections to ensure continuing airworthiness of the items.

(1) Examples of items that are commonly deferred in this manner are fuel leak classifications, dent limitations, and temporary (airworthy) repairs.

(b) Passenger convenience item (not safety/airworthiness related) deferrals should be handled in accordance with the operator's program.

(c) The maintenance program approved for an operator must provide for prompt and orderly repairs of inoperative items.

5.2.9 **CARGO EMPHASIS AREAS**

(a) Inspection results have disclosed instances of significant aircraft structural damage resulting from careless loading of cargo, such as—

(1) Torn or punctured liners, indicating hidden damage to circumferential stringers, fuselage skin, and bulkheads

(2) Damaged rollers, ball mats, etc., causing significant structural damage to the floors;

(3) Corrosion and structural damage caused by improper handling of some hazardous materials

5.3 PROCEDURES

5.3.1 **PREPARE FOR THE INSPECTION**

(a) Review the operator's schedule, select the flight to be inspected, and determine the type of equipment and ground time.

(b) Determine if any recent problem areas have been identified for that type of aircraft.

(c) Determine if recent regulatory changes and AD requirements affect the aircraft to be inspected.

5.3.2 **CONDUCT EXTERIOR INSPECTION**

Conduct Exterior Inspection, as applicable.

5.3.3 **INTERVIEW FLIGHT CREW**

Introduce yourself to the flight crew and describe the purpose and scope of the inspection.

5.3.4 **INSPECT AIRCRAFT MAINTENANCE RECORDS**

(a) Ensure that all open discrepancies from the previous flight are resolved per the operator's manual, prior to departure of the aircraft.

(b) Review the maintenance records to determine if repetitive maintenance problems exist that might indicate a trend.

(c) Ensure that all Minimum Equipment List items are deferred in accordance with the provisions of the operator's approved Minimum Equipment List.

(1) Review the operator's approved Minimum Equipment List to determine that conditions, procedures, and placarding requirements were accomplished to correctly defer specific items.

(2) Note the date when an item was first deferred to determine if the maximum allowed length of deferral was exceeded. Accomplish this by examining maintenance record pages, the deferred maintenance list, or deferred maintenance placards or stickers.

(d) Ensure that an airworthiness release, maintenance record entry, or appropriate approval for return to service has been made after the completion of maintenance.

(e) Ensure that the maintenance record contains the following for each discrepancy—

(1) Description of the work performed or a reference to acceptable data

(2) Name or other positive identification of the person approving the work

(3) Name of the person performing work, if outside the organization

5.3.5 **PERFORM INTERIOR INSPECTION**

Perform Interior Inspection, as applicable.

5.3.6 **DEBRIEF OPERATOR**

(a) Inform the flight crew or appropriate personnel that the inspection has been completed.

(b) Discuss the discrepancies brought to the operator's attention during the inspection.

5.3.7 **EXAMINE MAINTENANCE RECORD ENTRIES**

(a) Ensure that the operator has recorded all discrepancies noted during this inspection.

(1) If time is available, monitor the operator's corrective actions.

5.3.8 **ANALYZE FINDINGS**

Analyze each finding to determine if the discrepancies are the result of improper maintenance and/or missing or inadequate maintenance/inspection procedures.

5.3.9 **ENTER RECORD**

(a) File all supporting paperwork in the operator's office file.

(b) Enter any safety issues identified.

5.3.10 **INITIATE RESOLUTION**

If any safety issues were identified, complete initial tasks required by Resolution and Enforcement manual.

APPENDIX 5-A: JOB AID: AW-005-Ramp Inspection

AOC Holders Ramp Inspection

FILE REFERENCE: _____

Date of Evaluation		**Control #**	
Name of Operator		**AOC #**	
State of Operator		**Type of Aircraft**	
Org. Identifier		**Aircraft Reg#**	
Location			
Destination			
Action Taken			

KEY PERSONNEL MET:

	NAME	TITLE
1.		
2.		
3.		
4.		
5.		
6.		

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		CHECKLIST ITEMS			
REFERENCE	**1**	**GENERAL**	**S**	**NS**	**N/A**
	1.1	General Servicing			
	1.2	Check Data Plate			
	1.3	Check for proper Registration Markings			
	1.4	Is the Airworthiness Certificate up-to-date and properly located?			
	1.5	Is the Registration Certificate up-to-date and properly located?			
	1.6	Are other required certificates up-to-date and properly located?			
REFERENCE		**GENERAL (Conti…)**	**S**	**NS**	**N/A**
	1.7	Minimum Equipment List			
	1.8	Operations Manual			
REFERENCE	**2**	**JOURNEY / TECHNICAL LOG**	**S**	**NS**	**N/A**
	2.1	Are all Maintenance Items cleared?			
	2.2	Is the Airworthiness Maintenance Release signed by authorized personnel?			
	2.3	Are there an adequate number of back pages available?			
	2.4	Are deferred items in accordance with approved MEL?			
	2.5	Are deferred item's "M" and "Os" carried out?			
	2.6	Are deferred items properly placarded?			
	2.7	Flight/Journey Log			
REFERENCE	**3**	**FLIGHT DECK**	**S**	**NS**	**N/A**
	3.1	Is the general condition of the area clean?			
	3.2	Are all placards in place and legible?			
	3.3	Are instruments clear?			
	3.4	Rudder pedals not blocked?-			
	3.5	All control panels legible?			

	3.6	Wire bundles properly tied back?			
	3.7	CB's properly marked and legible?			
	3.8	Are access doors on the floor clearly marked and easy to open?			
	3.9	If for emergency landing gear release, is handle available?			
	3.10	If for viewing nose gear lock mechanism is viewer clean and usable?			
	3.11	Is Emergency Equipment in place? (Smoke mask, O2 Mask, Crash ax)			
	3.12	Is PBE in place?			
	3.13	Are required manuals in place? (MEL/CDL, AFM, AOM, MM)			
	3.14	Is there a Medical kit on board and sealed?			
	3.15	Mass and Balance Calculations			
	3.16	Public Address System			
REFERENCE	**4**	**LAVATORIES**	**S**	**NS**	**N/A**
	4.1	Is there an ashtray on outside of door?			
	4.2	Is there a No Smoking sign outside of door?			
	4.3	Is there a No Smoking Sign inside of door?			
	4.4	Is there a No Trash placard on toilet seat?			
	4.5	Is a Smoke detector installed?			
	4.6	Is there an Automatic fire extinguisher over trash bin with seal in place?			
	4.7	Are all under counter bins clean and sealed with fire resistant tape?			
REFERENCE	**5**	**GALLEYS**	**S**	**NS**	**N/A**
	5.1	On doors with girt bars, Is each Galley Door girt bar area clean and girt barholder free to move?			
	5.2	Is the Slide Raft condition acceptable? (Proper Pressure/ within overhaul date)			
	5.3	Are the door opening instructions properly marked?			
	5.4	Are all storage bins marked for weight limit?			
	5.5	Are all storage bins/coffee maker lock mechanisms			

		working?			
	5.6	Are all placards in place and legible?			
	5.7	Are floor level storage areas clean and free of food particles and paper trashthat can burn?			
REFERENCE	**6**	**EMERGENCY EXITS**	**S**	**NS**	**N/A**
	6.1	Are emergency exit signs working and properly placed?			
	6.2	Is a floor level emergency exit system installed and working?			
	6.3	On doors with girt bar Floor level exits are girt bars clean and free to move?			
	6.4	Are door operations instructions clearly marked?			
	6.5	Is the slide-raft condition acceptable? (proper pressure/within overhaul date)			
	6.6	Are over-wing emergency exit seats properly spaced for type exit?			
	6.7	Are over-wing emergency exit opening instructions legible?			
	6.8	Is the over-wing emergency exit exterior path non-slip and direction indicated?			
	6.9	Are passenger signs working and in view of each seated passenger?			
	6.10	Are emergency exit signs working and properly placed?			
	6.11	Emergency Exits Accessibility.			
REFERENCE	**7**	**PASSENGER SEAT AREA**	**S**	**NS**	**N/A**
	7.1	Do the passenger seats have side restraints in place?			
	7.2	Do passenger seat break-over proper for area located?			
	7.3	Are passenger seats, seat belts properly rated and certified?			
	7.4	Is the seat configuration within operator-approved programme?			
	7.5	Are Life Jackets under each seat?			
	7.6	Seats and Safety Belts			
	7.7	Passenger Control			
REFERENCE	**8**	**CABIN INTERIOR**	**S**	**NS**	**N/A**

	8.1	Cabin Baggage Stowage			
	8.2	Loading of Overhead Bins			
	8.3	Passenger Briefing Cards			
	8.5	Availability/Condition of Flash Lights			
	8.6	Passenger Control			
REFERENCE	**9**	**CABIN CREW DUTY STATIONS**	**S**	**NS**	**N/A**
	9.1	Does each flight attendant seat have a seat belt and shoulder harness?			
	9.2	Is each flight attendant seat spring loaded to the upright position?			
	9.3	Is there a flashlight/flashlight holder within reach of each flight attendantseat?			
	9.4	Cabin Crew Alertness to Duty			
REFERENCE	**10**	**CABIN EMERGENCY EQUIPMENT**	**S**	**NS**	**N/A**
	10.1	Are portable oxygen bottles installed within test period and location properlymarked?			
	10.2	Are the proper type and size fire extinguishers installed within test period andtheir location properlymarked?			
	10.3	Are first aid kits installed and their location properly marked?			
	10.4	Are the landing gear viewer access doors accessible and marked as to location?			
	10.5	Are landing gear viewers clear and usable?			
	10.6	Is there a crash axe in the cabin with its location marked?			
	10.7	Availability/Condition of Escape Slides			
	10.8	Availability of Megaphones			
	10.9	Availability of Emergency Radio			
	10.10	Emergency Locator Transmitters			
REFERENCE	**11**	**EXTERIOR:FUSELAGE**	**S**	**NS**	**N/A**
	11.1	Is the radome free of damage, cracking or bubbles?			
	11.2	Are the pitot tubes damage free?			
	11.3	Is the angle of attack sensor damage free?			

	11.4	Are the antennas damage free?			
	11.5	Are the static port areas clear and marked?			
	11.6	Are all panels properly closed, with none missing?			
	11.7	Are wastewater heaters free of damage?			
	11.8	Are AC inlets clear?			
	11.9	No obvious corrosion, or dents?			
	11.10	Visible repairs? (Note for future records check)			
	11.11	Precautions Taken during Refuelling and Refuelling Procedures			
	11.12	Cleanliness of Fuselage			
	11.13	General Condition of Fuselage			
	11.14	General Condition of Empennage			
REFERENCE	**12**	**EXTERIOR EMERGENCY EXITS**	**S**	**NS**	**N/A**
	12.1	Are exterior emergency Exit markings properly painted? (Contrasting colorstripping, proper width)			
	12.2	Are Exterior Emergency Exit placards clear and legible?			
	12.3	Are Exterior Lights working? (Landing, taxi, position)			
	12.4	Are the Strobe/Beacon lights working?			
	12.5	Floor Proximity Escape Lights			
REFERENCE	**13**	**WINGS**	**S**	**NS**	**N/A**
	13.1	General condition of Wings			
	13.2	Are leading edges damage free?			
	13.3	Are trailing edges and under surfaces damage free?			
	13.4	Are trailing edge devises drive assemblies greased and covers secure?			
	13.5	Are static discharge devises securely in place?			
	13.6	No visible signs of fuel leaks?			
	13.7	General condition of Control Surfaces			
REFERENCE	**14**	**CARGO COMPARTMENTS**	**S**	**NS**	**N/A**

	14.1	Are cargo areas clean and walls/sealing free of tears and/ or dents?			
	14.2	Have all repairs been made with fire resistant tape?			
	14.3	Is a fire detection system installed?			
	14.4	Is a fire suppression system installed?			
	14.5	Are door nets free and operable?			
	14.6	Are door-locking mechanisms free and clean?			
	14.7	Are safety devices/nets clean and properly installed?			
REFERENCE	**15**	**WHEEL WELLS**	**S**	**NS**	**N/A**
	15.1	Condition of Wheels and Tyres			
	15.2	Is tire wear within limits?			
	15.3	Is brake wear within limits?			
	15.4	Is strut clean properly inflated?			
	15.5	Is linkage clean with no obvious defects?			
	15.6	Are placards installed and legible?			
	15.7	Is the general area clean with no fluid leaks?			
	15.8	Are grease fittings clean and have they been recently greased?			
	15.9	Is the truck area clean no fluid leaks?			
	15.10	Are accumulators properly charged?			
	15.11	Are safety devices/nets clean and properly installed?			
REFERENCE	**16**	**PYLONS**	**S**	**NS**	**N/A**
	16.1	Are pylons free of damage?			
	16.2	Are all panels in place and secure?			
	16.3	Are squibs properly marked and set?			
REFERENCE	**17**	**POWERPLANTS**	**S**	**NS**	**N/A**
	17.1	Are inlets clean, debris free, no blade damage?			
	17.2	Is the inlet free of pools of fluid?			
	17.3	Are all cowl latches secured?			

	17.4	Are reverser's properly stowed?			
	17.5	Is the exhaust outlet clean, debris free, no blade damage?			
	17.6	Is the exhaust outlet free of fluid?			
	17.7	Is the ground under engine free of debris, no pools of fluid?			
	17.8	Cleanliness of Undercarriage Bays			

Item Number	**INSPECTOR'S REMARKS**

INSPECTOR(S)			
NAME/ASI#	**SIGNATURE**	**ORG REP NAME**	
		ORG REP SIGNATURE	

CHAPTER 6: CABIN EN-ROUTE INSPECTION

6.1 OBJECTIVE

This chapter provides guidance for conducting a cabin enroute inspection to ensure that an operator's cabin safety procedures adhere to the LCAA regulations and safe operating practices.

6.2 BACKGROUND & POLICIES

6.3 GENERAL

(a) Cabin enroute inspections are normally carried out by Operations Inspectors. Nevertheless, Airworthiness Inspectors when travelling on duty should make observations during the flight and provide the Director with information concerning operator procedures, and the condition and maintenance of aircraft emergency equipment and furnishings.

(b) Cabin enroute inspections provide the LCAA with information concerning—

(1) Cabin crew member training programs,

(2) Operator procedures, and

(3) The condition and maintenance of aircraft emergency equipment and furnishings.

(c) Since aviation safety Inspectors do not receive system training on all aircraft, it is important that the inspector/specialist become familiar with the operator's procedures and equipment before performing the inspection.

6.3.1 INSPECTOR USE & QUALIFICATION

(a) Except for demonstration flights, the LCAA does not normally authorize two inspectors to perform a cabin enroute {inspection} on the same flight. Therefore, each inspector/specialist must be familiar with the cabin enroute inspection procedures before performing this task and must be authorized through the Director.

(b) Inspectors possess various degrees and types of expertise and experience. When additional information or guidance is needed, the inspector/specialist should coordinate with personnel experienced in that particular specialty.

(c) In performing this job task, the actions of the inspector are subject to the close scrutiny of airline employees and the general flying public. The inspector/specialist must be alert for leading questions from crewmembers and passengers regarding destinations, technical information, and other operators.

6.3.2 FOCUS OF THE INSPECTION

(a) This task is normally scheduled as part of the annual work program. Additional inspections can be initiated by office special requirements.

(b) Three general areas have been identified for inspectors to observe and evaluate during cabin enroute inspections.

(c) Each area should be considered to be of equal importance. The three inspection areas are as follows—

6.3.2.1 Cabin Interior

The "interior" inspection area applies to the general airworthiness of the aircraft cabin, and the condition and availability of aircraft cabin emergency equipment and furnishings.

6.3.2.2 Crewmembers

(a) The "crewmember" inspection area applies to cabin crew members who perform their assigned duties during the flight.

(b) Inspector/specialists should evaluate such items as crewmember knowledge, ability, and proficiency by directly observing cabin crew members performing their assigned duties and functions.

6.3.2.3 Flight Conduct

(a) The "flight conduct" inspection area relates to the specific phases of the flight which can be observed during the cabin enroute inspection.

(b) This includes a wide range of items that can be observed and evaluated by inspectors, such as—

(1) Flight crewmember performance of duties,

(2) Interface with ground crews, and

(3) Monitoring carry-on baggage.

(c) These types of areas can often be observed before—

(1) Beginning a flight,

(2) At enroute stops, or

(3) At the termination of a flight.

6.4 PRE-INSPECTION ARRANGEMENTS

(a) Inspectors conducting cabin enroute inspections should make arrangements for the inspection as far in advance of the flight as possible.

(b) Inspectors who have not provided the operator with the appropriate advance notice should not insist on a seat if the flight is full.

(c) When notification has been provided, however, operators should not attempt to displace the inspector in favor of a passenger.

(d) However, bumping a revenue passenger should only be done when there is not an acceptable, alternative means of accomplishing the inspection. Inspectors are expected to exercise sound judgment in these matters.

6.5 BOARDING THE AIRCRAFT

(a) When it is necessary to board a flight at an intermediate stop, the inspector will make every effort to advise the pilot in command, prior to boarding the flight, that a cabin enroute inspection will be conducted.

(b) The inspector must conform to the operator's approved carry-on baggage program. If there is any concern that the inspector's baggage will exceed operator limitations, the baggage should be checked.

(1) The inspector's identification, LCAA Inspector credential is adequate documentation for the operator to check the baggage.

6.6 INTERACTION WITH CREW MEMBERS

(a) The attention of the cabin crew members must not be diverted from assigned duties including passenger enplaning, deplaning, and in-flight service. Surveillance of cabin crew members' awareness and following of safety related procedures should continue during the flight.

(b) When possible, however, equipment inspection and discussions with the crew should be conducted before or after the flight, preferably while no passengers are on board.

6.7 PERFORMING INTERIOR INSPECTION

(a) This inspection should be performed without disturbing the loading and/or unloading of the passengers. Any discrepancies noted should be brought immediately to the attention of the lead cabin crew member.

(b) Crewmembers should initially be briefed to continue their assigned duties as if the inspector was not present.

(1) The inspector should then request that a crewmember provide a cabin crew member manual and be available for a discussion relating to the crewmember's duties, at the crewmember's earliest convenience.

(c) Some operators require cabin crew members to accomplish a preflight inspection of at least some of the emergency and safety equipment in the cabin.

(1) In such a case, the inspector should observe the cabin crew member inspect the equipment and then perform an additional inspection of selected equipment.

(d) When a cabin crew member preflight equipment inspection is not required by the operator or has already been performed, the inspector/specialist should inspect the equipment.

(1) If there is not enough time to inspect the emergency equipment before the flight, the inspector/specialist may choose to inspect it after the flight.

6.8 INSPECTOR INTERACTION WITH PASSENGERS

(a) Inspectors/specialists should avoid impeding the flow of passenger traffic or in any way interfering with crewmembers conducting their respective duties.

(b) Since passengers are naturally curious about an inspector/specialist's activities, it is recommended that reasonable passenger inquiries be answered in a brief, factual and courteous manner.

6.9 IN-FLIGHT MONITORING

(a) The in-flight monitoring phase of the inspection includes the activities associated with boarding, predeparture, in-flight, and landing.

(b) During this part of the inspection, the inspector will have the opportunity to—

(1) Evaluate the effectiveness of cabin crew member training programs

(2) Evaluate operator procedures

(3) Determine adherence to company policy, LCAR Parts, and safe operating practices

(c) Passenger safety must be closely monitored during this phase.

(d) The inspector will have the opportunity to ensure that the cabin crew members perform all safety related duties and normal emergency tasks per the guidance in the operator's accepted manual

6.10 NUMBERS OF CABIN CREW MEMBERS

(a) When Regulations require cabin crew members for the operation of a flight, the number required is based on the number of passenger seats and is listed in the operations specifications.

(b) There must always be a full complement of cabin crew members at originating and terminating points when passengers are on board.

(c) It is permissible for an operator to substitute personnel, qualified in emergency evacuation procedures for that specific aircraft, at intermediate stops.

6.11 MINIMUM EQUIPMENT LIST (MEL)/DEFERRED MAINTENANCE

(a) The operator's approved Minimum Equipment List allows the operator to continue a flight or series of flights with certain inoperative equipment.

(1) The continued operation must meet the requirements of the MEL deferral classification and the requirements for the equipment loss.

(b) Operators frequently use a system to monitor items that have previously been inspected and found to be within serviceable limits.

(1) This method of deferral may require repetitive inspections to ensure the continuing airworthiness of the items.

(2) Examples of items that are commonly deferred in this manner are overhead storage bins, seatbelts, and interim airworthy repairs.

(c) Passenger convenience item (not safety/airworthiness related) deferrals should be handled per the guidelines of the operator's program.

6.12 CABIN ENROUTE INSPECTION PROCEDURES

6.12.1 INITIATE CABIN ENROUTE INSPECTION

(a) The following steps should be taken to initiate the cabin enroute inspection—

(1) Contact the operator to reserve the cockpit jump seat.

(2) Complete the Request for Enroute Inspection, in duplicate. The white copy is

presented to the operator and the yellow copy is kept for LCAA records.

(3) Coordinate with the Operator, at Least one hour prior to the flight.

(4) Identify yourself to the operator representative and state that you are performing a cabin enroute inspection on a specific flight.

(5) Present LCAA inspector credential and a completed Enroute Request to the operator representative.

(6) Obtain applicable operator boarding authorization per the airline procedures.

(7) Request access to the aircraft as soon as practical, (after passengers have deplaned, etc.) to meet the flight and cabin crews, and perform the interior pre-departure inspection, as time permits.

6.12.2 IF AIRCRAFT ACCESS IS DENIED

(a) Apprise the operator representative of the Directives authorizing inspector access to aircraft

(b) Request to see the appropriate supervisor if the representative still refuses access

(c) Make it very clear to the operator that the denial of access is contrary to Regulations and that enforcement action may be initiated

(d) Upon return to the office, report the occurrence to the Manager if access was not granted

6.12.3 COORDINATE WITH THE CREW

(a) Before boarding the aircraft or performing any inspection:

(1) Identify yourself to the Captain and lead cabin crew member as an LCAA inspector

(2) State the purpose of the inspection

6.12.4 PERFORM THE INTERIOR INSPECTION

(a) The inspector should inspect the following, as applicable—

(1) Cabin placarding, markings, and signs (e.g., exits, no smoking signs, emergency equipment), to ensure marking legibility and the correct location

(2) Fire extinguishers for the following:

(i) To verify the quantity and location

(ii) To ensure that they are properly serviced, tagged, and stowed

(3) Portable oxygen bottles for the following:

(i) To verify the quantity and location

(ii) To ensure that they are properly serviced, tagged, and stowed

(iii) To determine the condition of the mask, tubing, and connectors

NOTE: The mask/hose is not required to be connected to first aid oxygen bottles.

(4) Protective Breathing Equipment for correct location, proper number of units, and proper stowage

(5) First Aid Kits and Emergency Medical Kits for correct number, location, and stowage

(6) Megaphones for correct number, location, general condition, and proper stowage

(b) Passenger Briefing Cards to ensure the following:

(1) That they are available for each passenger

(2) That they are appropriate to the aircraft

(3) That they contain the required information, to include the following:

(i) Emergency exit location and operation

(ii) Slide use and location

(iii) Oxygen use

(iv) Seatbelt use

(v) Flotation device use and location

(vi) Appropriate pictorials for extended overwater operations including ditching exits, life preservers, and life raft or slide raft in-flight location

(4) Passenger seats, to ensure the following:

(i) That a reclined seat does not block emergency exits

(ii) That the seat cushions are intact

(iii) That the tray table latching mechanisms are operable

(iv) That the self-contained and removable ashtrays are in serviceable condition and are available

(v) That seatbelts are operational and not frayed or twisted

(5) Passenger Oxygen Service Units to ensure that they are closed and latched, without any extended red service indicators or pins

(6) Cabin Crew Member Stations, to ensure the following:

(i) That the seat retraction/restraint system is operational and is properly secured

(ii) That the seatbelts are operational and not frayed or twisted

(iii) That the seat cushions are intact

(iv) That the seat headrest is in the correct position

(v) That the PA system and interphone are operable

(vi) That aircraft installed flashlight holders are installed

NOTE: *Flashlights are not required to be in the holders, however, when they are, they must be charged and operable.*

(7) Galleys

(i) Galleys, to ensure the following:

(A) That the latching mechanisms (primary and secondary) are serviceable

(B) That the tie-downs are serviceable

(C) That the restraints are in an operable condition

(D) That the cover and lining of trash receptacles fit properly

(E) That the hot liquid restraint system is operable

(F) That the circuit breakers and water shutoff valves are accessible and properly identified

(G) That the nonskid floor is serviceable

(H) That the girt bar is clean and serviceable

(I) That the stationary cart tie downs (mushrooms), are clean

(J) That the galley carts are in serviceable condition and properly stowed

(K) That the lower lobe galley, if applicable, emergency cabin floor exits are passable and not covered by carpeting

(ii) Galley Personnel Lift (if applicable) to ensure that it does not move up or down with the doors open and that the activation switches operate properly

(8) Lavatories to ensure the following:

(i) That the smoke alarm, placards, and ashtrays are present and operational

(ii) That the trash receptacle covers and lining fit properly

(iii) That the automatic fire extinguisher system is serviceable

(9) Stowage Compartments

(i) Stowage Compartments to ensure the following:

(A) That the weight restriction placards are mounted

(B) That the restraints and secondary latching mechanisms are operable

(C) That the compartments comply with stowage requirements for accessibility to emergency equipment

(ii) Crew baggage to ensure that it is properly stowed

(10) Emergency Equipment

(i) Emergency Lighting System to ensure that all emergency lighting, including the floor proximity escape path system, is in serviceable condition, e.g., no cracked/missing covers

(ii) Exits to ensure the general condition of the following:

(A) Door seals
(B) Girt bar and brackets
(C) Handle mechanisms
(D) Signs and placards
(E) Slide or slide raft connections and pressure indications
(F) Lights

6.12.5 PRE-DEPARTURE

(a) Ensure any discrepancies noted during pre-departure are addressed per the operator's manual.

(b) Ensure that the required numbers of flight attendants are aboard.

(c) Observe the flight attendants/ground personnel coordinating and supervising the boarding of passengers and properly stowing carry-on baggage.

NOTE: *Ensure that the passenger loading door is not closed until a required crewmember verifies that each piece of carry-on luggage is properly stowed. Proper stowage includes ensuring that the overhead bins are closed. Items that cannot be stowed must be processed as checked baggage.*

(d) Ensure that items such as carry-on baggage and galley supplies do not cover or in any way interfere with aircraft emergency equipment in the overhead compartments.

(e) Ensure that a required crewmember verifies that passengers seated at the emergency exit row seats meet the regulatory requirements.

NOTE: *At some time prior to takeoff, the flight attendant must brief the passengers seated in the emergency exit row seats on the selection criteria and their willingness and ability to perform the functions, according to the operator's approved program.*

(f) Ensure that all passengers are seated prior to any ground movements.

(g) Ensure that the flight attendants have sufficient time to take their assigned positions and to secure their restraint systems after giving the passenger briefing.

(h) Ensure that the flight attendant pre departure briefing is audible to all passengers and covers the following subjects:

(1) Smoking: When, where, and under what conditions smoking is prohibited, including a statement that federal law prohibits tampering with, disabling, or destroying any smoke detector in an airplane lavatory

(2) Exit Locations: The preferred method is to physically point out exits

(3) Seatbelt Use: Instructions on how to fasten, unfasten, and adjust seatbelts

(4) Flotation Devices: Instructions on the location and use of required individual flotation devices

(5) Oxygen Use: Instructions on the location of and a demonstration on the use of the oxygen mask

(6) Extended Overwater Operations: Instructions on the location, donning, and use of life preservers, life rafts (or slide rafts) and other means of flotation

(7) Special Passenger Briefings (when applicable): for persons who are handicapped or warrant some other special kind of attention and for the individuals assisting them.

6.12.6 MOVEMENT ON THE SURFACE

(a) Ensure that during the taxi that all flight attendants remain seated unless performing safety related functions. Safety related activities can include the following:

(1) Passenger preparedness

(2) Baggage/cargo/galley stowage

(3) Exit readiness

(b) Ensure that the following items or activities are accomplished prior to takeoff:

(1) Each exit is closed and locked with the girt bars properly attached (if applicable)

(2) All stowage compartments are properly secured and latched

(3) The galley is prepared as follows:

(i) Loose items are secured

(ii) All serving carts are properly restrained

(4) The cockpit door is closed or open in accordance with the operator's manual

(5) Passenger seatbelts and shoulder harnesses, if installed, are secured

(6) Any other equipment is properly stowed and secured

(c) Ensure that crewmembers observe the sterile cockpit rules.

6.12.7 IN-FLIGHT OPERATIONS

(a) Monitor the crewmembers' performance during in-flight operations, to ensure the following:

(1) During the takeoff:

(i) That each flight attendant is seated with restraint systems properly fastened

(ii) That any unoccupied flight attendant seat is properly secured for takeoff

(2) After takeoff, before or immediately after the seatbelt illumination is shut off; ensure that an announcement is made that passengers should keep their seatbelts fastened, even when the seatbelt sign is turned off.

(3) If the flight is to be a smoking flight, when the no smoking sign is turned off, ensure that an announcement is made that smoking is only permitted in specific rows and prohibited in the aisles and lavatories.

(b) Ensure that the following are accomplished, as applicable:

(1) Passenger compliance with seatbelt and no smoking signs

(2) Effective crew coordination for flight crew and cabin crewmember communications - routine and/or emergency

(3) Turbulent air procedures are followed, including the proper restraint of serving carts, galley equipment, and compliance with instructions from the cockpit

(4) Crew member handling of the passengers, to include:

(i) Not serving alcoholic beverages to intoxicated passengers

(ii) Abusive or disruptive passengers

(iii) Handicapped or ill passengers

(iv) Passengers requiring special attention

(c) Ensure that crewmembers, during the approach and landing phases of flight, prepare the cabin for arrival by performing at least the following actions:

(1) Ensuring that carry-on baggage is stowed and all seatbacks and tray tables are upright and stowed respectively

(2) Removing all food, beverages, and galley service items from each passenger seat location

(3) Ensuring that all stowage compartments are latched and secured

(4) That the galley is prepared as follows:

(i) Loose items are secured

(ii) All serving carts are properly restrained

(5) Ensuring that the cockpit door is closed or open, in accordance with the operator's manual

(i) Verifying that passenger seatbelts and shoulder harnesses, if installed, are secured

(ii) Properly stowing and securing any other equipment

(6) Ensure that crewmembers observe sterile cockpit rules.

(7) Ensure that crewmembers are seated, before landing, at assigned duty positions, with appropriate restraint systems fastened.

6.12.8 FLIGHT ARRIVAL

(a) Ensure that after landing, the flight attendants prepare the aircraft for arrival by performing the following duties:

(1) Before the captain has turned off the seatbelt sign, ensuring that passengers remain in their seats with seatbelts fastened

(2) Upon arrival at the gate and after the seatbelt sign has been turned off, preparing the exits for deplaning

(b) Ensure the appropriate complement of flight attendants remain on board the aircraft at enroute stops (when passengers remain on board the aircraft to proceed to another destination)

(c) Debrief the captain and lead flight attendant of any procedural problems or discrepancies/malfunctions noted during the flight.

APPENDIX 6-A: JOB AID: AW-006-OPS-018 - Station Facility Inspection

Station Facility Inspection

FILE REFERENCE: _____

Date of Evaluation		**Control #**	
Name of Operator		**AOC #**	
State of Operator		**Type of Aircraft**	
Org. Identifier		**Aircraft Reg#**	
Location			
Destination			
Action Taken			

KEY PERSONNEL MET:

	NAME	TITLE
1.		
2.		
3.		
4.		
5.		

PLEASE CHECK THE APPROPRIATE BOX FOR THE FOLLOWING; SATISFACTORY (S), NOT SATISFACTORY (NS) OR NOT APPLICABLE (N/A). INDICATE REGULATORY OR OTHER REFERENCE(S) FOR NOT SATISFACTORY (NS) ITEMS WHERE APPLICABLE. PROVIDE FURTHER DETAILS IN THE REMARKS SECTION IF REQUIRED.					
REFERENCE	**1**	**CONFORMANCE WITH RELEVANT STANDARDS**	**S**	**N/S**	**N/A**
	1.1	Were all personnel and documents in conformance with aviation law and directives?			
	1.2	Were the operations found to be in conformance with LCARs?			
	1.3	Were there any practices that did not conform to published relevant safety practices?			
REFERENCE	**2**	**STATION STAFF (INCLUDING SERVICE PROVIDERS)**	**S**	**N/S**	**N/A**
	2.1	Is there adequate staff to handle the required support functions?			
	2.2	Did all staff demonstrate competent performance in their function?			
	2.3	Did the staff follow the proper procedures for the functions they performed?			
	2.4	Did the company and service provider training and qualification records show that all personnel were adequately trained for their functions?			
REFERENCE	**3**	**EQUIPMENT & FACILITIES**	**S**	**N/S**	**N/A**
	3.1	Were there adequate facilities and equipment for the complexity and functions performed?			
REFERENCE	**4**	**PASSENGER HANDLING**	**S**	**N/S**	**N/A**
	4.1	Were adequate guidance and procedure manuals available for the persons performing this function?			
	4.2	Were qualified personnel available to accomplish this function for each flight?			
	4.3	Were the passenger ticketing and baggage acceptance performed satisfactorily?			
	4.4	Were the passengers and baggage weighed before emplaning?			
	4.5	Was the handling of passenger enplaning and deplaning performed satisfactory?			
	4.6	Were the passenger security measures satisfactory?			
	4.7	If a jet way was not used, was a designated walk route with adequate guide persons available to ensure passenger ramp safety?			

REFERENCE	5	AIRCRAFT MOVEMENT ON RAMP	S	N/S	N/A
	5.1	Were adequate guidance and procedure manuals available for the persons performing this function?			
	5.2	Were qualified personnel available to accomplish this function for each flight?			
	5.3	Was the marshalling of aircraft performed satisfactorily?			
	5.4	Were the ramp and gate areas properly marked for towing, taxiing and parking position?			
	5.5	Was the aircraft parking area clear of carts and other vehicles during the parking of the aircraft?			
	5.6	Was the towing of the aircraft performed satisfactorily?			
	5.7	Were security measures for identification of all ramp personnel clearly available?			
	5.8	If a service provider was used to perform this function, were the arrangements, guidance and qualification of personnel acceptable?			
REFERENCE	**6**	**AIRCRAFT SERVICING**	**S**	**N/S**	**N/A**
	6.1	Were adequate guidance and procedure manuals available for the persons performing functions involved?			
	6.2	Were qualified personnel available to accomplish these functions for each flight?			
	6.3	Was the servicing of aircraft performed satisfactorily?			
	6.4	Was the fuelling of aircraft performed satisfactorily?			
	6.5	Was the loading of aircraft performed satisfactorily?			
	6.6	Was the de-icing of aircraft performed satisfactorily?			
	6.7	Was the equipment used to perform these functions operational, adequate for the task, and operated knowledgeably by the personnel involved?			
	6.8	Were security measures for identification and monitoring of all servicing personnel satisfactory?			
	6.9	If service providers were used to perform these functions, were the arrangements, guidance and qualification of personnel acceptable?			
REFERENCE	**7**	**AIRCRAFT OVERNIGHT PARKING**	**S**	**N/S**	**N/A**
	7.1	Were adequate guidance and procedure manuals available for the persons performing this function?			
	7.2	Were qualified personnel available to accomplish this function for each flight?			
	7.3	Was the aircraft properly lighted and identifiable as required for the parking location?			
	7.4	Was the aircraft "guarded" by assigned persons at all times?			

	7.5	If a service provider were used to perform these functions, were the arrangements, guidance and qualification of personnel acceptable?			
REFERENCE	**8**	**MASS, BALANCE & PERFORMANCE COMPUTATIONS**	**S**	**N/S**	**N/A**
	8.1	Were adequate guidance and procedure manuals available for the persons performing this function?			
	8.2	Were qualified personnel available to accomplish this function for each flight?			
	8.3	Were the correct procedures for passenger loading, count and communication of the positioning followed?			
	8.4	Were specific passenger seat assignments used to ensure a safe C.G. for flight?			
	8.5	Were the correct procedures for cargo loading, and communication of positioning followed?			
	8.6	Were the correct procedures for dangerous goods loading, and communication of positioning (e.g. NOTOC) followed?			
	8.7	Were the mass and balance calculations and procedures satisfactory?			
	8.8	Were the last-minute mass and balance revisions due to passengers or cargo handled correctly?			
	8.9	Were the take-off and landing performance calculations performed correctly?			
	8.10	If a service provider were used to perform these functions, were the arrangements, guidance and qualification of personnel acceptable?			
REFERENCE	**9**	**FLIGHT PLANNING**	**S**	**N/S**	**N/A**
	9.1	Were adequate guidance and procedure manuals available for the persons performing this function?			
	9.2	Were qualified personnel available to accomplish this function for each flight?			
	9.3	Was the weather acquisition (including selection of alternates) and briefing of crews performed correctly?			
	9.4	Was the NOTAM acquisition and briefing of crews performed correctly?			
	9.5	Was the operational flight plan (including fuel loading) calculations and procedures performed correctly?			
	9.6	If a service provider were used to perform one or more of these functions, were the arrangements, guidance and qualification of personnel acceptable?			
REFERENCE	**10**	**COMMUNICATIONS**	**S**	**N/S**	**N/A**
	10.1	Were adequate guidance and procedure manuals available for the persons performing this function?			
	10.2	Were qualified personnel available to accomplish this function for each flight?			
	10.3	Was there adequate communications capability with main base operations and maintenance functions, including relay of information?			

	10.4	Were flight following procedures performed correctly?			
	10.5	Were emergency response procedures performed correctly?			
	10.6	Were accident/incident procedures performed correctly?			
	10.7	Were the correct numbers for telephone and/or fax notifications associated with emergency response available?			
	10.8	If a service provider were used to perform one or more of these functions, were the arrangements, guidance and qualification of personnel acceptable?			
REFERENCE	**11**	**MAINTENANCE**	**S**	**N/S**	**N/A**
	11.1	Were adequate maintenance guidance and procedure manuals available for the level of maintenance to be performed?			
	11.2	Were qualified maintenance personnel available to accomplish the level of maintenance to be performed?			
	11.3	Was the performance and recording of routine maintenance satisfactory?			
	11.4	Was the performance and recording of deferred maintenance satisfactory?			
	11.5	If a service provider was used to perform this function, were the arrangements, guidance and qualification of personnel acceptable?			
REFERENCE	**12**	**RECORDS RETENTION & ACCURACY**	**S**	**N/S**	**N/A**
	12.1	Were the flight preparation and other official records up-to-date and correctly filed?			
	12.2	Was there adequate file retention security for official records?			
REFERENCE	**13**	**AERODROME**	**S**	**N/S**	**N/A**
	13.1	Was there security of the aircraft at the aerodrome?			
	13.2	Were fire protection measures for the aircraft put in place?			

Item Number	**INSPECTOR'S REMARKS**

INSPECTOR(S)			
NAME/ASI#	**SIGNATURE**	**ORG REP NAME**	
		ORG REP SIGNATURE	

CHAPTER-7: INSPECT FLIGHT DECK EQUIPMENT FUNCTIONING IN-FLIGHT

7.1 OBJECTIVE

This chapter provides guidance for LCAA Airworthiness Inspectors in planning and conducting an inspection of flight decks equipment functioning in-flight.

7.2 BACKGROUND & POLICIES

7.2.1 BACKGROUND

(a) Since Aviation Safety Inspectors (ASIs) do not receive systems training on all aircraft, it is important to become familiar with the type of aircraft being inspected before performing the inspection.

Note: This can be accomplished through on the job training.

(b) The LCAA does not allow two ASIs to perform this inspection simultaneously, therefore familiarity with the enroute inspection procedures is a necessity before performing this task.

Note: An AWI must be authorized by the Director to perform enroute inspections.

(c) Airworthiness and operations ASIs possess various degrees and types of expertise and experience. When an ASI needs additional information or guidance, they should coordinate with personnel experienced in that particular specialty.

7.2.2 CONDUCT & CONVERSATIONS

(a) In performing this job task, the actions of an ASI is subject to the close scrutiny of airline employees and the general flying public.

(b) Therefore, be alert for leading questions from crewmembers regarding destinations, technical information, and other operators.

(c) It is imperative that tact and good judgment be exercised at all times.

7.2.3 PLANNING FOR THE INSPECTIONS

(a) This task is scheduled as part of the work program. Additional inspections may be initiated by office special requirements.

(b) When possible, an enroute inspection should be planned to preclude disruption of company scheduled flight checks by check pilot.

(c) ASIs conducting enroute inspections will make arrangements for the jump seat/forward passenger seat as far in advance of the flight as possible. ASIs will have priority for available jump seats.

7.2.4 ACCESS TO FLIGHT DECK

(a) When it is necessary to board a flight at an intermediate stop, every effort should be made to advise the pilot in command, prior to boarding the flight, that an enroute inspection will be conducted.

(b) The ASI must conform to the operator's approved carry-on baggage program. If there is any concern that the baggage will exceed operator limitations, it should be checked.

Note: The ASI's identification (LCAA inspector credential and the Enroute Inspection Request form) is adequate documentation for the operator to check the baggage.

7.2.5 **RESPONSIBILITY FOR ACCESS FORMS**

(c) The ASI to whom a Request for Enroute Inspection, is issued, is personally responsible for its proper use and safekeeping, to include the following—

(1) Recording every request issued, canceled, or otherwise voided on the inside cover

(2) Returning it to the Director of Flight Safety Standards if the ASI transfers, retires, or has no further use for this book

(3) Returning the cover containing the Record of Requests Issued and the yellow copies to the Director of Flight Safety Standards when all requests have been used

(4) Immediately reporting to the issuing office the full set of circumstances concerning any loss of requests

7.2.6 **OPEN OR IMPROPERLY DEFERRED MECHANICAL IRREGULARITIES**

(a) Open discrepancies or improperly deferred Minimum Equipment List (MEL) items have been discovered in maintenance records just prior to departure. The resulting corrective actions have resulted in lengthy delays.

(b) Regulations require that maintenance be recorded when performed. Procedures for ensuring that these recording requirements are met are described in the operator's maintenance procedures manual.

(c) The manual contains specific instructions on when an airworthiness release or record entry is required.

(1) All discrepancies entered in the record must either be corrected or deferred using the methods identified in the operator’s maintenance procedures manual.

(2) The ASI must become familiar with the operator's main record handling procedures.

7.2.7 **INTERIOR INSPECTION**

(a) This inspection should be performed without disturbing the loading and/or unloading of the passengers.

(b) Any discrepancies noted should be brought immediately to the attention of the flight crew.

7.2.8 **EXTERIOR INSPECTION**

(a) It is recommended that the inspector should accompany a crewmember on the exterior walk around to determine the thoroughness of the crewmember's inspection.

(b) It is important to be aware of the type of maintenance and servicing activities being accomplished.

7.2.9 **INFLIGHT MONITORING**

(a) This phase of the inspection provides the opportunity to monitor aircraft systems and evaluate the effectiveness of maintenance performed to correct maintenance record discrepancies.

While conducting an enroute inspection, do not manipulate, operate, select, or deselect any switches, circuit breakers, or controls.

(b) ASIs may use the headsets provided by the LCAA office or the operator.

(c) If obvious discrepancies are noted, such as a deviation from assigned altitude or other operational procedure, they must be brought to the attention of the pilot in command and the assigned Principal Operations Inspector.

Note: The airworthiness ASI performing a flight deck enroute inspection shall not conduct an evaluation of the competency of the flight crew.

(d) There have been several occasions in which pilots have operated AOC holder aircraft without having in their personal possession airman certificates and current medical certificates. In some cases, pilots have operated for long periods of time with suspended certificates.

Note: Ensure that all flight crewmembers have the proper certificates in their personal possession.

7.2.10 **OTHER CONSIDERATIONS**

(a) Minimum Equipment List Deferred Maintenance. The operator's approved Minimum Equipment List allows the operator to continue a flight or series of flights with certain inoperative equipment. The continued operation must meet the requirements of the Minimum Equipment List deferral classification and the requirements for the equipment loss.

(b) Operators frequently use a system to monitor items that have previously been inspected and found to be within serviceable limits. These items are still airworthy, yet warrant repair at a later time or when items no longer meet serviceable limits. This method of deferral may require repetitive inspections to ensure the continuing airworthiness of the items. Examples of items that are commonly deferred in this manner are fuel leak classifications, dent limitations, and temporary (airworthy) repairs.

(c) Passenger convenience item (not safety/airworthiness related) deferrals should be handled according to the operator's program guidelines.

(d) The operator's approved maintenance program must provide for the prompt and orderly repairs of inoperative items.

(e) Inspection results have disclosed instances of significant aircraft structural damage resulting from the careless loading of cargo, such as—

(1) Torn or punctured liners indicating hidden damage to circumferential stringers, fuselage skin, and bulkheads

(2) Damaged rollers, ball mats, etc. causing significant structural damage to the floors

(3) Severe corrosion, fire, and structural damage resulting from the improper handling of some hazardous materials

7.3 PROCEDURES

(a) Initiate the Flight Deck In-Flight Equipment Functioning inspection using the job aid in Appendix 7-A for this task.

7.3.1 PREPARE FOR THE INSPECTION

(a) Contact the operator's scheduling section to reserve jump seat/forward passenger seat, as applicable.

(b) Complete Request for Enroute Inspection, in duplicate. One copy will be given to the operator and the other copy is kept for LCAA records.

7.3.2 COORDINATE WITH OPERATOR PRIOR TO FLIGHT

(a) Identify yourself to the operator representative and state that you are performing a cockpit enroute inspection on a specific flight.

(b) Present LCAA inspector credential and the completed Enroute Inspection Request to the airline representative.

(1) If aircraft access is denied—

(i) Advise the operator representative of the regulation authorizing ASI access to aircraft

(ii) Request to see the appropriate supervisor if the representative still refuses access

(iii) Stress the fact that the denial of access is contrary to regulations and that enforcement action may be taken.

(iv) Upon return to the office, describe the occurrence to the Director of Flight Safety Standards if access was still denied

(c) Obtain the applicable operator boarding authorization.

(1) Each operator has different boarding authorization procedures, but all have some method of accounting for the ASI being onboard.)

(d) Proceed to the aircraft as soon as possible to review the maintenance record and to perform interior and exterior pre departure inspections as time allows.

(e) Follow the operator's procedures for pre-boarding the aircraft.

7.3.3 IDENTIFY TO THE FLIGHT CREW

(a) Before boarding the aircraft or performing the exterior inspection—

(1) Identify yourself to the pilot in command and flight crew as an Airworthiness ASI; and

(2) State the purpose of the inspection

7.3.4 **INSPECT THE AIRCRAFT MAINTENANCE RECORD**

(a) Review the tech log to ensure the following—

(1) Maintenance/Airworthiness releases are current

(2) No open items exist

(3) All discrepancies are corrected or properly deferred

(4) Minimum Equipment List items were deferred per the procedural and placarding requirements of the operator's approved program

(b) Ensure the length of deferrals are not exceeded, by reviewing the following—

(1) Maintenance record pages

(2) Deferred maintenance list

(3) Deferred maintenance placards/stickers

(c) Ensure that the maintenance records contain the following for each discrepancy—

(1) A description of work performed or reference to acceptable data

(2) The name of the person performing the work if outside the organization

(3) The name or other positive identification of the person approving the work

(d) Determine if repetitive problems indicate a trend.

(e) Notify the appropriate operator personnel immediately of any discrepancies noted during this inspection

7.3.5 **PERFORM THE INTERIOR INSPECTION**

(a) Conduct interior inspection, record any discrepancies noted during the exterior inspection and bring them to the attention of the pilot in command or appropriate operator personnel.

(b) Evaluate the action(s) taken by the operator in response to the discrepancies.

(1) If actions taken by the operator do not comply with regulatory requirements or the operator's manual, terminate the inspection.

(2) Advise the operator of the noncompliance and the possibility of enforcement action.

(3) If the discrepancy constitutes an unsafe condition.

7.3.6 **PRIOR TO PUSHBACK**

(a) Prior to pushback, accomplish the following—

(1) Ensure all of the discrepancies noted during pre-departure were corrected

(2) Request and review the pilot and medical certificates of all flight crewmembers.

(i) The pilot in command must have in possession the following—

(A) An Airline Transport Pilot certificate

(B) Class 1 medical certificate, which is valid for six months

(C) Appropriate type rating for the aircraft being operated

(ii) The First Officer must have in possession the following—

(A) At least a commercial pilot certificate in the appropriate category and class

(B) Appropriate instrument rating for the aircraft being operated

(C) A class 1 medical certificate, which is valid for twelve months

(iii) Flight engineers must have in their possession the following—

(A) Appropriate flight engineer's certificate

(B) A Class 2 medical certificate, which is valid for twelve months

7.3.7 **REQUIRED LICENSES & CERTIFICATES NOT AVAILABLE?**

(a) If the flight crewmembers do not have the proper, current certificates in their possession

(1) Advise the offending crewmembers that they may be in violation of LCAR Part 9.

(2) If the flight crewmembers still elect to operate the aircraft without having the appropriate certificates in their possession—

(i) Deplane
(ii) Terminate this inspection
(iii) Immediately notify the operator's operations center

7.3.8 **REVIEW LOAD MANIFEST**

(a) Ensure the load manifest contains the following information—

(1) The number of passengers

(2) The total weight of the loaded aircraft

(3) The maximum allowable takeoff weight for that flight

(4) The center of gravity limits

(5) The actual center of gravity of the loaded aircraft, unless the aircraft is loaded according to an approved loading schedule

(6) The registration number of the aircraft or the flight number

(7) The origin and destination of the flight

(8) The identification of the flight crewmembers and their respective position assignments

(b) Ensure the proper fuel load is on board by comparing fuel gauges to the minimum fuel required for dispatch. This fuel requirement is normally found on the flight release.

7.3.9 **MONITOR INFLIGHT OPERATIONS**

(a) Ensure the flight crew is using and following the operator's approved checklists for all activities.

(b) Exercise good cockpit discipline and ensure the flight crew does the same, to include the following—

(1) Sterile cockpit rule compliance

(2) Proper use of cockpit/personal lighting

(3) Compliance with the pilot in command's requests

(c) Monitor all gauges during flight for normal operation.

(d) Monitor communications for crew compliance with air traffic control.

(e) Ensure that left and right seat crewmembers are in compliance with the oxygen requirements of the LCAR Parts.

(f) Note and record all discrepancies observed.

7.3.10 **DEBRIEF FLIGHT CREW**

(a) At the termination of the flight, debrief whether the operations were satisfactory or unsatisfactory.

(1) If irregularities were noted in the performance of any aircraft system, discuss them with the pilot in command.

(2) Ensure that these discrepancies are entered in the aircraft maintenance record.

(i) If the pilot in command is unwilling to enter these discrepancies, advise that the failure to record these discrepancies is contrary to regulatory requirements.

(3) Unsatisfactory operational findings should be brought to the attention of the operator's assigned Principal Operations Inspector.

7.3.11 **ENTER RECORD**

(a) Record the inspection in the CAA Action database.

(b) Enter any safety issues identified.

7.3.12 **INITIATE RESOLUTION**

(a) If any safety issues were identified, complete initial tasks required by Resolution and Enforcement manual.

APPENDIX 7-A: JOB AID: AW-007– Flight Deck Equipment In-flight Inspection

Flight Deck Equipment In-Flight Inspection

FILE REFERENCE: _____

Date of Evaluation		**Control #**	
Name of Operator		**AOC #**	
State of Operator		**Type of Aircraft**	
Org. Identifier		**Aircraft Reg#**	
Location			
Destination			
Action Taken			

KEY PERSONNEL MET:

	NAME	TITLE
1.		
2.		
3.		
4.		
5.		

PLEASE CHECK THE APPROPRIATE BOX FOR THE FOLLOWING; SATISFACTORY (S), NOT SATISFACTORY (NS) OR NOT APPLICABLE (N/A). INDICATE REGULATORY OR OTHER REFERENCE(S) FOR NOT SATISFACTORY (NS) ITEMS WHERE APPLICABLE. PROVIDE FURTHER DETAILS IN THE REMARKS SECTION IF REQUIRED.					
		CHECKLIST ITEMS			
REFERENCE	**1**	**GENERAL**	**S**	**NS**	**N/A**
	1.1	Is the Airworthiness Certificate up-to-date and properly located?			
	1.2	Is the Registration Certificate up-to-date and properly located?			

	1.3	Are other required certificates up-to-date and properly located?			
REFERENCE	**2**	**CREW DOCUMENTS**	**S**	**NS**	**N/A**
	2.1	Pilot licences?			
	2.2	Medical certificates?			
REFERENCE	**3**	**PRE-DEPARTURE INSTRUMENT & EQUIPMENT CHECKS**	**S**	**NS**	**N/A**
	3.1	During flight deck setup, all systems tested normally?			
	3.2	No warnings (except those test-generated) occurred			
	3.3	No mechanical irregularities (other than those properly deferred) were noted?			
	3.4	No warnings (except test-generated) occurred			
	3.5	If MEL consulted, the flight crew interpretation was consistent with MEL practices?			
REFERENCE	**4**	**ENROUTE INSTRUMENT & EQUIPMENT FUNCTIONING**	**S**	**NS**	**N/A**
	4.1	All equipment remained operational during flight?			
	4.2	The flight crew encountered no systems abnormalities during flight?			
	4.3	Equipment and systems abnormalities or irregularities were recorded in somemanner?			
	4.4	If abnormality occurred, flight crew consulted the appropriate manuals andprocedures to confirm their interpretation and handling of the situation?			
REFERENCE	**5**	**ARRIVAL INSTRUMENT & EQUIPMENT FUNCTIONING**	**S**	**NS**	**N/A**
	5.1	All equipment remained operational until powerplant shutdown?			
	5.2	Any test accomplished during this phase showed normal functioning.			
	5.3	Equipment and systems abnormalities or irregularities were recorded in somemanner?			
REFERENCE	**6**	**FLIGHT DECK**	**S**	**NS**	**N/A**
	6.1	Is the general condition of the area clean?			
	6.2	Are all placards in place and legible?			
	6.3	Are instruments clear?			
	6.4	Rudder pedals not blocked?-			
	6.5	All control panels legible?			
	6.6	Wire bundles properly tied back?			

	6.7	CB's properly marked and legible?			
	6.8	Are access doors on the floor clearly marked and easy to open?			
	6.9	If for emergency landing gear release, is handle available?			
	6.10	If for viewing nose gear lock mechanism is viewer clean and usable?			
	6.11	Is Emergency Equipment in place? (Smoke mask, O_2 Mask, Crash ax)			
	6.12	Is PBE in place?			
	6.13	Are required manuals in place? (MEL/CDL, AFM, AOM, MM)			
	6.14	Is there a Medical kit on board and sealed?			
REFERENCE	**7**	**JOURNEY / TECHNICAL LOG**	**S**	**NS**	**N/A**
	7.1	Are all Maintenance Items cleared?			
	7.2	Is the Maintenance Release signed by authorized personnel?			
	7.3	Are there an adequate number of back pages available?			
	7.4	Are deferred items handled in accordance with approved MEL?			
	7.5	Were deferred item's "M" and "Os" carried out?			
	7.6	Were deferred items properly placarded?			
	7.7	Were mechanical irregularity that occurred inflight recorded at the end of theflight?			

Item Number	INSPECTOR'S REMARKS

INSPECTOR(S)			
NAME/ASI#	**SIGNATURE**	**ORG REP NAME**	
		ORG REP SIGNATURE	

CHAPTER-8: INSPECTION OF OPERATORS MAINTENANCE FACILITY

8.1 OBJECTIVES

This chapter describes the general process of inspecting an operator's maintenance/contract maintenance facility for regulatory compliance with LCARs. (Note: specific detailed procedures in conducting audits are contained in this handbook in the title 'Airworthiness auditing'.

8.2 BACKGROUND AND POLICIES

8.2.1 PURPOSE

(a) The maintenance inspection is performed to ensure that adequate housing, equipment, spare parts, technical data and qualified personnel are being utilized to satisfactorily complete all maintenance functions.

Applicable Action Number
- 3603A-F: Inspect Maintenance Main Base(M)
- 3604A-F: Inspect Line Stations(M)
- 4603A-F: Inspect Maintenance Main Base(A)
- 4604A-F: Inspect Line Stations(A)

8.2.2 PREPARATION FOR INSPECTIONS

(a) *Previous Inspection Reports:* Previous Action reports, Open Safety Issues (ASI) reports, correspondence, and other documents in the office files should be reviewed to determine if there are any open items or if any areas are identified that require special attention.

(b) *Equipment Identification:* Inspectors should be aware of the type of aircraft being operated. The operations specifications or attached listing will identify the type of aircraft authorized for use.

(c) *The maintenance facility:* The maintenance facility is required to perform maintenance in accordance with the operator's maintenance manuals.

(1) The inspector should use these documents to determine what special equipment, housing, and environmental conditions are necessary to perform the work.

(2) For example, the manufacturer may require special stands, hand tools, or a dust-free environment to repair a specific item.

(d) *Enforcement History:* Inspectors should check the General Event Files for any Enforcement Information to determine if there are any areas that require special attention. If a contract maintenance organization is used, it should also be checked.

8.2.3 MAINTENANCE SERVICE PROVIDER FACILITIES

(a) If any maintenance will be performed by a contract facility, an inspection must be performed at the contractor's facility.

(b) During the inspection the inspector must determine if the contractor has adequate facilities and personnel to perform the contracted work. The inspector must keep in mind that the contract maintenance facility is an extension of the operator's overall maintenance organization.

(c) Maintenance performed by the contractor must be in accordance with the operator's approved maintenance program.

(1) The operator's manuals must be reviewed to determine the levels of maintenance performed at the contract maintenance facility.

(2) The contract maintenance facilities should be inspected to ensure that they are properly certificated and rated for the scope of work performed, e.g., aircraft, powerplant, propeller, components, and accessories.

8.3 MAINTENANCE FACILITY INSPECTION PROCEDURES

8.3.1 REVIEW THE LCAA INFORMATION

(a) Review the following—

(1) The LCAA files to determine if any chronic or open items exist, status of enforcement investigation reports, exemptions, etc.

(2) The operator's maintenance manuals to determine the level of maintenance accomplished and the complexity of operation at the maintenance facility

(3) The operator's operations specifications to determine the maintenance and inspection program content and complexity

8.3.2 INSPECT TECHNICAL DATA

(a) Ensure all required technical data is available and current. If data is on microfiche, ensure that readers are available and serviceable. The data must include the following, as applicable—

(1) Operations specifications
(2) Operator's general maintenance manual
(3) Aircraft manufacturers' manuals
(4) Propeller, appliance, engine, and emergency equipment manufacturer's manuals
(5) Manufacturer's and vendor's service bulletins/letters
(6) Applicable Directives
(7) Applicable Airworthiness Directives
(8) Applicable type data sheets/Supplemental Type Certificates
(9) Approved Flight Manual

8.3.3 INSPECT THE AIRCRAFT MAINTENANCE RECORD RETENTION SYSTEM

Sample a representative number of aircraft records to ensure the integrity of the system.

8.3.4 INSPECT THE MAINTENANCE ORGANIZATION

(a) Ensure the following—

(1) Staffing meets maintenance needs based on the complexity of operation

(2) Responsibilities are separated between inspection and maintenance sections

(3) Maintenance and inspection management personnel are qualified

8.3.5 **INSPECT THE OPERATOR'S MAINTENANCE FACILITIES**

(a) Using the operator's manual as a reference, inspect the following—

(1) *Parts & Storage Areas:* Parts and storage areas, to ensure—

(i) Adequate spare parts are available to support complexity of operation

(ii) Receiving inspections are accomplished in accordance with operator's manual

(iii) Shelf life-limits are established for items, and that these items are controlled in accordance with operator's manual or manufacturer's recommendations

(iv) Components and hardware are properly identified, protected, and classified as to serviceability

(v) Segregation of serviceable and unserviceable components and hardware is maintained

(vi) Hazardous materials are suitably segregated and stored

(2) *Special Tools & Test Equipment:* Special tools and test equipment, to ensure—

(i) Serviceability and calibration are accomplished in accordance with operator's manual

(ii) All required items are serviceable and within calibration criteria, to include traceability to one of the following—

(A) Standard established by the item's manufacturer

(B) If foreign manufactured, the standards of the country where manufactured, if approved by the LCAA

(3) Appropriate types and quantities are available

(4) Proper storage and protection is utilized

(5) *Support Shops:* Support shops (avionics, sheet metal, engine etc.), to ensure—

(i) All required technical data is current and available. If data is on microfiche, ensure that readers are available and serviceable.

(ii) Staffing reflects complexity of shop

(iii) Personnel are properly trained, qualified, and authorized

(iv) Procedures for shift turnover are in place and properly utilized

(v) All required special tooling and equipment is available, serviceable, and within calibration criteria

(vi) Maintenance tasks and inspection functions are being accomplished in accordance with operator's maintenance manual

(vii) Safety equipment is available and serviceable

(viii) Individual shop storage areas are maintained to same standards as main storage area

(ix) Work areas do not conflict with each other, e.g., lathe next to avionics repair area

(x) Lighting, ventilation, and general housekeeping are adequate

(6) *Inspect Fuel/Oil Storage & Dispensing Facilities*, if operated and maintained by operator.

8.3.6 **INSPECT HANGAR FACILITIES**

(a) Inspect hangar facilities, to ensure—

(1) Facilities are adequate for work being performed

(2) Staffing reflects the complexity of work being performed

(3) Personnel are properly trained, qualified, and authorized

(4) Procedures for shift turnover are in place and properly utilized

(5) Special equipment and tooling is available, serviceable, and calibrated, if applicable

(6) Safety procedures are established and adhered to

(7) Procedures direct the flow and control of all maintenance and inspection records

(8) Lighting, ventilation and general housekeeping are adequate

(b) Inspect hangar ground support equipment, to ensure the equipment is serviceable and appropriate for the work being performed

8.3.7 **INSPECT THE ENGINEERING DEPARTMENT**

(a) If there is an engineering department, ensure the following—

(1) Staffing is adequate for complexity of assigned duties

(2) Personnel are qualified

(3) All required technical data is current and available

(4) Engineering orders are accomplished and recorded in accordance with operator's manual

(5) Major repair and alterations are accomplished in accordance with approved data

(6) Major repair reports are retained and available

(7) Major modifications are being reported

Review a representative sample of operator generated Engineering Orders to ensure that the programme is being followed and items are being properly categorized (major versus minor).

8.3.8 **INSPECT INSPECTION DEPARTMENT**

(a) Ensure the following—

(1) Designated staffing is adequate for complexity of operation

(2) Delegated staffing (Required Inspection Items) is at reasonable level

(3) System ensures that inspection personnel are trained, qualified, and properly authorized

8.3.9 **INSPECT MAINTENANCE CONTROL**

(a) If there is a maintenance control, ensure the following—

(1) Staffing is adequate for the complexity of the operation and that personnel are trained and qualified

(2) Technical data is available and current

(3) Communications system provides effective communication between all departments and stations

(4) Review the activity/turnover log to look for trends and to evaluate the general effectiveness of the overall maintenance program.

8.3.10 **INSPECT MAINTENANCE PRODUCTION & PLANNING CONTROL**

(a) If there is a maintenance production and planning control, ensure the following—

(1) Staffing is adequate for the complexity of the operation

(2) Planning system is effective, e.g., inspection/overhaul scheduling, facility scheduling, parts forecast, personnel requirements, and communication with other departments

(3) The system provides for scheduling corrections of deferred and carryover maintenance items

Randomly sample a representative number of open and completed work packages to ensure the effectiveness of the system.

8.3.11 **INSPECT DEICING CHEMICAL STORAGE & DISPENSING EQUIPMENT**

(a) If deicing chemical storage and dispensing, the following must be inspected to ensure compliance with the operator's manual—

(1) Chemical storage and dispensing

(2) Serviceability of equipment

(3) General condition and safety of storage areas

(4) Training of personnel in operator's deicing procedures

If deicing services are provided on a contract basis, ensure that the contractor meets the above requirements.

8.3.12 **INSPECT AIRCRAFT**

(a) Inspect any available aircraft to determine the quality of maintenance being performed.

(b) Upon completion of inspection, record all deficiencies noted and determine the appropriate corrective action(s) to be taken.

(c) Use the Job Aids located in Appendix 8-A or 8-B to perform this task.

8.3.13 **ENTER RECORD**

(a) Record the inspection in the CAA Action database.

(b) Enter any safety issues identified.

8.3.14 **INITIATE RESOLUTION**

(a) If any safety issues were identified, complete initial tasks required by Resolution and Enforcement manual.

APPENDIX 8-A: JOB AID: AW-008 – Base Inspection Checklist

Base Inspection Checklist

FILE REFERENCE: _____

Date of Evaluation		**Control #**	
Name of Operator		**AOC #**	
State of Operator		**Type of Aircraft**	
Org. Identifier		**Aircraft Reg#**	
Location			
Destination			
Action Taken			

KEY PERSONNEL MET:

	NAME	TITLE
1.		
2.		
3.		
4.		
5.		

PLEASE CHECK THE APPROPRIATE BOX FOR THE FOLLOWING; SATISFACTORY (S), NOT SATISFACTORY (NS) OR NOT APPLICABLE (N/A). INDICATE REGULATORY OR OTHER REFERENCE(S) FOR NOT SATISFACTORY (NS) ITEMS WHERE APPLICABLE. PROVIDE FURTHER DETAILS IN THE REMARKS SECTION IF REQUIRED.					
		CHECKLIST ITEMS			
REFERENCE	**1**	**MANAGEMENT**	**S**	**NS**	**N/A**
	1.1	Management Structure			
	1.2	Qualification of Management Personnel			
	1.3	Record keeping			
	1.5	Availability of Office equipment (e.g. computers, fax, telephones, printers, e.t.c)			
	1.6	General House keeping			
	1.7	System for Dissemination Information to Personnel			
REFERENCE	**2**	**DOCUMENTS**	**S**	**NS**	**N/A**
	2.1	Agreements and Leases – (a) Maintenance (b) Handling (c) Aircraft (d) Tools			
	2.2	Operator's Maintenance Agreement			
	2.3	Air Operator Certificate available?			
	2.4	Aircraft and passenger insurance Certificate available and current?			
	2.5	Certificate of registration available?			
	2.6	Certificate of airworthiness available and current?			
	2.7	Noise Certificate available?			
	2.8	MEL/MMEL available?			
	2.9	Radio License and Radio equipment available?			
	2.10	Operations Specifications Available to proper maintenance & Inspection personnel?			
	2.11	Operators Maintenance Control and Maintenance Programme manuals available and current?			
	2.12	Aircraft Manufacturers Manuals available?			
	2.13	Engine, propeller, appliance & emergency equipment manufacturer manuals available & current?			
	2.14	Manufactures Service bulletin/letters available?			
	2.15	Airworthiness Directives for all aircraft and components available?			
	2.16	Type data and supplemental Type data documents			

		available?			
	2.17	Approved flight manual for each aircraft type available?			
	2.18	Applicable directives available?			
	2.19	Refuelling Manual/ Instructions			
	2.20	Loading Manual/ Instructions			
	2.21	Dangerous goods Manual			
	2.22	Control of Amendments of Manuals			
REFERENCE	**3**	**FACILITY: GENERAL**	**S**	**NS**	**N/A**
	3.1	Does the package contain a copy of the operating authority issued by the responsible regulatory authority of the last operator?			
	3.2	Work areas situated to protect parts and sub assemblies during in progress work?			
	3.3	Lighting, ventilation and general housekeeping satisfactory?			
	3.4	Personnel are properly trained, qualified and authorized?			
	3.5	Procedures for shift turn over are in place and utilized?			
	3.6	Special tools and equipment is available, serviceable and calibrated if applicable?			
	3.7	Records of Calibration			
	3.8	Safety procedures are established and adhered to?			
	3.9	Ground support equipment is appropriate adequate and serviceable?			
	3.10	First Aid Services.			
	3.11	Emergency Plan/ Telephone listing			
REFERENCE	**4**	**PARTS & STORAGE**	**S**	**NS**	**N/A**
	4.1	Stockroom parts & materials protected against damage & deterioration?			
	4.2	Is there a system for identifying and segregating serviceable, repairable & rejected parts?			
	4.3	Are shelf life limited parts controlled?			
	4.4	Are there adequate spare parts available to support complexity of operation?			
	4.5	Are receiving inspections conducted in accordance with manual?			
	4.6	Hazardous materials suitably segregated and stored?			

REFERENCE	5	SPECIAL FACILITIES & SHOPS	S	NS	N/A
	5.1	Instrument shop environmental conditions in accordance with standards?			
	5.2	Segregation of components during assembly & disassembly accomplished?			
	5.3	All items requiring calibration within criteria and traceable to acceptablestandard?			
	5.4	Special tools & test equipment include those recommended by the Manufacturer?			
	5.5	Fuel/oil storage and dispensing facilities satisfactory?			
	5.6	If deicing chemical storage and dispensing equipment satisfactory?			
REFERENCE	6	ENGINEERING	S	NS	N/A
	6.1	Is staffing adequate for complexity of operator?			
	6.2	Are personnel qualified?			
	6.3	Are engineering orders issued and accomplished in accordance with theoperators manual?			
	6.4	All major repair and alterations accomplished in accordance with approveddata?			
	6.5	Major repair reports are retained and available?			
	6.6	Major modifications are being reported?			
REFERENCE	7	INSPECTION DEPARTMENT	S	NS	N/A
	7.1	Staffing is adequate for complexity of operation			
	7.2	Delegated staffing for "by-back" inspectionProcedures at reasonable level?			
	7.3	System ensures Inspection personnel are trained and qualified?			
REFERENCE	8	MAINTENANCE CONTROL	S	NS	N/A
	8.1	Is staffing adequate for complexity of operation?			
	8.2	Staff is properly trained and qualified?			
	8.3	Maintenance Support Services			
	8.4	Maintenance Approvals			
	8.5	Structure of maintenance department			

	8.6	Technical data is available, appropriate and current?			
	8.7	Maintenance Personnel Records and Maintenance Records			
	8.8	An effective communication system between all departments is in place?			
REFERENCE	**9**	**PRODUCTION CONTROL**	**S**	**NS**	**N/A**
	9.1	Is planning system effective—scheduling inspections /overhaul-forecasting?			
	9.2	Does system provide for scheduling corrections of deferred and carryoveritems?			
	9.3	Is planning system effective—scheduling inspections/overhaul-forecasting?			
	9.4	Does system provide for scheduling corrections of deferred and carry over items?			
REFERENCE	**10**	**AIRCRAFT INSPECTION**	**S**	**NS**	**N/A**
	10.1	Aircraft interior and exterior inspection			
	10.2	Aircraft date of manufacture			

Item Number	INSPECTOR'S REMARKS

INSPECTOR(S)			
NAME/ASI #	**SIGNATURE**	**ORG REP NAME**	
		ORG REP SIGNATURE	

APPENDIX 8-B: JOB AID: AW-009 – Maintenance Training Inspection

Maintenance Training Inspection

FILE REFERENCE: _____

Date of Evaluation		**Control #**	
Name of Operator		**AOC #**	
State of Operator		**Type of Aircraft**	
Org. Identifier		**Aircraft Reg#**	
Location			
Destination			
Action Taken			

KEY PERSONNEL MET:

	NAME	TITLE
1.		
2.		
3.		
4.		
5.		

PLEASE CHECK THE APPROPRIATE BOX FOR THE FOLLOWING; SATISFACTORY (S), NOT SATISFACTORY (NS) OR NOT APPLICABLE (N/A). INDICATE REGULATORY OR OTHER REFERENCE(S) FOR NOT SATISFACTORY (NS) ITEMS WHERE APPLICABLE. PROVIDE FURTHER DETAILS IN THE REMARKS SECTION IF REQUIRED.

		CHECKLIST ITEMS			
REFERENCE	1	Training Files	S	NS	N/A
	1.1	Does the operator have a training file for each maintenance employee includingsupervisors and managers?			
	1.2	Does each individual's file show the ratings and authorizations issued?			
	1.3	Does each individual's file show tasks and duties assigned?			
	1.4	Does each individual's file show training from previous employers?			
	1.5	Does each individual's file show forecasted training needs?			

REFERENCE	2	Formal (Classroom) Training	S	NS	N/A
	2.1	Does each individual's file show formal training received at this employer?			
	2.2	Does each individual's file show recurrent training received at this employer?			
	2.3	Does the record of formal training received show the specific course contentwith the number of hours oneach subject?			
	2.4	Does the record of formal training received give the date and location of thetraining with a signature of the instructor that gave the training?			
	2.5	Does the record of formal training received indicate whether a test was givenand the test score received by the individual?			
REFERENCE	3	On the Job Training	S	NS	N/A
	3.1	Does each individual's file show OJT received at this employer?			
	3.2	Does each individual's file show the subject covered, date and location givenwith a signature of the instructor?			
REFERENCE	4	Training Results	S	NS	N/A
	4.1	Does the training received concern the tasks and duties assigned?			
	4.2	Does the training received justify the ratings and authorizations issued?			
	4.3	Was timely recurrent training received?			
	4.4	Was the training received in accordance with the operator's approved training programme?			
REFERENCE	5	Training Facilities (if training carried out by operator)	S	NS	N/A
	5.1	Does the operator have a copy of the approved maintenance training course?			
	5.2	Are suitable premises available?			
	5.3	Has provisions been made for the security of training and exam materials?			
	5.4	Are suitable training material and data available?			
	5.5	Has provisions been made for updating training material?			
	5.6	Are there an adequate number of instructors available?			
	5.7	Are the instructors qualified and experienced?			

Item Number	REMARKS

INSPECTOR(S)			
NAME/ASI#	SIGNATURE	ORG REP NAME	
		ORG REP SIGNATURE	

CHAPTER 9: AIRCRAFT REGISTRATION AND INITIAL ISSUANCE OF CERTIFICATE OF AIRWORTHINESS, RESERVATION OF REGISTRATION MARKS AND DEREGISTRATION OF AIRCRAFT

9.1 OBJECTIVE

(a) This chapter provides guidance for the registration, reservation of registration marks and deregistration of aircraft. This chapter also provides guidance and information relating to the issue of Standard Certificates of Airworthiness (C of A) in particular categories.

9.2 GENERAL

(a) The Liberia Civil Aviation requires that applications for Certificate of Registration and Certificate of Airworthiness be done together. However, in conducting this exercise, the Authority may issue the certificate of registration if the requirements for its issuance are met before the C of A is subsequently issued when all requirements are met.

(b) It is a requirement of the Authority that the application for registration and issuance of C of A be made to the Authority and the inspection conducted by a team of inspectors assigned by Director of Flight Safety Standards before the aircraft is permitted to be brought to Liberia upon recommendation by the inspectors of its acceptable airworthiness status.

(i) This exercise is conducted by at least two airworthiness inspectors- preferably one Maintenance and one Avionics.

9.3 BACKGROUND

(i) The proper registration of aircraft is fundamental to the safety of international air operations and is therefore accorded considerable attention in Chapter III of the Convention on International Civil Aviation. Further, details of the registration and marking of aircraft are contained in Annex 7 to the Convention.5.1.2 In accordance with international provisions, each aircraft must be registered in a State and each State must maintain a registry of aircraft.

(ii) An aircraft cannot be validly registered in more than one State, but its registration may be changed from one State to another. The Convention does not provide for an aircraft to be registered by an international organization such as an agency of the United Nations; however, Article 77 of the Convention does provide for two or more Contracting States to establish joint air transport operating agencies subject to ICAO Council determination as to how the provisions of the Convention will apply concerning the registration and nationality of the aircraft operated by such agencies. To date no such agencies have been formed. Subject to any future action the Council might take in respect of joint operating agencies, each aircraft must have only one State of Registry and that State has, among a number of responsibilities in respect of each aircraft on its register, a fundamental responsibility to ensure that the aircraft is operated in an airworthy condition.

(iii) Under Article 19 of the Convention, the registration or transfer of registration of aircraft in any Contracting State shall be made in accordance with its laws and regulations. Accordingly, the Director, CAA will need to ensure that the State adopts detail regulations covering all aspects of registration including such matters as the basic requirement for aircraft to be registered with the State's application procedures, data required, display of the registration certificate and fees (if any). The Director-General has

put administrative instructions in place on the maintenance of the register within the LCAA.

(iv) Annex 7 requires that the register of each State shall show, for each aircraft registered, the information recorded in the certificate of registration. The LCAA's certificate of registration shall be carried in the aircraft at all times and shall in wording and arrangement conform with ICAO standards.

(v) For an aircraft to be accepted for registration, the following requirements will have to be fulfilled:

(1) The aircraft must not have been registered in any other State or if previously registered proof of de-registration will be required;

(2) Proof of ownership should be established or an appropriate agreement between the owners of the aircraft and the one in whose name the aircraft is being registered shall be provided; and

(3) In the case of aircraft to be operated for hire and reward, the applicant must have reached an advanced stage in the certification process for the issue of an AOC, before any application for aircraft registration will be considered for processing.

(vi) Aircraft airworthiness certification is the whole process of assessing an aircraft type against its type design and condition for safe operation, which culminates in issue of a Certificate of Airworthiness (C of A) for an individual aircraft. Type certification is a part of the process of aircraft airworthiness certification which leads to issue of a Type Certificate or equivalent document. This is necessary before individual C of A can be issued.

(vii) The obligation for Contracting States of the International Civil Aviation Organization (ICAO), to issue C of As, is laid down in Part II, Section 3 of ICAO Annex 8, "Airworthiness of Aircraft". A C of A may be issued on the basis of satisfactory evidence that an individual aircraft complies with the appropriate airworthiness requirements, and that the aircraft has been constructed and assembled satisfactorily.

(viii) C of As is issued for individual aircraft as one of the preconditions to the aircraft being able to fly legally, in the sense of being fit to fly. Actual aircraft type approval stops at the issue of the Type Certificate.

(ix) Certification of individual aircraft (the C of A issue process) involves:

(1) ensuring that the aircraft conforms with the definition of the design and its method of construction i.e. the aircraft conforms to the type design; this in turn ensures that the aircraft meets:

(i) a design standard; and

(ii) the specified airworthiness requirements;

(2) ensuring that the aircraft is free from manufacturing and post-production test defects;

(3) ensuring that the required modifications, as dictated by both design changes and specific national Airworthiness Directives (ADs), have been embodied;

(4) ensuring that the required operational equipment has been fitted;

(5) ensuring that the aircraft's airworthiness state is properly reflected in the required documentation including alterations have been carried out in accordance with approved data.

9.4 PROCEDURES FOR THE REGISTRATION OF AIRCRAFT AND INITIAL ISSUANCE OF CERTIFICATE OF AIRWORTHINESS

(a) An applicant for the registration of an aircraft and C of A issuance must make the aircraft and its documentation available, at a time and place acceptable for the review and inspections considered necessary by the Authority (preferably the location of the Organization responsible for the continuing airworthiness management or maintenance of the aircraft).

(b) It is the responsibility of the applicant to provide personnel and equipment so that these reviews and inspections may be satisfactorily carried out.

(c) The applicant shall make the application on LCAA Form CA7. This must be accompanied by the application for the issue of C of A and application for the registration of 406 MHz ELT (the latter is submitted when mode S code is issued and the ELT is re-strapped.)

(d) Using Job Aids: AW-010A (fixed wing) or AW-010B (rotorcraft) and AW-053 shall process the application using the procedure below.

9.4.1 PROCEDURE FOR PROCESSING AN APPLICATION FOR A CERTIFICATE OF REGISTRATION

(a) The process for the issue of a Certificate of Registration (C of R) consists of the following steps:

(1) Submission of completed application form for the registration of aircraft by the applicant signed by the Accountable Manager or the owner or their assign together with the appropriate fee.

(2) Review the application:

(i) An incomplete application (including necessary supporting documents) should be rejected.

(ii) Should ensure that the aircraft meets the eligibility criteria for the registration of aircraft in Liberia (LCARs Part 4).

(iii) Verify if the aircraft type is the first of its kind to be registered in Liberia. If yes, notify the applicant of the need for the aircraft type to go through a type acceptance process prior to processing of the application for C of R and C of A.

(3) Ensure ownership:

(i) Review and confirm the evidence of ownership.

(4) Ensure aircraft is not registered with another State:

(i) Review and confirm the evidence of de-registration or non-registration, if available.

(5) Assign ICAO 24 bits Mode 'S' code.

(6) Submit application for registration of 406MHz ELT to designated personnel and obtain certificate of registration of ELT.

(7) Submit Report to the Director of Flight Safety Standards indicating recommendation to register or not. Include draft registration certificate (See form FSS/Reg-010 for completing the certificate) if recommended for issue.

(i) If the report is approved by the Director of Flight Safety Standards, enter information into the Liberia Civil Aircraft Register.

(8) Prepare final C of R on a LCAA security sheet and submit it to the Director of Flight Safety Standards for signature.

(9) Issue C of R with a cover letter.

(10) Issue Certificate of registration of ELT to the applicant.

(11) Notify ICAO of the registration of the aircraft indicating the 24-bit Mode 'S' code assigned using sample letter (Form FSS/Reg-006)

(12) File completed application, supporting documents and copy of C of R.

(13) Inform State of Design of aircraft (Form FSS/Reg-009).

(14) Notify manufacturer of aircraft (Form FSS/Reg-005).

(15) Make entry of activities.

9.4.2 **NOTIFICATION**

When LCAA first enters on its register an aircraft of a particular type and issues or validate a Certificate of Airworthiness, it shall advise the state of design that it has entered such an aircraft on its register.

9.4.3 **STANDARD CERTIFICATES OF AIRWORTHINESS**

(a) A standard C of A may be issued in the following categories:

(1) Transport
(2) Normal
(3) Utility
(4) Acrobatic
(5) Commuter
(6) Manned free balloons

(b) Special C of A or special flight permits cover all other cases.

9.4.3.1 **ELIGIBILITY OF AN AIRCRAFT FOR THE ISSUANCE OF A CERTIFICATE OF AIRWORTHINESS**

(a) To be eligible to apply for a certificate of airworthiness, an aircraft

(1) must have be registered in Liberia or an application for its registration must have been submitted to the Authority.

(i) The holder of a C of R is normally the person who has the custody and airworthiness control of the aircraft (otherwise defined as the "owner"). Therefore, one major prerequisite for application for a standard C of A is that the aircraft must already be registered on the Civil Aircraft Register.

(2) must have a type certificate issued by a recognised State and accepted by the Authority.

Note: The eligibility of an aircraft for registration in Liberia is outlined in LCARs Part 4.

9.4.3.2 **PROCEDURE FOR PROCESSING AN APPLICATION FOR A CERTIFICATE OF AIRWORTHINESS**

(a) The procedure for the issue of a Certificate of Airworthiness (C of A) consists of the following steps:

(1) Submission of completed application form for the issuance of certificate of airworthiness signed by the Accountable Manager or the owner or their assign together with the appropriate fee. This application must be accompanied by the application for registration of aircraft and application for the registration of ELT (if applicable).

Note. — Payment of the fees before initiating the process will support the applicant's commitment to the process and could avoid the misuse of resources on a project that may not be completed.

Using Job Aids: AW-010A (fixed wing) or AW-010B (rotorcraft) and AW-053 (For addition of same make model include AW-053);

(2) Review of the Application for a Certificate of Airworthiness:

(i) Each application for a certificate of airworthiness shall include the category of aircraft applied for;

(i) The review of application for a certificate of airworthiness shall follow the following steps:

(A) The nominated Inspectors should perform the following:

- application form review;
- aircraft configuration identification;
- aircraft documentation review; and
- aircraft inspection.

APPLICATION FORM REVIEW

The application form should be reviewed to ensure all requested information is included and accurate, the signatures are legitimate and the aircraft is registered or an application for registration has been submitted together with the appropriate fee. The information on the form should be validated with the supporting documentation.

AIRCRAFT CONFIGURATION IDENTIFICATION

(a) New aircraft

With regard to new aircraft:

(1) for an aircraft which is the "First of Type" (i.e a prototype or Variant) or "First of Model", the required documentation specified in both tables A and B below must be provided to the Authority.

(2) “type” means a design and make of aircraft and refers to a group of essentially similar aircraft which, although possibly existing in different models, stem from a common basic design; “model” means a particular version of an aircraft type, such as would be distinguished from another version of the same type by a change of sufficient effect on the weight and balance, structural strength, operational characteristics, or other characteristics as would require a separate entry on the type certificate identifying and approving the particular version as distinct from the identification and approval of other versions.

(3) Based on the type design the Inspectors should identify the aircraft configuration. This is mainly supported by evidence from the manufacturer that identifies which components and changes to type design have been necessary to build and deliver the considered aircraft. Generally, the manufacturer starts from a configuration that is a known type identified in the relevant type certificate and then lists all additional changes that are embodied on the aircraft.

(4) In particular, some of those changes involve optional items that have been ordered by the customer. The customer may prefer some particular equipment from a specific supplier in order to harmonize with the rest of its fleet, or for any other suitable reason.

(5) All changes embodied on the aircraft should be identified and are used to determine the applicable maintenance programme for that aircraft.

(6) A declaration issued by the State of Manufacture, for example, an export Certificate of Airworthiness, is convenient to document all those particularities of the configuration.

(7) The authority may produce a Ground Inspection Report (GIR), based on the C of A issue exercise for a First of Type (FOT) or First of Model (FOM) aircraft. It is for this reason that such a C of A issue exercise is more time-consuming than those for subsequent aircraft of the type or model. FOT/FOM C of A issue exercises are normally only carried out by the authority inspectors. One criteria may be that the particular aircraft is a similar model to an aircraft already issued with a local C of A.

(8) Any condition identified during the ground inspection will be included as a condition on the C of A for all aircraft of this type and model.

TABLE A

	Documentation/Publications	
(i)	Type Certificate (State of Design) Statement of applicable design certification standard required if not referenced in Type Certificate Data Sheet. The TC shall be acceptable with Subpart B of this part.	*
(ii)	Maintenance Manual and illustrated Parts Catalogue (IPC)	*
(iii)	Overhaul Manual	*
(iv)	Structure Repair Manual	*
(v)	Non-Destructive Testing (NDT) Manual	*
(vi)	Wiring Diagram Manual	*
(vii)	Maintenance Review Board Report	*
(viii)	Maintenance Planning Document	*
(ix)	Service Life & Time Limits Manual, unless data is contained in another publication	*
(x)	Antenna Performance Patterns Report	*
(xi)	Aircraft Flight Manuals/Pilots Operating Manual/ Owner's Manual	*
(xii)	Electrical Load Analysis Report	*
(xiii)	Noise Type Certificate including noise data, unless published in Flight Manual	*
(xiv)	Master Minimum Equipment List (MMEL), where applicable	*

(b) Series aircraft

(1) for a " series" aircraft, being an aircraft of which has previously been issued a Certificate of Airworthiness by the Authority, the required documentation specified in Table B must be provided.

Note: *A copy of the items marked * shall be retained by the Authority. Items marked ** shall be viewed only at the time of Certification of Airworthiness issue but must be retained by the aircraft owner/ operator*

TABLE B

	Documentation/Publications	
(i)	Export Certificate of Airworthiness issued in accordance with rules of the Competent Authority of the State of Design	
(ii)	Copy of type Certificate Data Sheet (TCDS) associated with the type certificate which has been previously accepted or which is subject for acceptance in accordance with Subpart B of this part.	
(iii)	List of any Equivalent Safety Findings included as part of the Certification	*
(iv)	Copy of each Supplemental Type Certificate (STC) embodied on the aircraft/engines/and or propeller. Applicant must establish the acceptability of each STC in accordance with Subpart E of this Part.	*
(v)	Statement of Compliance with Airworthiness Directives (ADs) issued by the state of design or those effective under 'grandfather' provisions. Alternative Means of Compliance approved by the State of Design must be declared.	*
(vi)	Certification Maintenance Requirements (CMR). CMR status and compliance, as applicable to aircraft type.	*
(vii)	Aircraft /Engine/Propeller/APU Log Books	**
(viii)	Aircraft Flight Manuals/Pilots Operating Manual/owner manual **Note:** view only where the Authority is already in possession of applicable Flight Manual	**
(ix)	Weight and Balance Manual. View only where the Authority is already in possession of a Weight and Balance Manual, which is generic to the aircraft type.	*
(x)	Weighing Report individual aircraft weighing record	**
(xi)	Flight Test Report. For new aircraft, a copy of manufacturer's Flight Test completion declaration.	*

(xii)	Letter of Definition/Letter of Conformity. Copy should also be supplied to the Authority	*
(xiii)	Statement of Build Standard. **(a)** Master Change List **(b)** Production Revision Record **(c)** Service Bulletin Standard **Note:** Only changes to (a) and (b) need to be declared for series aircraft	*
(xiv)	List of Manufacturing Concessions/Deviations	*
(xv)	Declaration of compliance with Additional National Design Requirements, if any notified by the Authority to the Competent Authority of the State of Design	*
(xvi)	Cabin Configuration Control. Copy of Configuration drawing (LOPA-Layout of Passenger Accommodations), including locations of safety equipment installed.	*
(xvii)	Revision to electrical Load Analysis. Copy of any changes to document required by Table A.	*
(xviii)	Radio Equipment List, including approval status.	*
(xix)	Software Criticality List.(Class 1, 2 ,3 software declaration	*
(xx)	TX Mod 'S' code programme. (Declaration of Mode 'S' code)	*
(xxi)	ELT code programme.(Declaration of ELT code (406Mhz))	*
(xxii)	SELCAL Code. (Declaration of SELCAL code)	*
(xxiii)	FDR/CVR Compliance Statement (i) FDR Data Frame Layout Document (ii) CVR recording performance	**
(xxiv)	List Derogations, Waivers and exemptions from the Type Certificate which must be authorised in writing by the Authority.	*
(xxv)	Registration of Aircraft. Aircraft registration process must be competed. Confirmation required of the aircraft de-registration from the Competent Authority of the last State of Registry.	**
(xxvi)	Compass Check Certificate. Deviation cards installed.	**
(xxvii)	List of Placards and Markings	**
(xxviii)	List of equipment incorporated, including items of equipment not necessarily installed by the manufacturer.	*
(xxix)	List of significant components or items.	*

(c) Used aircraft

(1) With regard to used aircraft, in addition to the documentation specified in Tables A and B, the required documentation specified in Table C below must also be provided to the Authority.

(2) In order to determine the approved configuration of the aircraft, the Airworthiness Section should start from a known configuration (identified on the aircraft type certificate), for example, from the configuration known by the previous State which delivered the Certificate of Airworthiness. The Inspectors should review the aircraft

maintenance records to determine all changes that have been incorporated on the aircraft.

(3) A review of the aircraft interior configuration may be necessary to determine if modifications had been made to the original configuration. Such aircraft interior modifications should be found in a modification approval document.

(4) All changes embodied on the aircraft should be accepted either by recognition of those within the approved type certificate, or individually accepted as changes to the type certificate provided they were done in accordance with data approved by the state of design or the previous state of Registry (Example STCs).

(5) A declaration issued by the previous State of Registry, for example an export Certificate of Airworthiness, may be helpful to document those configuration particularities.

Table C

	Documentation / Publications	
(i)	Aircraft/Engine/Propeller Records. Records containing total time in service, and status of life limited parts. Time since last overhaul and current inspection status.	**
(ii)	Component Overhaul/Life Limit Status. Details of lives remaining and modification status.	**
(iii)	Previous Maintenance records. Work Packs and Log Books	**
(iv)	Previous Maintenance Programme. Previous inspection/check periods, hours, cycles, calendar time.	**
(v)	Modification Status Report. Major modifications previously embodied by Owner(s)/Operator(s), including approval status	**
(vi)	Repair Records. Major repairs previously embodied by Owner(s)/Operator(s), including approval status.	**

(d) Aged aircraft:

(1) Special requirements may be imposed on used aircraft with MTOWs in excess of 5700 kilograms where the aircraft is older than 14 years from the date of manufacture. For such aircraft, data requirements are:

(i) data listed in **(e)** above;

(ii) details regarding previous operators of the aircraft, previous countries in which the aircraft has operated, and details of all structural repairs to the aircraft not carried out in accordance with the manufacturer's approved data; and

(iii) a copy of the relevant Structural Inspection Document (USA FAA Advisory Circular No. 91-60 is relevant).

(e) Imported Aircraft

(1) It is desirable for an application for a standard C of A for aircraft being imported into this state to be supported by a foreign export C of A or equivalent document.

(2) Unless otherwise agreed, the export certificates of airworthiness shall have been issued no more than 90 days before presentation of the aircraft to the Authority. In all cases, the applicant or its representative shall provide access and arrange for the Authority to inspect the aircraft and examine its relevant compliance documents and records at the location where such inspection and examination can be conducted. the cost of such inspection and examination shall be borne by the applicant or its representative.

(3) if neither of the above is available, nor can be reasonably obtained, then a written statement from the aircraft manufacturer, or from a maintenance organization with an appropriate approval for aircraft maintenance for the type, that all applicable Airworthiness Directives (ADs) issued by the appropriate authority of the country of manufacture, or, for aircraft types certificated in this state, that all applicable ADs issued by the authority of the recognized country that issued the type certificate (if this is not the country of manufacture), have been complied with, and that the aircraft conforms to Type Certificate requirements.;

(f) Modified aircraft:

(1) A major modification is a change in the type design which has an appreciable effect on the weight, balance, structural strength, reliability, operational characteristics, or other characteristics affecting the airworthiness of an aircraft, aircraft engine or propeller, but not so appreciable as to necessitate a change to the Type Certificate. The major modification may be incorporated as a Supplemental Type Certificate (STC). For aircraft incorporating major modifications, the data requirements are:

(i) data as listed in the applicable paragraphs (a) to (d) above; and

(ii) written evidence that the modifications were incorporated in accordance with approved data:

(A) manufacturer's data approved by a recognized authority; or

(B) data approved by a recognized authority in the country of manufacture; or

(C) data approved by an appropriate locally authorized person;

AIRCRAFT DOCUMENTATION REVIEW

Note— The Inspectors can request any necessary documentation to substantiate the process and review these documents for accuracy and validity.

(a) The Inspectors should review the following to establish the history of the aircraft, the status of the continuing airworthiness and the compliance of the documentation submitted:

(1) Export C of A.

(2) The aircraft flight manual (AFM). This is to determine if the AFM is compatible with the aircraft configuration (For instance, are AFM supplements included and adequate).

(3) Maintenance programme, together with any bridging results from the previous programme. The applicant should also furnish, where applicable, the maintenance review board report for the aircraft type, or the manufacturer's current maintenance planning data.

(4) Status of all maintenance tasks contained in the maintenance programme, including: airworthiness limitations, certification maintenance requirements (CMRs) and scheduled checks.

(5) Details and certification of any major modifications or major repairs incorporated since the first C of A was issued. Particular attention should be given to any supplemental inspection described in the approval documents, for the performance of the inspection and the inclusion in the maintenance programme.

(6) Status of compliance with mandatory continuing airworthiness information (MCAI) mandated by the State of Registry.

(7) Details of equipment installations intended for particular operational roles, if applicable, e.g. towing, agricultural spraying and provision for the carriage of any external loads.

(8) Mass and balance report together with the equipment list.

(9) Log books that document the history of the aircraft, as well as maintenance records.

(10) Records that demonstrate the origin of parts and components that were installed new or repaired on the aircraft (component log cards, authorised release certificate etc).

(11) Records of all maintenance performed at time of the C of A application process.

(12) Records of previous maintenance repairs and modifications. This is to determine if such tasks have modified airworthiness limitations or may necessitate additional checks to be included in the maintenance programme in addition to those from the manufacturer.

Note— The Inspectors should accept, to the maximum extent possible, the findings generated by other Contracting States, when validating or otherwise reviewing modifications and repairs made to an aircraft prior to the issuance of a Certificate of Airworthiness.

AIRCRAFT INSPECTION

(a) As well as carrying out detailed documentary checks on the data and documentation provided as per the above paragraph, the AWI should carry out a physical inspection of the aircraft or be satisfied that the aircraft has been inspected and conforms to the type design, and is in a safe condition for flight.

(b) The applicant should be made aware that the aircraft should be made available at a time and place mutually agreed to between the AWI and the applicant.

(c) The inspectors should perform an exterior inspection to check that (but not be limited to):

(1) there is no damage to the fuselage, engines, propellers, wings, control surfaces and landing gears;

(2) major repairs and modifications, if any, are recorded and accomplished in accordance with the requirements of LCAR;

(3) the aircraft, engines and propellers identification (data) plate are installed and correspond to the identity of the aircraft, engines and propellers in their records;

(4) components' serial numbers conform to the aircraft records; and

(5) the aircraft identification (data) plate corresponds to the identity of the aircraft, where applicable.

(d) The Inspectors should perform an interior inspection to check for (but not be limited to):

(1) conformity to aircraft interior configuration, emergency equipment, safety equipment (see manufacturer's LOPA etc);

(2) installation of the aircraft identification (data) plate and that it corresponds to the identity of the aircraft, where applicable;

(3) markings and placards' location and language (English); and

(4) additional markings, if required, to meet the regulatory requirements of Liberia.

(5) The Authority, when satisfied that the relevant requirements are met, will issue the C of A. The Authority shall retain copies of documents, where practicable, submitted with the application for the C of A.

(e) Some overseas regulatory authorities require a test flight (often referred to as a full maintenance test flight) as part of the C of A issue procedure. However, the need for some particular form of check test flight may arise during the course of the C of A aircraft inspection process e.g. to investigate apparent design non-compliances, or the nature of defects, which cannot be resolved by ground inspection alone.

(f) Submit report of review to the Director of Flight Safety Standards indicating recommendation for issuance or otherwise.

(1) Add draft certificate of airworthiness in the report if recommended for issuance.

(2) Prepare and sign Certificate of Airworthiness if approved by the Director-FSSD.

(3) Once the aircraft and document inspections by the AWI have been satisfactorily completed and any flight test satisfactorily completed, then that person completes the process and the C of A is issued to the applicant.

(4) Write to the applicant if the inspection is unsatisfactory stating the reasons.

(5) Make entry of activities.

9.4.3.3 **THE APPLICATION FORM**

(a) A standard C of A application should be made on the prescribed form and would normally contain the following details.

(1) **Registration Mark:** Enter the aircraft's registration mark after the state designator;

(2) **Manufacturer & Manufacturer's designation Aircraft:**

(i) **Manufacturer**: Enter the name of the manufacturer as it appears on the aircraft identification plate;

(ii) **Manufacturer's designation of Aircraft:** Manufacturer's designation of aircraft should contain the aircraft type and model;

(A) **Model:** Enter the model designation if and as it appears on the aircraft identification plate. If the details are not on the plate, use the relevant information contained in the aircraft's flight manual, and/or the type certificate data sheet. (Note: This information should align with that specified on the applicable Certificate of Registration);

(3) **Serial Number:** Enter the aircraft serial number as it appears on the aircraft identification plate;

(4) **Category requested:**

(i) a standard C of A can be issued in more than one category (for example normal and utility) if the relevant design standards for each are met;

(ii) two C of A (for example, one to cover standard C of A category operation, and one to cover restricted category operation) may be issued for the one aircraft. An applicant for multiple C of A in this context is entitled to such if compliance is shown with the requirements of each category when the aircraft is in the configuration for that category. (The applicant must show that the aircraft can be converted from one category to the other by removing or adding equipment using simple mechanical means);

(iii) that the multiple certificates box should be ticked if multiple certification as described above is to be pursued. Note also that an application for issue of the special C of A must be made at this time. Refer to the chapter on "Special Certificates of Airworthiness";

(iv) that if a standard C of A in the special class category is being requested, then the class is entered on the dotted line e.g. airship, tilt rotor etc;

(5) **Place and Year of Construction:** If this information is not available from the identification plate or log books, then it must be obtained from the aircraft manufacturer, using the aircraft's serial number with the query;

(6) **Aircraft location and maintenance organization:** Enter the aircraft location and/or the approved organization where the aircraft is to be processed for C of A.

(7) **C of R holder details:** Enter the specific details as required.

9.4.3.4 AIRCRAFT SOURCES

9.4.3.4.1 GENERAL

(a) The sourcing of an aircraft involved in a standard C of A application process has a direct bearing on the expense, effort, time and data provision requirements. The relevant variables being:

(1) whether the aircraft is locally or foreign manufactured;

(2) whether the aircraft has been based in this state prior to application, or whether it is being imported;

(3) whether the aircraft is new or used;

(4) whether the aircraft is a first-of-type (FOT) or first-of-model (FOM) for the purpose of C of A application;

(5) the age of the aircraft;

(6) the modification status of the aircraft.

9.4.3.4.2 COUNTRY OF MANUFACTURE

(a) If an aircraft is one of a type manufactured in this state, then, as a general rule, there should be few complications associated with provision of data necessary for design conformance; type certification data will be held within the authority resources, and the C of A applicant would not normally be troubled in this regard.

(b) If an aircraft of foreign manufacture has been approved for operation in this state, then it will have been issued with some form of Type Certificate or equivalent document, depending on the era of such approval

(c) Some states regulations allow the authority to automatically issue a Type Acceptance Certificate (TAC) for an aircraft type that has a current Type Certificate issued to it by one or more recognized overseas authorities.

(d) If a type acceptance certificate cannot be issued as per the above, then a full design validation must be undertaken by the authority. This involves scrutiny of design data by the authority technical specialists, and possibly a team technical visit to the manufacturer's site, in the case of transport category aircraft, and small aircraft if new technology or unique design is involved. The applicant for this process to be undertaken (which would normally be the C of A applicant) is liable for the costs of such an exercise, which are additional to the normal C of A costs. The whole validation process culminates in issue of a Type Certificate.

9.4.3.5 LANGUAGE

The manuals, placards, listings, and instrument markings and other necessary information required by applicable certification specifications shall be presented in English language to the Authority, unless otherwise expressly prescribed.

9.4.3.6 AMENDMENT OR MODIFICATION

An airworthiness certificate may be amended or modified only by the Authority.

9.4.3.7 TRANSFERABILITY AND RETURN OF AIRWORTHINESS CERTIFICATES

(a) where ownership of an aircraft has changed:

(1) If it remains on the national civil aircraft register, the certificate of airworthiness shall be transferred together with the aircraft;

(2) If the aircraft will be registered in another State of Registry, the certificate of airworthiness shall be returned to the Authority.

(b) where ownership of an aircraft has changed, and the aircraft has a permit to fly not being a ferry authorization, such airworthiness certificate shall be transferred together with the aircraft provided the aircraft remains on the national civil aircraft register.

(c) However, a C of A ceases to be in force if the aircraft ceases to be registered in Liberia.

9.4.3.8 AGE AND MODIFICATION STATUS

Old aircraft and those incorporating major modifications usually incur some extra time and effort in terms of documentary requirements.

9.4.3.9 DURATION

(a) Some states do not require that standard C of A be renewed on a periodic basis, although the C of A can be issued for a specific period. However, the prevailing philosophy is to ensure ongoing airworthiness of aircraft through prescribed maintenance requirements, surveillance and other continuing airworthiness controls.

(b) In Liberia, a certificate of airworthiness or special airworthiness certificate is effective as follows unless sooner surrendered, suspended or revoked, or a special termination date is otherwise established by the Authority—

(1) A Standard Certificate of Airworthiness shall be renewed or shall remain in effect,

(i) for a period not to exceed twelve months as determined by LCAA;

(ii) until sold to a person outside of Liberia;

(iii) until the aircraft is leased for operations, registered in another country, and is removed from the registry of Liberia, or

(iv) until revoked by the State of Registry.

(2) A special airworthiness certificate, such as a special flight permit, is valid for the period of time specified in the permit, which in any case shall not exceed twelve months.

(c) Failure to maintain an aircraft in an airworthy condition, as defined by the appropriate airworthiness requirements of the State of Registry, shall render the aircraft ineligible for operations until the aircraft is restored to an airworthy condition.

(d) When an aircraft imported for registration in Liberia has a Certificate of Airworthiness issued by another contracting state, Liberia may, as an alternative to issuance of its own Certificate of Airworthiness, establish validity by suitable authorization to be carried with the former Certificate of Airworthiness accepting it as the equivalent of a Certificate of Airworthiness issued by Liberia.

9.4.3.10 CANCELLATION/SUSPENSION

(a) The authority has the power to suspend or cancel a C of A. Such action should be through written notice to the holder of the C of A, who is normally the C of R holder. Such action will be taken if maintenance on the aircraft is not carried out in accordance with the CARs, and/or, in the case of regular public transport aircraft, if type certification support, in the sense of continuing airworthiness obligations, ceases from an overseas source. If the authority otherwise considers cancellation/suspension action is warranted in the interests of safety, then it may also suspend or cancel the C of A.

(b) A suspension of a C of A will be lifted on a date prescribed by the authority.

(c) If a C of A has been cancelled, either through action as per (a) above, or after an aircraft ceases to be on the register, then a new C of A will be required.

9.4.3.11 VARIATION

If a condition on a C of A is to be varied by the authority, then the C of A will be reissued.

9.4.3.12 SURRENDER

If a C of A stops being in force, expires or is suspended or cancelled, the holder of the C of A must surrender it to the authority, on written request from the authority.

9.4.3.13 CARRIAGE OF AIRWORTHINESS CERTIFICATIONS ON BOARD AIRCRAFT

(a) the airworthiness certificate shall be carried on board the aircraft to which it is issued when flying in international air navigation.

(b) on flights beginning and ending in Liberia without passing any other State, the airworthiness certificate may be kept safely and secured elsewhere.

9.4.3.14 PROCEDURE FOR VALIDATION OF CERTIFICATE OF AIRWORTHINESS

(a) ICAO Annex 8 requires that when a State of Registry renders valid a Certificate of Airworthiness issued by another Contracting State it shall provide a suitable Validated Certificate of Airworthiness (Form B.2.3 Appendix-III) to be carried with the original Certificate of Airworthiness.

(b) The Director General shall have the power to validate Certificate of Airworthiness issued by another contracting State on application made by the owner or operator of such aircraft.

(c) When LCAA renders to valid the Certificate of Airworthiness issued by another Contracting State it is, by its action, certifying that it is satisfied that the certificate was issued in compliance in all respects with the convention and the provisions of the applicable Annexes and LCAR Part 5".

(d) The validated Certificate of Airworthiness shall not extend beyond the period of validity of the original Certificate of Airworthiness. However, whenever the period of validity of the original Certificate of Airworthiness is renewed, the Validated Certificate of Airworthiness may be renewed or another Validated Certificate of Airworthiness is issued by the State of Registry for a period not exceeding the period of validity of the original Certificate of Airworthiness.

(e) Furthermore, as the new State of Registry LCAA, is henceforth responsible for ensuring the continuing airworthiness and safe operation of the aircraft.

9.4.3.15 C OF A RENEWAL PROCEDURES

9.4.3.15.1 PURPOSE

(a) This section provides guidance for processing an application for the renewal of a certificate of airworthiness.

9.4.3.15.2 REVIEW OF APPLICATION

(a) The inspector assigned to review the application for a renewal of a Liberia Airworthiness Certificate shall with the aid of Job Aid:AW-010B;

(1) Determine that a timely and properly completed application is made on Form FSS-006 with all required sections properly completed and correct.

(2) Require the applicant to make the aircraft available at a time and place acceptable to the AID, for such checks and inspections required by the AID;

(3) Require the applicant to provide the necessary personnel and equipment so that the required checks and inspections may be satisfactorily carried out;

(4) Any ground or flight tests, if such tests are required by the AID, should have been completed

(5) Require that all records of previously completed maintenance and flight tests are made available to be inspected by the AID;

(6) Ensure, that all work for the maintenance of airworthiness of the aircraft has been carried out under the supervision of appropriately licensed aircraft maintenance personnel or of an organization approved by, or acceptable to, the AID and should be carried out in a proper manner and in conformity with the requirements, specifications, drawings and instructions relating to the approved design of the subject aircraft;

(7) Ensure the full particulars of the work accomplished should have been entered in the appropriate log book and a maintenance release should be issued;

(8) Ensure that the mass of the aircraft should have been determined as required by the AID

(9) Ensure that the air operator is maintaining up-to-date and sufficient documentation concerning FDR parameter allocation, conversion equations, periodic calibration and other serviceability/maintenance information

(10) Require the applicant to provide the following documents for AID examination:

(i) a copy of an inspection report giving brief details of the work done since the last renewal of the Certificate of Airworthiness. This report should be in the form of a schedule and should include the following documents:

(A) a record of the work accomplished since the last renewal of the certificate;

(B) a record showing details of major maintenance checks carried out since the last renewal of the certificate;

(C) a record of the total flying hours and cycles for the airframe, engine(s) and propeller(s) since new and since the last renewal;

(D) a record showing compliance with service bulletins, modifications and Airworthiness Directives or their equivalent; and

(E) a record of major component changes;

(F) a current mass and balance report; and

(G) a ground or flight test report for the aircraft, if such tests are required by the AID.

(H) An FDR download and calibration report

9.4.1 RENEWAL INSPECTION

The reviewing inspector shall us job aid AW-010B as a guide conduct a C of A renewal inspection to determine that the aircraft continues to meet its airworthiness requirements.

9.4.2 COMPLETION OF RENEWAL PROCESS

When the reviewing inspector is satisfied, he/she should complete the last section on the application form and submit the completed form for processing and certificate issuance.

9.5 RESERVATION OF AIRCRAFT REGISTRATION MARKS

(a) Evaluate application using requirements for reservation.

(b) If evaluation is satisfactory, assign the next available registration marks on the register.

(c) If the application requested for special registration marks, verify availability and assign

(d) if special marks are not available inform applicant.

(e) Note reserved mark on register.

(f) Notify applicant of reserved registration marks

9.6 PROCEDURES FOR DEREGISTRATION OF AIRCRAFT

(a) Review formal application form in accordance with requirements for deregistration

(b) Check the register of mortgages/liens for any lien holder liability.

(c) If there is/are lien holder(s), obtain lien holders concert

(d) If no lien holders prepare a notice of deregistration (in triplicate) form

(e) Obtain Director of Flight Safety Standards endorsement on the notice of deregistration. Stamp the notice with LCAA official stamp

(f) Update aircraft register (Hard & Soft copies)

(g) Distribute the notice of deregistration as follows:

(1) 1 copy to C of R file
(2) 1 copy to applicant
(3) 1 copy to proposed next state of registry (if applicable)

APPENDIX 9-A: JOB AID: AW-010A Aircraft Registration and initial Certificate of Airworthiness

Aircraft Registration and Initial Certificate of Airworthiness

DATE:

FILE REFERENCE: _____

SECTION A – OWERNERSHIP

PRESENT OWNER	**NAME**	**CONTACT DETAILS**
REGISTERED OWNER	**NAME**	**CONTACT DETAILS**
PRESENT LOCATION OF AIRCRAFT		
REMARKS:		

SECTION B – AIRFRAME

MANUFACTURER	
YEAR OF MANUFACTURE	
AIRCRAFT TYPE/MAKE/MODEL	
AIRCRAFT SERIAL NUMBER	
MAXIMUM TAKE-OFF WEIGHT (MTOW)	
MAXIMUM EMPTY WEIGHT (MEW)	
PRESENT REGISTRATION MARKS	
RESERVED REGISTRATION MARKS	**A8-**
TIME SINCE NEW (TSN)	
CYCLES SINCE NEW (CSN)	
TYPE CERTIFICATE NUMBER	
AIRCRAFT ROLE PRIOR TO REGISTRATION	
INTENDED AIRCRAFT ROLE	
REMARKS:	

SECTION C – ENGINE: TYPE

POSITION		**#1**	**#2**	**#3**	**#4**	**APU**
MANUFACTURER						
YEAR OF MANUFACTURE						
MODEL NUMBER						
SERIAL NUMBER						
DATE INSTALLED						
TYPE CERTIFICATE NUMBER						
TIME SINCE NEW (TSN)						
CYCLES SINCE NEW (CSN)						
TIME SINCE OVERHAUL (TSO)						
CYCLES SINCE OVERHAUL (CSO)						
COMPRESSOR	**HOURS LIMITER**					

	CYCLE LIMITER					
TURBINE	HOURS LIMITER					
	CYCLE LIMITER					
REMARKS:						

SECTION D – PROPELLER: TYPE_____

POSITION	#1	#2	#3	#4
MANUFACTURER				
MODEL NUMBER				
SERIAL NUMBER				
DATE INSTALLED				
TYPE CERTIFICATE NUMBER				
TIME SINCE NEW (TSN)				
TIME SINCE OVERHAUL (TSO)				
TIME REMAINING				
REMARKS:				

SECTION E– LANDING GEARS: TYPE:_____

POSITION	NOSE	LEFT MAIN	RIGHT MAIN	CENTER
MANUFACTURER				
MODEL NUMBER				
SERIAL NUMBER				
DATE INSTALLED				
TIME SINCE NEW (TSN)				

TIME SINCE OVERHAUL (TSO)				
TIME REMAINING				
REMARKS:				

SECTION F–MAINTENANCE SCHEDULE

POSITION	**CHECK "A"**	**CHECK "B"**	**CHECK "C"**	**CHECK "D"**
INTERVAL				
HOURS LAST ACHIEVED				
DATE LAST ACHIEVED				
REMARKS:				

NOTE: THIS JOB AID IS TO BE USED IN CONJUNCTION WITH JOB AID AW 053- AIRCRAFT CONFORMITY CHECKLIST.

PLEASE CHECK THE APPROPRIATE BOX FOR THE FOLLOWING; SATISFACTORY (S), NOT SATISFACTORY (NS) OR NOT APPLICABLE (N/A). INDICATE REGULATORY OR OTHER REFERENCE(S) FOR NOT SATISFACTORY (NS) ITEMS WHERE APPLICABLE. PROVIDE FURTHER DETAILS IN THE REMARKS SECTION IF REQUIRED.

		CHECKLIST ITEMS			
REFERENCE	**1**	**AIRCRAFT DOCUMENTS/MANUALS**	**S**	**NS**	**N/A**
	1.1	Does the applicant meet the eligibility requirement? ☐ Natural Citizen, ☐ Corporation, ☐ Government Entity? ☐ Permanent Resident,			
	1.2	Has the applicant shown proof of ownership if Purchased? ☐ Bill of Sale ☐ Lease Agreement between Actual Owner (or its assign) and Lessee if leased			
	1.3	Aircraft Ownership History			
	1.4	Letter of No Incident/Accident			
	1.5	Does the aircraft have a: ☐ De-registration certificate ☐ Export C of A			

		☐ New?			
	1.6	At the time of transfer, has the previous owner delivered to the new owner all of the technical records that are related to the aircraft?			
	1.7	Has an application for a C of A been submitted to the Director General?			
	1.8	Has an avionics/equipment list been provided? (Check against LCAR part 7 for compliance)			
	1.9	Do you have copies of the following? ☐ Previous C of A ☐ Previous C of R ☐ Current Insurance ☐ Previous Aircraft Radio License ☐ Previous Noise Certificate			
	1.10	Is a current Weight and Balance report available?			
	1.10(a)	*Does the report contain an equipment list which includes the weight and moment arm of each item of equipment not forming part of the type design available?*			
	1.10(b)	*Has the weight and balance report been certified by signing a maintenance release?*			
	1.10(c)	*Is the aircraft likely to be operated in two or more different configurations? If yes is there a separate weight and balance report addendum for each configuration?*			
	1.10(d)	*Does each addendum contain a supplementary list which clearly shows the differences from the basic aircraft?*			
	1.10(e)	*Does each addendum include the empty weight and center of gravity for the applicable configuration?*			
	1.10(f)	*Is each addendum clearly identified with respect to the aircraft configuration to which it applies?*			
	1.10(g)	*Has the large aircraft been re-weighed and an updated report prepared every 5 years?*			
	1.11	Is there a Compass Swing Report available?			
	1.12	Has a certificate of release to service detailing the work completed been submitted with the C of A application?			
	1.13	Is an approved flight manual available for the aircraft? a. Verify that the certificate holder has a current and complete (including Airworthiness Directives (AD)) copy of the applicable manufacturer's LCAA accepted AFM for the particular aircraft make, model, and serial number. b. Verify that all supplements are applicable, complete, and properly approved. c. Verify that the actual aircraft configuration conforms to the supplements, which includes Supplemental Type Certificate (STC)-derived supplements.			
	1.14	Has the operator established and maintained an operating manual that provides guidance to crew members and in the operation of the aircraft?			

	1.15	Is there a Master Minimum Equipment List developed for the aircraft?			
	1.16	Has the operator submitted a Minimum Equipment List for Approval?			
	1.17	Is the aircraft, engine(s), propeller(s) and appliances in compliance with the applicable type certificate data sheets or aircraft specifications?			
	1.18	Does the airframe model # agree with the Type Certificate? a. Compare information on the TCDS to aircraft information the air carrier provides. b. Research related information, including all TCDS notes (instructions for continued airworthiness (ICA) Reduced Vertical Separation Minimums (RVSM) eligibility, High-Intensity Radiated Field (HIRF) requirements, basic equipment list, etc.).			
	1.19	Does the engine(s) model # agree with the Type Certificate? a. Review the applicability of the TCDS. Verify the compatibility of propellers to the installed engines			
	1.20	Does the propeller(s) model # agree with the Type Certificate? a. Review the applicability of the TCDS. Verify that the propellers are approved for operation with installed engines			
	1.21	Does the APU model # agree with the Type Certificate?			
	1.22	Is the electrical load analysis current?			
	1.23	RVSM Modification			
	1.24	LCAA Issued Certified True Copy of A.O.C and OpSpecs			
REFERENCE	**2.**	**AIRCRAFT RECORDS**	**S**	**NS**	**N/A**
	2.1	Are the technical records entries accurate, legible and permanent?			
	2.2	Where a person has altered an entry on the technical record for the purpose of correcting the entry, has it been done in a manner that the underlining information remains legible?			
	2.3	Is the technical history sufficient to determine the conformity and condition of the aircraft?			
	2.4	Are the aircraft log book entries current?			
	2.5	Are the engine log book entries current?			
	2.6	Are the propeller log book entries current?			
	2.7	Airframe Maintenance Records			

	2.8	Aircraft Maintenance Check History			
	2.9	Has the Approved Maintenance Organization submitted a Maintenance Policy Manual for approval?			
	2.10	Has the Air Operator submitted an application for the amendment of its Maintenance Control Manual to include the aircraft?			
	2.11	Interior Furnishings Burn Certificates/Flammability Test Reports			
	2.12	Was the FDR medium downloaded and checked at the specified interval toensure all parameters were recording?			
	2.13	Do the records show up-to-date and sufficient documentation concerning FDR parameter allocation, conversion equations, periodic calibration and other serviceability / maintenance information.			
REFERENCE	**3.**	**AIRWORTHINESS DIRECTIVES/MANDATORY SERVICE BULLETINS**	**S**	**NS**	**N/A**
	3.1	Is there a master list (Summary Sheet) of all ADs/Mandatory Service Bulletins for the aircraft, its engines, propellers and/or components?			
	3.2	Does the list account for all ADs and/or Mandatory Service Bulletins issued for that make/model?			
	3.3	Have applicable ADs and Mandatory Service Bulletins been complied with?			
	3.4	Are ADs/Mandatory Service Bulletins accomplished within specified times?			
	3.5	Are ADs/Mandatory Service Bulletins accomplished using specified instructions?			
	3.6	Is there a specific maintenance record for each AD/Mandatory Service Bulletin?			
	3.7	Are one time and recurring ADs/Mandatory Service Bulletins identified?			
	3.8	Are recurring ADs/Mandatory Service Bulletins incorporated into the scheduled Maintenance Programme?			
	3.9	Has an alternate method of compliance been used to comply with ADs/Mandatory Service Bulletins?			
	3.10	If alternate method used, was proper approval obtained?			
REFERENCE	**4.**	**SERVICE BULLETINS/SERVICE LETTERS**	**S**	**NS**	**N/A**
	4.1	Is there a list of all service bulletins/service letters issued for the aircraft, its engines or components?			
	4.2	Does the list show which ones were incorporated?			
	4.3	Have all applicable service bulletins been complied with?			
	4.4	Is there a maintenance document for each one incorporated?			
REFERENCE	**5.**	**TOTAL TIME INSERVICE RECORDS/INSPECTION RECORDS**	**S**	**NS**	**N/A**

	6.1	Does the aircraft's records contain a total time in service record, listing the current time in service/cycles, current inspection status of the aircraft, its engines, propellers (if applicable) and components?			
	6.2	Are the service records in accordance with the approved maintenance programme?			
	6.3	Do the records contain the last inspection work packages with both routine and non-routine items for both engines and airframe?			
	6.4	Were all inspections accomplished within the time/cycles established by the approved maintenance schedule?			
	6.5	Were the records retained in accordance with regulatory requirements?			
	6.6	Are the service records in accordance with the approved maintenance programme?			
	6.7	Do the records contain the last inspection work packages with both routine and non-routine items for both engines and airframe?			
	6.8	Were all inspections accomplished within the time/cycles established by the approved maintenance schedule?			
	6.9	Were the records retained in accordance with regulatory requirements?			
REFERENCE	**6.**	**LIFE LIMITED PARTS STATUS RECORDS**	**S**	**NS**	**N/A**
	6.1	Is there a list of current life limited parts for the aircraft, its engines , propellers or components?			
	6.2	Does the list indicate the present operating time limit for each life limited part, indicate its number of hours, or accumulated cycles and show the number of hours or cycles remaining?			
	6.3	Is the list in accordance with maintenance manual?			
	6.4	Are there maintenance records for each life-limited part justifying its total time in service?			
	6.5	Have life-limited parts been changed within their prescribed limit?			
REFERENCE	**7.**	**OVER HAUL RECORDS**	**S**	**NS**	**N/A**
	7.1	Do the aircraft records contain a list of all components required to be over-hauled?			
	7.2	Does the list show the time/cycles for the required overhaul?			
	7.3	Does the list show the current time/cycle of each component?			
	7.4	Is there a maintenance record for each overhaul showing a description of the work accomplished, name of the person performing the work, and the name of the person approving the work?			
	7.5	Were all required overhaul items overhauled within the limits established by the approved maintenance schedule?			

	7.6	Are there Documentation forms for all items installed on the aircraft?			
	7.7	Were all overhauls accomplished in accordance with manufactures data and approved for return to service by a certificated entity?			
REFERENCE	**8.**	**MAJORREPAIR&MAJORMODIFICATIONRECORDS**	**S**	**NS**	**N/A**
	8.1	Is there a master list of all major repairs/major modifications performed to the aircraft its engines, propeller (if applicable) or components?			
	8.2	Is there a maintenance record for all Major Repairs and Major Modifications accomplished?			
	8.3	Was the work accomplished in accordance with approved data?			
	8.4	Was the work approved for return to service by a certificated entity?			
	8.5	Are there ICAs for each alteration and/or repair included in the certificate holder's maintenance and inspection program?			
	8.6	Supplemental Type Certificates (STC) *a. Check that STC is approved by State of Design or previous State of registry listed under LCARs -----).* *b. Check that the installations are not partial applications of the STC.* *c. Check the installations to the data and ensure that the required changes to the operating manuals (AFM supplements) and maintenance manuals address the change.* *d. Review the instructions for continued airworthiness (ICA) provided with the STC and ensure these requirements have been addressed in the operator's maintenance/inspection program and publications.* *e. Check STCs installed on the aircraft. Check for evidence that the interrelationship of the installations was reviewed and determined to be acceptable (STC requirement).* f. *Does the installation affect the Electrical Load Analysis?*			
REFERENCE	**9.**	**OTHER DOCUMENTS**	**S**	**NS**	**N/A**
	9.1	Completed Application form for 406MHz ELT			
	9.2	Evidence of Programming of Mode 'S' transponder with assigned ICAO Code			
	9.3	Evidence of Programming of 406 MHz ELT with assigned ICAO Code			
	9.4	Insurance Cover for the newly Registered Aircraft.			
	9.5	Availability of Technical Manuals (i.e. AMM, IPC, WD, SRM and other manuals for maintaining its aircraft) Verify that the operator has a system to revise and keep current all of its technical manuals. Evidence of subscription.			
	9.6	Maintenance Support Arrangement			

		AMO contract and/or Equivalent System of Maintenance			
	9.7	Continuing Airworthiness Management Arrangement (Maintenance Planning activities) *In-House Capability or if contracted to an Approved CAMO request for contract document.*			
	9.8	LCAA Approved Maintenance Programme for aircraft Type/Make/Model/Series. *Are there ICAs for each alteration and/or repair included in the certificate holder's maintenance program? Refer to item 2.43*			
	9.9	AOC Holder's application for inclusion of aircraft (registration and S/N) in Op Specs			
REFERENCE	**10.**	**GENERAL**	**S**	**NS**	**N/A**
	10.1	Is there a fireproof Identification plate affixed?			
	10.1(a)	Does the fireproof Identification plate contain? ☐ Aircraft Type ☐ Serial # ☐ Nationality Marks ☐ Model ☐ Owner's Name and Address			
	10.1(b)	Is the fireproof ID plate? ☐ Made of stainless steel or other fireproof material of suitable physical properties; ☐ Secured to the aircraft in a prominent position, near the main entrance, or, in the case of a free balloon, affixed conspicuously to the exterior of the payload.			
	10.2	Have registration marks been displayed? *Check for Size and Location as appropriate (fuselage and underwing, LCAR 4.3)*			
	10.3	Have all Placards required by the applicable standards of airworthiness been affixed to the aircraft or attached to the component in accordance with those standards?			
	10.4	Is the aircraft equipped with a Ground Proximity Warning System?			
	10.5	Is the aircraft equipped with a power failure warning device or vacuum indicator to show the power available for gyroscopic instruments from each power source?			
	10.6	Is the aircraft equipped with two generators, each of which is driven by a separate engine?			
	10.7	Is the aircraft equipped with two independent sources of energy, at least one of which is an engine driven pump?			
	10.8	Is the aircraft equipped with at least two generators, each of which is driven by a separate engine and at least half of which have a sufficient rating to supply the electrical loads of all instruments and equipment necessary for safe emergency operation of the aircraft?			
	10.9	Is the aircraft equipped with two independent sources of energy and a means of selecting either source, at			

		least one source of energy being an engine-driven pump or generator, and each source being able to drive all gyroscopic instruments?			
	10.10	Is the aircraft equipped with at least one landing light?			
	10.11	Is the aircraft equipped with heating or de-icing equipment for each carburator or an alternate air source for each pressure carburator or fuel injection system?			
	10.12	If the aircraft is to be operated into known Icing Conditions at night, is the aeroplane equipped with a means to illuminate or detect the formation of ice?			
	10.13	Is the aircraft equipped with two independent static pressure systems?			
	10.14	Is there freedom of movement in the cockpit?			
	10.15	Are avionics equipment secured properly?			
	10.16	Are there enough spare bulbs and fuses?			
	10.17	Are instrument glasses clean and free of cracks?			
	10.18	Are placards installed legible?			
	10.19	Is the aircraft equipped with Airborne Collision Avoidance System ACAS?			
	10.20	Have air traffic control (ATC) Transponders, been installed?			
	10.21	Is a mode S address code required?			
	10.22	Does the aircraft have a Flight Data Recorder (FDR) installed?			
	10.23	Does the aircraft have a Cockpit Voice Recorder (CVR) installed?			
	10.24	Is the aircraft equipped with an Altitude Alerting System or device?			
	10.25	Is the aircraft equipped with a Standby Attitude Indicator?			
	10.26	Are Altimeter, Pitot and Static Pressure Systems and other altimetry devices installed?			
	10.27	Is the aircraft equipped with an alternate source of static pressure for the altimeter, airspeed and vertical speed indicators?			
	10.28	Is a Non-Stabilized Magnetic Direction Indicator installed and calibrated at intervals not exceeding 12 months?			
	10.29	If the aircraft is pressurized, is it equipped with Protective Breathing Equipment?			
	10.30	If the aircraft is pressurized, is it equipped with sufficient oxygen dispensing units and oxygen supply to provide, in the event of cabin pressurization failure, sufficient oxygen to continue the flight to an aerodrome suitable for landing?			
	10.31	If the aircraft is Unpressurized, does it carry sufficient portable oxygen units for each cabin crew?			

	10.32	Has First Aid Oxygen been provided?			
	10.33	Are all pilot seats and any seat beside the pilot seat equipped with a safety belt that includes a Shoulder Harness?			
	10.34	Are there appropriate #s of Hand Held Fire Extinguisher accessible for immediate in the passenger compartment?			
	10.35	Has the aeroplane been equipped with Life Preservers, Flotation Devices, Life Rafts, Flash Lights and require Survival & Emergency Equipment?			
	10.36	Are Emergency Locator Transmitters (ELT) installed?			
	10.37	Is the aircraft equipped with a windshield wiper or rain removal system for each pilot station?			
	10.38	Is the aircraft equipped with a placard on each door that provides passenger access to a passenger emergency exit, stating that the door must be secured or locked open during take-off and landing?			
	10.39	If the aircraft is pressurized and will carry passengers, has First Aid Oxygen been provided?			
	10.40	Is the aircraft equipped with an Interphone System that can be operated independently of the public address system?			
	10.41	Is the aircraft equipped with a Public Address System that can be operated independently of the interphone system?			
	10.42	Are all cabin crew seats equipped with a Crew Member Shoulder Harness that includes dual upper torso straps with single point release?			
	10.43	Is the aircraft equipped with a Seat and Safety Belt for each person on board the aircraft?			
	10.44	If the aircraft is Pressurized, is it equipped with sufficient Oxygen Dispensing Units and oxygen supply to provide, in the event of cabin pressurization failure, sufficient oxygen to continue the flight to an aerodrome suitable for landing?			
	10.45	Has the aircraft been equipped with Lavatory Fire Equipment?			
	10.46	Does all passenger compartment seat cushions meet the standards respecting Flammability Requirements for Aeroplane Seat Cushions?			
	10.47	Is aircraft equipped with Floor Proximity Emergency Escape Path Markings?			
	10.48	Is the aircraft equipped with correct #s of Portable Megaphones?			
	10.49	Is the aircraft equipped with the correct numbers of First Aid Kits?			
	10.50	For a seating configuration of more than 100 passengers, has the aeroplane been equipped with an Emergency Medical Kit?			
	10.51	Is the aircraft equipped with a Crash Axe?			
	10.52	Is the aircraft equipped with the correct type and numbers of Hand Held Fire Extinguishers?			

	10.53	Has the aircraft been inspected and certified by a person authorized to do so under?			

Upon satisfactory outcome of the Inspection, the AWI shall ensure the following documents are issued to the Operator/Applicant and are put on board the aircraft. Mark 'Yes' if issued and on board and 'No' otherwise. Mark 'N/A' if not required. Also ensure letters to ICAO and State of design are prepared and sent. Mark as appropriate. Referenced materials below each item listed in section 5 below provides a guidance on its preparation.

REFERENCE	11.	POST INSPECTION DOCUMENTS	S	NS	N/A
	11.1	Certificate of Registration *Refer to Form/Reg/10*			
	11.2	Certificate of Airworthiness *Refer to Form/Reg/11*			
	11.3	Noise (Environmental Protection) Certificate *Refer to Form/Reg/12*			
	11.4	Letter of Assignment of 24 bit ICAO Mode 'S' code *Refer to Form/Reg/01*			
	11.5	Notification of 24 bit ICAO Mode 'S' code Assignment *Refer to Form/Reg/04*			
	11.6	Notification of EGPWS Installation *Refer to Form/Reg/13*			
	11.7	Letter of Notification of State of Design *Refer to Form/Reg/09*			
	11.8	Letter of Notification of Manufacturer *Refer to Form/Reg/05*			
	11.9	Letter of Notification of ICAO of registration of aircraft *Refer to Form/Reg/06*			
	11.10	Letter to LCAA in support of application for Radio Licence *Refer to Form/Reg/07*			
	11.11	Notification of Radio Equipment on Board *Refer to Form/Reg/02*			
	11.12	Amended Operations Specifications to include aircraft			

Item Number	REMARKS

INSPECTOR(S)			
NAME/ASI#	**SIGNATURE**	**ORG REP NAME**	
		ORG REP SIGNATURE	

SUMMARY SHEET OF AIRCRAFT REGISTRATION AND INITIAL CERTIFICATE OF AIRWORTHINESS (DOCUMENTATION CHECKLIST)

ITEM NO.	DESCRIPTION	STATUS		PAGE NO.	REMARKS
		YES	NO		
1	APPLICATION FOR REGISTRATION OF AIRCRAFT				
2	APPLICATION FOR ISSUE OF CERTIFICATE OF AIRWORTHINESS				
3	APPLICATION FOR 406 MHz ELT				
4	STATEMENT OF NO INCIDENT/ACCIDENT				
5	TYPE ACCEPTENCE CERTIFICATE				
6	TYPE CERTIFICATE DATA SHEET				
7	CERTIFICATE OF REGISTRATION (C OF R)				

8 A	CERTIFICATE OF AIRWORTHINESS (C OF A)			
8 B	EVIDENCE OF CODING OF MODE "S" TRANSPONDER			
9	EVIDENCE OF CODING OF ELT			
10	406 MHz ELT CERTIFICATE			
11	NOISE CERTIFICATE			
12	RADIO LICENCE			
13	AUTHORIZATION FOR RVSM/CERTIFICATE			
14	AUTHORIZATION FOR EGPWS			
15	CERTIFICATE OF FM IMMUNITY			
16	DE-REGISTRATION CERTIFICATE			
17 A	EXPORT CERTIFICATE OF AIRWORTHINESS			
17 B	BILL OF SALE (PROOF OF OWNERSHIP)			
17 C	AIRCRAFT OWNERSHIP HISTORY			
18	LEASE AGREEMENT BETWEEN ACTUAL OWNER AND REGISTERED OWNER			
19	PREVIOUS C OF R			
20	PREVIOUS C OF A			
21	PREVIOUS RADIO LICENCE			
22	MAJOR MODIFICATION			
23	WEIGHT AND BALANCE CERTIFICATE			
24	COMPLIANCE STATUS FOR CPCP			
25	COMPLIANCE STATUS FOR Ads/SBS			
26	COMPLIANCE STATUS FOR SSID			
27	LIST OF LIFE LIMITED COMPONENTS			
28	LIST OF AVIONICS EQUIPMENTS			
29	TEST FLIGHT REPORT			
30	LAST COMPASS SWING REPORT			
31	MAINTENANCE RELEASE			
32	INSPECTION REPORT			
33	NOTIFICATION TO ICAO			

34	NOTIFICATION TO STATE OF DESIGN/MANUFACTURE			
35	RVSM APPROVAL NOTIFICATION TO RMA			
36	IDERA (IRREVOCABLE DE-REGISTRATION AND EXPORT REQUEST AUTHORIZATION)			

NOTE: Supporting documents for issue must be placed on Registration file.

Item Number	**INSPECTOR'S REMARKS**

INSPECTOR(S)			
NAME/ASI#	**SIGNATURE**	**ORG REP NAME**	

		ORG REP SIGNATURE	

APPENDIX 9-B: JOB AID: AW-010B-RW - Aircraft Registration and Initial Certificate of Airworthiness (Rotary Wing)

Aircraft Registration and Initial Certificate of Airworthiness (ROTARY WING)

DATE:

FILE REFERENCE:

SECTION A – OWERNERSHIP

PRESENT OWNER	**NAME**	**CONTACT DETAILS**
REGISTERED OWNER	**NAME**	**CONTACT DETAILS**
PRESENT LOCATION OF AIRCRAFT		
REMARKS:		

SECTION B – AIRFRAME

MANUFACTURER	
YEAR OF MANUFACTURE	
AIRCRAFT TYPE/MAKE/MODEL	

AIRCRAFT SERIAL NUMBER	
FUSELAGE NUMBER	
PRESENT REGISTRATION MARKS	
RESERVED REGISTRATION MARKS	**A8-**
AIRCFART TIME SINCE NEW (TSN)	
AIRCRAFT CYCLES SINCE NEW (CSN)	
REMARKS:	

SECTION C – ENGINE: TYPE

POSITION		**#1**	**#2**	**#3**	**#4**	**APU**
MANUFACTURER						
YEAR OF MANUFACTURE						
MODEL NUMBER						
SERIAL NUMBER						
DATE INSTALLED						
TIME SINCE NEW (TSN)						
CYCLES SINCE NEW (CSN)						
TIME SINCE OVERHAUL (TSO)						
CYCLES SINCE OVERHAUL (CSO)						
COMPRESSOR	**Ng**					
	N1					
TURBINE	**Nf**					
	Nr					
REMARKS:						

* Note: Compressor Ng = "the gas producer speed".
Compressor N1 = "the rotational speed of the 1st stage compressor speed".
Turbine Nf = "percentage of rotation speed of the power turbine".
Turbine Nr = "rotational speed of the rotor".

SECTION D–SKID / TYRE:

POSITION	NOSE	LEFT MAIN	RIGHT MAIN	CENTER
MANUFACTURER				
MODEL NUMBER				
SERIAL NUMBER				
DATE INSTALLED				
TIME SINCE NEW (TSN)				
TIME SINCE OVERHAUL (TSO)				
TIME REMAINING				
REMARKS:				

SECTION E– MAIN ROTOR BLADES: TYPE:

MANUFACTURER				
MODEL NUMBER				
SERIAL NUMBER				
DATE INSTALLED				
TIME SINCE NEW (TSN)				
TIME SINCE OVERHAUL (TSO)				
TIME REMAINING				
REMARKS:				

SECTION F– TAIL ROTOR BLADES: TYPE:

MANUFACTURER				
MODEL NUMBER				

SERIAL NUMBER				
DATE INSTALLED				
TIME SINCE NEW (TSN)				
TIME SINCE OVERHAUL (TSO)				
TIME REMAINING				
REMARKS:				

PLEASE CHECK THE APPROPRIATE BOX FOR THE FOLLOWING; SATISFACTORY (S), NOT SATISFACTORY (NS) OR NOT APPLICABLE (N/A). INDICATE REGULATORY OR OTHER REFERENCE(S) FOR NOT SATISFACTORY (NS) ITEMS WHERE APPLICABLE. PROVIDE FURTHER DETAILS IN THE REMARKS SECTION IF REQUIRED.

		CHECKLIST ITEMS			
REFERENCE	**1**	**GENERAL**	**S**	**NS**	**N/A**
	1.1	Check Data Plate.			
	1.2	Check for proper Registration Markings.			
REFERENCE	**2**	**AIRCRAFT RECORDS**	**S**	**NS**	**N/A**
	2.1	Were the records listed in Aircraft Records Job Aid in compliance with currentdirectives?			
	2.2	Is Aircraft Records Job Aid attached?			
	2.3	Is the electrical load analysis current?			
	2.4	Maintenance Records.			
	2.5	Modification and Repair Records.			
	2.6	Previous Aircraft Radio License.			
	2.7	Proof of Ownership.			
	2.8	Lease Agreement.			
	2.9	Proof of De-registration of Aircraft.			
	2.10	Aircraft Flight Records.			
	2.11	Engine Records.			

	2.12	Propeller Log Book Entries.			
	2.13	Flight Manual.			
	2.14	Avionic Equipment List.			
	2.15	Current Insurance Coverage.			
	2.16	Noise Requirements.			
REFERENCE		**AIRCRAFT RECORDS (Conti…)**	**S**	**NS**	**N/A**
	2.17	Maintenance Manuals.			
	2.18	Maintenance Support.			
	2.19	Maintenance Programme.			
	2.20	Modification and Repair Record.			
	2.21	Status of SB Compliance.			
	2.22	Status of AD Compliance.			
	2.23	Status of life control component.			
	2.24	Mass and Balance Report.			
	2.25	Flight Test Report.			
	2.26	Aircraft Technical Log Book.			
	2.27	Certificate of Release to Service.			
	2.28	RVSM Modification.			
	2.29	Aircraft Maintenance Check History.			
	2.30	A.O.C			
	2.31	M.E. L			
	2.32	Type Certificate.			
	2.33	Export Certificate of Airworthiness.			
	2.34	Previous C of A.			
	2.35	Previous C of R.			
REFERENCE	**3**	**COCKPIT**	**S**	**NS**	**N/A**
	3.1	Are all placards in place and legible?			
	3.2	Are instruments clear?			
	3.3	Is Emergency Equipment in place? Smoke mask, O2 Mask, Crash ax)			

	3.4	Freedom of movement in Cockpit.			
	3.5	Are required manuals in place? (MEL/CDL,AFM,AOM,MM)			
	3.6	Is the general condition of the area clean- ☐ Rudder pedals not blocked- ☐ All control panels legible- ☐ Wire bundles properly tied backCB's properly marked and legible?			
	3.7	Are access doors on the floor clearly marked and easy to open? If for emergency landing gear release, is handle available? If for viewing nose gear lock mechanism is viewer clean and usable?			
	3.8	General appearance of Instrument Glasses.			
	3.9	Spare bulbs.			
	3.10	General appearance of of Cockpit.			
	3.11	CVR Operation.			
	3.12	FDR Operation.			
REFERENCE	**4**	**SEAT AREA**	**S**	**NS**	**N/A**
	4.1	Are passenger signsworking and in view of each seated passenger?			
	4.2	Are Emergency Exit signsworking and properly placed?			
	4.3	Do Passenger seats have side restraints in place?			
	4.4	Is passenger seat brake over proper for area located?			
	4.5	Condition of seat.			
	4.6	Is Passenger Seat, seat belts properly rated and certified?			
	4.7	Is the seat configuration within operator-approved programme?			
	4.8	Condition/ Security of Seat Belts.			
REFERENCE	**5**	**AIRCRAFT INTERIOR**	**S**	**NS**	**N/A**
	5.1	Is PBE in place?			
	5.2	Is there any Medical kit on board and sealed?			
	5.3	Are door operations instructions clearly marked?			
REFERENCE		**AIRCRAFT INTERIOR (Conti…)**	**S**	**NS**	**N/A**

	5.4	Is the Life Raft condition acceptable? (Proper Pressure/ within overhaul date).			
	5.5	Is there a flashlight/flashlight holder within reach of the crew.			
	5.6	Are the proper type and size fire extinguishers installed within test period andtheir location properly marked?			
	5.7	Are first aid kits installedand there location properly marked?			
	5.8	Availability/ Condition of Fire Extinguisher Agents.			
	5.9	Availability/ Condition of Life Vests.			
	5.10	Availability/ Condition of Life Rafts.			
	5.11	Availability/ Condition of Flash Lights.			
REFERENCE	**6**	**EXTERNAL AVIONIC EQUIPMENT**	**S**	**NS**	**N/A**
	6.1	Security of Avionic Equipment.			
	6.2	Is the radome free of damage, cracking or bubbles?			
	6.3	Are the pitot tubes, angle of attack sensor, and antennas damage free?			
	6.4	Are the static port areas clear and marked?			
	6.5	Are AC inlets clear?			
	6.6	Emergency locator Beacon.			
	6.7	Are Exterior Lights working? (Landing, taxi, position)			
	6.8	Are the Strobe/Beacon lights working?			
	6.9	Condition and Security of Aerials.			
REFERENCE	**7**	**EXTERIOR: FUSELAGE**	**S**	**NS**	**N/A**
	7.1	Note obvious repairs for future records check?			
	7.2	Condition of static wicks?			
	7.3	Evidence of no Oilleaks.			
	7.4	Evidence of no fuel leaks.			
	7.5	Evidence of no hydraulic leaks.			
	7.6	No obvious corrosion, or dents?			
	7.7	Are all panels properly closed, with none missing?			
	7.8	Are Exterior Emergency Exit markings properly painted? (Contrasting colorstripping, proper width)			

	7.9	Are Exterior Emergency Exit placards clear and legible?			
	7.10	Condition of Fuselage.			
	7.11	Condition of sliding doors.			
	7.12	Condition of corrosion preventive beads.			
	7.13	Condition of cowlings and fairings.			
	7.14	Condition of Horizontal Stabilizer.			
	7.15	Condition of fin.			
REFERENCE	**8**	**EXTERIOR: TAIL ROTOR BLADES(TRB)**	**S**	**NS**	**N/A**
	8.1	Are tail rotor blades free of damage?			
	8.2	Are the tail rotor blades and properly secured?			
	8.3	Condition of tail rotor blades.			
	8.4	Condition of tail rotor drive.			
REFERENCE	**9**	**EXTERIOR: MAIN ROTOR BLADES (MRB)**	**S**	**NS**	**N/A**
	9.1	Is leading edges damage free?			
	9.2	Condition of main rotor blades.			
	9.3	No visible signs of fuel leaks?			
	9.4	General Condition of Wings/ Control Surfaces.			
	9.5	Condition of main rotor heed.			
	9.6	Condition of swashplate& pitch links.			
	9.7	Condition of main rotor mast.			
	9.8	Condition of star flex star.			
	9.9	Condition of rotor shaft.			
REFERENCE	**10**	**CARGO COMPARTMENT**	**S**	**NS**	**N/A**
	10.1	Are cargo areas clean and walls/sealing free of tears and/ or dents?			
	10.2	Has all repairs been made with fire resistant tape?			
	10.3	Is a fire detection system installed?			
	10.4	Is a fire suppression system installed?			
	10.5	Condition of Cargo restraining net.			
REFERENCE	**11**	**WHEEL WELLS**	**S**	**NS**	**N/A**

	11.1	Is tire wear within limits?			
	11.2	Is brake wear within limits?			
	11.3	Is strut clean properly inflated?			
	11.4	Is linkage clean with no obvious defects?			
	11.5	Condition of landing slides.			
	11.6	Are placards installedand legible?			
	11.7	Is the general area clean with no fluid leaks?			
	11.8	Are grease fittings clean and have they been recently greased?			
	11.9	Is the truck area clean no fluid leaks?			
	11.10	Are accumulators properly charged?			
	11.11	Are safety devices/nets clean and properly installed?			
	11.12	General condition of undercarriage.			
REFERENCE	**12**	**ENGINES**	**S**	**NS**	**N/A**
	12.1	Are inlets clean, debris free, no blade damage?			
	12.2	Is the inlet free of pools of fluid?			
	12.3	Are all cowl latches secured?			
	12.4	Condition of engine mounts.			
	12.5	Is the exhaust outlet clean, debris free, no blade damage?			
	12.6	Is the exhaust outlet free of fluid?			
	12.7	Is the ground under engine free of debris, no pools of fluid?			
	12.8	Condition of magnetic plugs.			
REFERENCE	**13**	**MAIN GEAR BOX**	**S**	**NS**	**N/A**
	13.1	Condition of the main gear box.			
	13.2	Condition of main gear box coupling.			
	13.3	Condition of main gear box support diagonal cross member.			
	13.4	Condition of main gear box support bar.			

Item Number	INSPECTOR'S REMARKS

INSPECTOR(S)		ORG REP NAME	
NAME/ASI#	SIGNATURE	ORG REP SIGNATURE	

SUMMARY SHEET OF AIRCRAFT REGISTRATION AND INITIAL CERTIFICATE OF AIRWORTHINESS (DOCUMENTATION CHECKLIST)

ITEM NO.	DESCRIPTION	STATUS		PAGE NO.	REMARKS
		YES	NO		
1	APPLICATION FOR REGISTRATION OF AIRCRAFT				
2	APPLICATION FOR ISSUE OF CERTIFICATE OF AIRWORTHINESS				
3	APPLICATION FOR 406 MHz ELT				
4	STATEMENT OF NO INCIDENT/ACCIDENT				
5	TYPE ACCEPTENCE CERTIFICATE				
6	TYPE CERTIFICATE DATA SHEET				
7	CERTIFICATE OF REGISTRATION (C OF R)				
8 A	CERTIFICATE OF AIRWORTHINESS (C OF A)				
8 B	EVIDENCE OF CODING OF MODE "S" TRANSPONDER				
9	EVIDENCE OF CODING OF ELT				
10	406 MHz ELT CERTIFICATE				
11	NOISE CERTIFICATE				
12	RADIO LICENCE				
13	AUTHORIZATION FOR RVSM/CERTIFICATE				
14	AUTHORIZATION FOR EGPWS				
15	CERTIFICATE OF FM IMMUNITY				
16	DE-REGISTRATION CERTIFICATE				
17 A	EXPORT CERTIFICATE OF AIRWORTHINESS				
17 B	BILL OF SALE (PROOF OF OWNERSHIP)				
17 C	AIRCRAFT OWNERSHIP HISTORY				
18	LEASE AGREEMENT BETWEEN ACTUAL OWNER AND REGISTERED OWNER				
19	PREVIOUS C OF R				
20	PREVIOUS C OF A				

21	PREVIOUS RADIO LICENCE			
22	MAJOR MODIFICATION			
23	WEIGHT AND BALANCE CERTIFICATE			
24	COMPLIANCE STATUS FOR CPCP			
25	COMPLIANCE STATUS FOR Ads/SBS			
26	COMPLIANCE STATUS FOR SSID			
27	LIST OF LIFE LIMITED COMPONENTS			
28	LIST OF AVIONICS EQUIPMENTS			
29	TEST FLIGHT REPORT			
30	LAST COMPASS SWING REPORT			
31	MAINTENANCE RELEASE			
32	INSPECTION REPORT			
33	NOTIFICATION TO ICAO			
34	NOTIFICATION TO STATE OF DESIGN/MANUFACTURE			
35	RVSM APPROVAL NOTIFICATION TO RMA			
36	IDERA (IRREVOCABLE DE-REGISTRATION AND EXPORT REQUEST AUTHORISION)			

NOTE: Supporting documents for issue must be placed on Registration file.

Item Number	INSPECTOR'S REMARKS

INSPECTOR(S)			
NAME & ASI #	SIGNATURE & STAMP	ORG REP NAME	
		ORG REP SIGNATURE	

APPENDIX 9-C: JOB AID: AW-010C-BLN - Aircraft Registration and Initial Certificate of Airworthiness (BLN)

Aircraft Registration and Initial Certificate of Airworthiness

SECTION A – GENERAL AND AIRCRAFT INFORMATION

DATE:

FILE REFERENCE:

PRESENT OWNER	**NAME**	**CONTACT DETAILS**
REGISTERED OWNER	**NAME**	**CONTACT DETAILS**
AIRCRAFT TYPE/MAKE/MODEL		
AIRCRAFT SERIAL NUMBER		
YEAR OF MANUFACTURE		
PRESENT REGISTRATION MARKS		
RESERVED REGISTRATION MARKS		
TIME SINCE NEW (TSN)		

SECTION B: ENVELOPE MANUFACTURER:

MODEL	
SERIAL NUMBER	
TIME SINCE LAST INSPECTION	
TIME SINCE NEW (TSN)	

SECTION C: BURNER MANUFACTURER:

MODEL	
SERIAL NUMBER	
BURNER FRAME MODEL NUMBER	

TIME SINCE LAST INSPECTION	
TIME SINCE NEW (TSN)	
LAST HOSE INSPECTION DATE	

SECTION D: BASKET MANUFACTURER:

MODEL	
SERIAL NUMBER	
TIME SINCE NEW (TSN)	
TIME SINCE LAST INSPECTION	

SECTION D: CYLINDER MANUFACTURER:

POSITION	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**
MODEL NUMBER						
SERIAL NUMBER						
TOTAL FLIGHTS:						
TOTAL HOURS (TSN)						
BUILD DATE						
PRESSURE TEST (PPT) OK UNTIL						
PRESSURE RELIEF VALVE (PRV) OK UNTIL						
REMARKS:						

PLEASE CHECK THE APPROPRIATE BOX FOR THE FOLLOWING; SATISFACTORY (S), NOT SATISFACTORY (NS) OR NOT APPLICABLE (N/A). INDICATE REGULATORY OR OTHER REFERENCE(S) FOR NOT SATISFACTORY (NS) ITEMS WHERE APPLICABLE. PROVIDE FURTHER DETAILS IN THE REMARKS SECTION IF REQUIRED.					
		CHECKLIST ITEMS			
REFERENCE	**1**	**GENERAL**	**S**	**NS**	**N/A**
	1.2	Check Data Plate.			

	1.2	Check for proper Registration Markings.			
REFERENCE	**2**	**AIRCRAFT RECORDS**	**S**	**NS**	**N/A**
	2.1	Maintenance Records.			
	2.2	Modification and Repair Records.			
	2.3	Previous Aircraft Radio License.			
	2.4	Proof of Ownership.			
	2.5	Lease Agreement.			
	2.6	Proof of De-registration of Aircraft.			
	2.7	Aircraft Flight Records.			
	2.8	Burner Records.			
	2.9	Basket Records			
	2.10	Flight Manual.			
	2.11	Current Insurance Coverage.			
	2.12	Noise Requirements.			
	2.13	Maintenance Manuals.			
	2.14	Maintenance Support.			
	2.15	Maintenance Programme.			
	2.16	Status of SB Compliance.			
	2.17	Status of AD Compliance.			
	2.18	Status of life control component.			
	2.19	Mass and Balance Report.			
	2.20	Flight Test Report.			
	2.21	Aircraft Technical Log Book.			
	2.22	Certificate of Release to Service.			
	2.23	Type Certificate			
	2.24	Export Certificate of Airworthiness			
	2.25	Previous C of A			
	2.26	Previous C of R			
		PHYSICAL INSPECTION			
REFERENCE	**3**	**BURNER FRAME**	**S**	**NS**	**N/A**

	3.1	Inspect welds for cracking			
	3.2	Inspect tubes for distortion / deformation / gouges			
	3.3	Inspect frame for security of fasteners (heat shields, flexi corners)			
	3.4	Inspect frame lugs for wear, cracking.			
	3.5	Inspect general condition (corrosion, heat shields)			
REFERENCE	**4**	**GIMBALLING**	**S**	**NS**	**N/A**
	4.1	Check stiffness, security of fittings			
REFERENCE	**5**	**KARABINERS**	**S**	**NS**	**N/A**
	5.1	Inspect for wear, corrosion, correct function, correct type.			
REFERENCE	**6**	**HOSES**	**S**	**NS**	**N/A**
	6.1	Inspect all Hoses, check dates (if applicable)			
REFERENCE	**7**	**PRESSURE GAUGES**	**S**	**NS**	**N/A**
	7.1	Check Pressure Gauge reads zero when no pressure applied, lens present.			
REFERENCE	**8**	**VALVES**	**S**	**NS**	**N/A**
	8.1	Inspect Pilot Valves for Security and damage.			
	8.2	Inspect Whisper Valves Shut off, free movement, Correct Function, lubricate if necessary.			
	8.3	Inspect Main Valves for Security and damage.			
REFERENCE	**8**	**VALVES (Conti…)**	**S**	**NS**	**N/A**
	8.4	Inspect Cross flow Valve for Security and damage.			
	8.5	Inspect Liquid Valve for damage, corrosion, correct operation.			
	8.6	Check the Pressure Relief Valve if the Date does not exceed life limit and if the single PRV is fitted.			
	8.7	Inspect Pressure Relief Valve for contamination and corrosion.			
REFERENCE	**9**	**JETS**	**S**	**NS**	**N/A**
	9.1	Check Security of Jets			
REFERENCE	**10**	**BASKET WIRES**	**S**	**NS**	**N/A**
	10.1	Inspect for damage			
REFERENCE	**11**	**BASKET FRAMES**	**S**	**NS**	**N/A**
	11.1	Inspect welds for cracking			
	11.2	Inspect tubes for distortion / deformation			

REFERENCE	12	WEAVE	S	NS	N/A
	12.1	Inspect for damage, deterioration, completeness.			
REFERENCE	13	RAWHIDE	S	NS	N/A
	13.1	Inspect for damage, deterioration, completeness.			
REFERENCE	14	FLOOR	S	NS	N/A
	14.1	Inspect for damage			
REFERENCE	15	RUNNERS	S	NS	N/A
	15.1	Inspect for damage, wear, security of attachment.			
REFERENCE	16	ROPE HANDLES	S	NS	N/A
	16.1	Inspect of damage security of attachment			
REFERENCE	17	CYLINDER	S	NS	N/A
	17.1	Check, Periodic inspection for each cylinder is valid (date)			
	17.2	Inspect cylinder for damage, corrosion.			
	17.3	Inspect Cylinder Straps for damage, deterioration, correct specification, No of straps			
REFERENCE	18	PILOT RESTRAINT ANCHOR	S	NS	N/A
	18.1	Inspect for damage, wear, security of attachment.			
REFERENCE	19	SUPPORT RODS	S	NS	N/A
	19.1	Inspect for damage, wear, cracking.			
REFERENCE	20	TRIM	S	NS	N/A
	20.1	Inspect for damage, deterioration, completeness.			
REFERENCE	21	FIRE EXTINGUISHER	S	NS	N/A
	21.1	Check Type, maintained in accordance with manufacturer's instructions			
REFERENCE	22	LAUNCH RESTRAINT	S	NS	N/A
	22.1	Inspect for damage, deterioration, security of fittings, correct operation			
REFERENCE	23	PILOT RESTRAINT	S	NS	N/A
	23.1	Inspect for damage, deterioration, security of fittings, correct operation			
REFERENCE	24	INSTRUMENTS	S	NS	N/A
	24.1	Functional Check (if fitted)			

Item Number	INSPECTOR'S REMARKS

INSPECTOR(S)			
NAME & ASI #	**SIGNATURE & STAMP**	**ORG REP NAME**	
		ORG REP SIGNATURE	

APPENDIX 9-D: JOB AID: AW-010D- Certificate of Airworthiness Renewal Inspection

DATE:	FILE REFERENCE:

SECTION A – OWERNERSHIP

	NAME	CONTACT DETAILS
OPERATOR		
	NAME	CONTACT DETAILS
OPERATOR'S REPRESENTATIVE		
OPERATOR'S MAINTENANCE ORGANIZATION		
LOCATION OF MAINTENANCE ORGANIZATION		

SECTION B – AIRFRAME

AIRCRAFT TYPE/MAKE/MODEL	
AIRCRAFT SERIAL NUMBER	
PRESENT REGISTRATION MARKS	A8-
TIME SINCE NEW (TSN)	
CYCLES SINCE NEW (CSN)	
FUSELAGE NUMBER	
REMARKS:	

SECTION C – ENGINE: TYPE

POSITION	#1	#2	#3	#4	APU
SERIAL NUMBER					

DATE INSTALLED						
TIME SINCE NEW (TSN)						
CYCLES SINCE NEW (CSN)						
COMPRESSOR	**HOURS LIMITER**					
	CYCLE LIMITER					
TURBINE	**HOURS LIMITER**					
	CYCLE LIMITER					
REMARKS:						

SECTION D – PROPELLER:
TYPE_____

POSITION	**#1**	**#2**	**#3**	**#4**
SERIAL NUMBER				
DATE INSTALLED				
TIME SINCE NEW (TSN)				
TIME SINCE OVERHAUL (TSO)				
TIME REMAINING				
REMARKS:				

SECTION E– LANDING GEARS:
TYPE:_____

POSITION	**NOSE**	**LEFT MAIN**	**RIGHT MAIN**	**CENTER**
SERIAL NUMBER				
DATE INSTALLED				
TIME SINCE NEW (TSN)				

TIME SINCE OVERHAUL (TSO)				
TIME REMAINING				
REMARKS:				

PLEASE CHECK THE APPROPRIATE BOX FOR THE FOLLOWING; SATISFACTORY (S), NOT SATISFACTORY (NS) OR NOT APPLICABLE (N/A). INDICATE REGULATORY OR OTHER REFERENCE(S) FOR NOT SATISFACTORY (NS) ITEMS WHERE APPLICABLE. PROVIDE FURTHER DETAILS IN THE REMARKS SECTION IF REQUIRED.					
		CHECKLIST ITEMS			
REFERENCE	**1**	**WEIGHT & BALANCE**	**S**	**NS**	**N/A**
	1.1	Was the aircraft weighed within the required time frame?			
	1.2	Does the paper work reflect that proper procedures were used?			
	1.3	Was a current LOPA available and used?			
	1.4	Was the configuration in accordance with the current LOPA?			
	1.5	Was a current Equipment List used?			
	1.6	Is the aircraft weight within the prescribed weight?			
REFERENCE	**2**	**AIRCRAFT RECORDS**	**S**	**NS**	**N/A**
	2.1	Were the records listed in Aircraft Records Job Aid in compliance with currentDirectives?			
	2.2	Is the electrical load analysis current?			
	2.3	Is the completed Aircraft Records Job Aid attached?			
	2.4	Records of Schedule Maintenance.			
	2.5	Records of Showing Details of Major Repairs.			
	2.6	Airframe Log Book Entries.			
	2.7	Engine Log Book Entries.			
	2.8	Propeller Log Book Entries.			
	2.9	Modification and Repair Log Book Entries.			
	2.10	SBs Compliance Status.			

	2.11	Airframe ADs Compliance Status.			
	2.12	Engine (s) ADs Compliance Status.			
	2.13	CPCP Compliance Status.			
	2.14	Life Limited Components Status.			
	2.15	Mass and Balance Report.			
	2.16	Flight Test Report.			
	2.17	Aircraft Tech Log Book.			
	2.18	Approved Flight Manual.			
	2.19	Aircraft Insurance Certificate.			
	2.20	Certificate of Release to Service.			
	2.21	Previous C of A.			
	2.22	A.O.C			
	2.23	M.E.L			
	2.24	Radio Licence.			
	2.25	Maintenance Schedule.			
	2.26	Scheduled Maintenance Compliance Status.			
REFERENCE	**3**	**ADDITIONAL AIRCRAFT RECORDS CHECK**	**S**	**NS**	**N/A**
	3.1	Does the records reflect proper fire blocking certifications for seats, seat backsand seat cushions?			
	3.2	Does the records reflect proper fire blocking certifications for rugs?			
	3.3	Is the number of cleaning to the rugs, seats and seat backs recorded so adeterminationcan be made when to re-fire block these items?			
	3.4	Are there certifications for fire blocking of other materials use in the passengercabin?			
	3.5	Do the records show up-to-date and sufficient documentation concerning FDR parameter allocation, conversion equations, periodic calibration and other serviceability / maintenance information.			
	3.6	Was the FDR medium downloaded and checked at the specified interval toensure all parameters were recording?			
	3.7	Do the records reflect proper calibration/test of the Cockpit Voice Recorder?			

	3.8	Do the records reflect proper calibration/test of the ATC Transponders?			
	3.9	Do the records reflect proper calibration/test of the compass?			
	3.10	Do the records reflect proper calibration/test of the Altimeters and AirspeedIndicating systems?			
	3.11	Do the records reflect all required Hot Section Inspections for each engine?			
	3.12	Do the records reflect all required Boroscope Inspections for each engine?			
REFERENCE	**4**	**COCKPIT**	**S**	**NS**	**N/A**
	4.1	Availability of mega phones.			
	4.2	Clarity of public address system.			
	4.3	Availability/ Security/ Condition of escape ropes.			
	4.4	General appearance of Cockpit.			
	4.5	Legibility of placards in the Cockpit.			
	4.6	General appearance of Instrument Glasses.			
	4.7	Freedom of Movement in Cockpit.			
	4.8	Spare Bulbs.			
	4.9	CVR Operational Check.			
	4.10	FDR Operational Check.			
REFERENCE	**5**	**LAVATORIES**	**S**	**NS**	**N/A**
	5.1	Smoke Detector System Test.			
REFERENCE	**6**	**GALLEYS**	**S**	**NS**	**N/A**
	6.1	Clarity of door or exit markings.			
	6.2	Placards for door operating instructions.			
	6.3	Accessibility of emergency exists.			
	6.4	Markings of emergency exists.			
REFERENCE	**7**	**SEAT AREA**	**S**	**NS**	**N/A**
	7.1	Condition of seat rails.			
	7.2	Condition of rollers and pallet locks.			

	7.3	Condition and security seats and seat belts.			
	7.4	Security/ Locking of seat tables.			
		PHYSICAL INSPECTION (AIRCRAFT INTERIOR/ EXTERIOR/ EXTERNAL AVIONIC EQUIPMENT)			
REFERENCE	**8**	**AIRCRAFT INTERIOR**	**S**	**NS**	**N/A**
	8.1	Availability/ Condition of oxygen systems.			
	8.2	Availabilty/ Conditions of fire extinguisher agents.			
	8.3	Availability/ Condition of life vests.			
	8.4	Availability/ Condition of life rafts.			
	8.5	Availability/ Condition of escape slides.			
	8.6	Availability/ Security/ Condition of escape ropes.			
	8.7	Availability/ Condition of flash lights.			
	8.8	Availability/ Condition of Axes.			
	8.9	General condition of Aircraft interior.			
	8.10	Contents of First Aid Box.			
	8.11	Landing Lights – Condition / Operational Check			
	8.12	Anti-Collision Lights – Condition/ Operational Check			
REFERENCE	**9**	**EXTERNAL AVIONIC EQUIPMENT**	**S**	**NS**	**N/A**
	9.1	Emergency Locator Beacon (ELT).			
	9.2	Security of Avionic Equipments.			
	9.3	Condition and Security of Aerials.			
REFERENCE	**10**	**EXTERIOR: FUSELAGE**	**S**	**NS**	**N/A**
	10.1	Condition of fuselage.			
	10.2	Evidence of no oil/ fuel/ hydraulic leaks.			
REFERENCE	**11**	**EXTERIOR: WINGS**	**S**	**NS**	**N/A**
	11.1	General condition of wings/ Control surfaces.			
	11.2	General condition of tyres.			
	11.3	General condition of under-carraiges.			
	11.4	Condition of Static Wicks.			

REFERENCE	12	CARGO COMPARTMENT	S	NS	N/A
	12.1	Condition/ Security of load restraining nets.			
REFERENCE	13	WHEEL WELLS	S	NS	N/A
	13.1	Condition of under- carraige bays.			
REFERENCE	14	ENGINES	S	NS	N/A
	14.1	Security and condition of cowlings.			
	14.2	Engine Fire Test.			

Item Number	INSPECTOR'S REMARKS

INSPECTOR(S)			
NAME/ASI#	**SIGNATURE**	**ORG REP NAME**	
		ORG REP SIGNATURE	

APPENDIX 9-E: JOB AID: AW-010E-RW-Certificate of Airworthiness Renewal Inspection (Rotary Wing)

DATE:

FILE REFERENCE:

SECTION A – OWERNERSHIP

OPERATOR	**NAME**	**CONTACT DETAILS**
OPERATOR'S REPRESENTATIVE	**NAME**	**CONTACT DETAILS**
OPERATOR'S MAINTENANCE ORGANIZATION		
LOCATION OF MAINTENANCE ORGANIZATION		

SECTION B – AIRFRAME

AIRCRAFT TYPE/MAKE/MODEL	
AIRCRAFT SERIAL NUMBER	
PRESENT REGISTRATION MARKS	**A8-**
TIME SINCE NEW (TSN)	
CYCLES SINCE NEW (CSN)	
FUSELAGE NUMBER	
REMARKS:	

SECTION C – ENGINE: TYPE

POSITION	**#1**	**#2**	**#3**	**#4**	**APU**
SERIAL NUMBER					
DATE INSTALLED					
TIME SINCE NEW (TSN)					

CYCLES SINCE NEW (CSN)						
*COMPRESSOR	Ng					
	N1					
*TURBINE	Nf					
	Nr					
REMARKS:						

* Note: Compressor Ng = "the gas producer speed".
Compressor N1 = "the rotational speed of the 1st stage compressor speed".
Turbine Nf = "percentage of rotation speed of the power turbine".
Turbine Nr = "rotational speed of the rotor".

SECTION D– SKID / TYRE:

POSITION	NOSE	LEFT MAIN	RIGHT MAIN	CENTER
MANUFACTURER				
MODEL NUMBER				
SERIAL NUMBER				
DATE INSTALLED				
TIME SINCE NEW (TSN)				
TIME SINCE OVERHAUL (TSO)				
TIME REMAINING				
REMARKS:				

SECTION E– MAIN ROTOR BLADES: TYPE:

MANUFACTURER				
MODEL NUMBER				
SERIAL NUMBER				
DATE INSTALLED				
TIME SINCE NEW (TSN)				
TIME SINCE OVERHAUL (TSO)				
TIME REMAINING				
REMARKS:				

SECTION F– TAIL ROTOR BLADES: TYPE:

MANUFACTURER				
MODEL NUMBER				
SERIAL NUMBER				
DATE INSTALLED				
TIME SINCE NEW (TSN)				
TIME SINCE OVERHAUL (TSO)				
TIME REMAINING				
REMARKS:				

PLEASE CHECK THE APPROPRIATE BOX FOR THE FOLLOWING; SATISFACTORY (S), NOT SATISFACTORY (NS) OR NOT APPLICABLE (N/A). INDICATE REGULATORY OR OTHER REFERENCE(S) FOR NOT SATISFACTORY (NS) ITEMS WHERE APPLICABLE. PROVIDE FURTHER DETAILS IN THE REMARKS SECTION IF REQUIRED.					
		CHECKLIST ITEMS			
REFERENCE	**1**	**WEIGHT AND BALANCE**	**S**	**NS**	**N/A**
	1.1	Was the aircraft weighed within the required time frame?			

	1.2	Does the paper work reflect that proper procedures were used?			
	1.3	Was a current LOPA available and used?			
	1.4	Was the configuration in accordance with the current LOPA?			
	1.5	Was a current Equipment List used?			
	1.6	Is the aircraft weight within the prescribed weight?			
REFERENCE	**2**	**AIRCRAFT RECORDS**	**S**	**NS**	**N/A**
	2.1	Were the records listed in Aircraft Records Job Aid in compliance with currentdirectives?			
	2.2	Is the completed Aircraft Records Job Aid attached?			
	2.3	Is the electrical load analysis current?			
	2.4	Records of scheduled Maintenance.			
	2.5	Modification and Repair Log Book enteries.			
	2.6	Radio License.			
	2.7	Records Showing Details of Major Details.			
	2.8	Airframe Log Book Enteries.			
	2.9	Aircraft Flight Records.			
	2.10	Engine Records.			
	2.11	Main and Tail Rotor Log Book Entries.			
REFERENCE		**AIRCRAFT RECORDS (Conti...)**	**S**	**NS**	**N/A**
	2.12	Approved Flight Manual.			
	2.13	Avionic Equipment List.			
	2.14	Current Insurance Coverage.			
	2.15	Noise Requirements.			
	2.16	Aircraft Flight Records.			
	2.17	Maintenance Manuals.			
	2.18	Maintenance Support.			
	2.19	Maintenance Programme.			

	2.20	Modification and Repair Record.			
	2.21	Status of SB Compliance.			
	2.22	Status of AD Compliance.			
	2.23	Status of life control component.			
	2.24	Mass and Balance Report.			
	2.25	Flight Test Report.			
	2.26	Aircraft Technical Log Book.			
	2.27	Certificate of Release to Service.			
	2.28	RVSM Modification.			
	2.29	Aircraft Maintenance Check History.			
	2.30	A.O.C			
	2.31	M.E. L			
REFERENCE	**3**	**COCKPIT**	**S**	**NS**	**N/A**
	3.1	Are all placards in place and legible?			
	3.2	Are instruments clear?			
	3.3	Is Emergency Equipment in place? Smoke mask, O2 Mask, Crash ax)			
	3.4	Freedom of movement in Cockpit.			
REFERENCE	**3**	**COCKPIT (Cont'd...)**	**S**	**NS**	**N/A**
	3.5	Are required manuals in place? (MEL/CDL,AFM,AOM,MM)			
	3.6	Is the general condition of the area clean- ☐ Rudder pedals not blocked- ☐ All control panels legible- ☐ Wire bundles properly tied backCB's properly marked and legible?			
	3.7	Are access doors on the floor clearly marked and easy to open? If for emergency landing gear release, is handle available? If for viewing nose gear lock mechanism is viewer clean and usable?			
	3.8	General appearance of Instrument Glasses.			
	3.9	Spare bulbs.			
	3.10	General appearance of Cockpit.			

	3.11	CVR Operation.			
	3.12	FDR Operation.			
REFERENCE	**4**	**SEAT AREA**	**S**	**NS**	**N/A**
	4.1	Are passenger signsworking and in view of each seated passenger?			
	4.2	Are Emergency Exit signsworking and properly placed?			
	4.3	Do Passenger seats have side restraints in place?			
	4.4	Is passenger seat brake over proper for area located?			
	4.5	Condition of seat.			
	4.6	Is Passenger Seat, seat belts properly rated and certified?			
	4.7	Is the seat configuration within operator-approved programme?			
	4.8	Condition/ Security of Seat Belts.			
REFERENCE	**5**	**AIRCRAFT INTERIOR**	**S**	**NS**	**N/A**
	5.1	Is PBE in place?			
	5.2	Is there any Medical kit on board and sealed?			
REFERENCE		**AIRCRAFT INTERIOR (Conti…)**	**S**	**NS**	**N/A**
	5.3	Are door operations instructions clearly marked?			
	5.4	Is the Life Raft condition acceptable? (Proper Pressure/ within overhaul date).			
	5.5	Is there a flashlight/flashlight holder within reach of the crew.			
	5.6	Are the proper type and size fire extinguishers installed within test period andtheir location properly marked?			
	5.7	Are first aid kits installedand there location properly marked?			
	5.8	Availability/ Condition of Fire Extinguisher Agents.			
	5.9	Availability/ Condition of Life Vests.			
	5.10	Availability/ Condition of Life Rafts.			
	5.11	Availability/ Condition of Flash Lights.			
REFERENCE	**6**	**EXTERNAL AVIONIC EQUIPMENT**	**S**	**NS**	**N/A**
	6.1	Security of Avionic Equipment.			
	6.2	Is the radome free of damage, cracking or bubbles?			

	6.3	Are the pitot tubes, angle of attack sensor, and antennas damage free?			
	6.4	Are the static port areas clear and marked?			
	6.5	Are AC inlets clear?			
	6.6	Emergency locator Beacon.			
	6.7	Are Exterior Lights working? (Landing, taxi, position)			
	6.8	Are the Strobe/Beacon lights working?			
	6.9	Condition and Security of Aerials.			
REFERENCE	**7**	**EXTERIOR: FUSELAGE**	**S**	**NS**	**N/A**
	7.1	Note obvious repairs for future records check?			
	7.2	Condition of static wicks?			
	7.3	Evidence of no Oil leaks.			
	7.4	Evidence of no fuel leaks.			
REFERENCE	**7**	**EXTERIOR: FUSELAGE (Cont'd…)**	**S**	**NS**	**N/A**
	7.5	Evidence of no hydraulic leaks.			
	7.6	No obvious corrosion, or dents?			
	7.7	Are all panels properly closed, with none missing?			
	7.8	Are Exterior Emergency Exit markings properly painted? (Contrasting colorstripping, proper width)			
	7.9	Are Exterior Emergency Exit placards clear and legible?			
	7.10	Condition of Fuselage.			
	7.11	Condition of sliding doors.			
	7.12	Condition of corrosion preventive beads.			
	7.13	Condition of cowlings and fairings.			
	7.14	Condition of Horizontal Stabilizer.			
	7.15	Condition of fin.			
REFERENCE	**8**	**EXTERIOR: TAIL ROTOR BLADES(TRB)**	**S**	**NS**	**N/A**
	8.1	Are tail rotor blades free of damage?			
	8.2	Are the tail rotor blades and properly secured?			
	8.3	Condition of tail rotor blades.			

	8.4	Condition of tail rotor drive.			
REFERENCE	**9**	**EXTERIOR: MAIN ROTOR BLADES (MRB)**	**S**	**NS**	**N/A**
	9.1	Is leading edges damage free?			
	9.2	Condition of main rotor blades.			
	9.3	No visible signs of fuel leaks?			
	9.4	General Condition of Wings/ Control Surfaces.			
	9.5	Condition of main rotor heed.			
	9.6	Condition of swash plate & pitch links.			
	9.7	Condition of main rotor mast.			
	9.8	Condition of star flex star.			
REFERENCE	**9**	**EXTERIOR: MAIN ROTOR BLADES (MRB) (Cont'd…)**	**S**	**NS**	**N/A**
	9.9	Condition of rotor shaft.			
REFERENCE	**10**	**CARGO COMPARTMENT**	**S**	**NS**	**N/A**
	10.1	Are cargo areas clean and walls/sealing free of tears and/ or dents?			
	10.2	Has all repairs been made with fire resistant tape?			
	10.3	Is a fire detection system installed?			
	10.4	Is a fire suppression system installed?			
	10.5	Condition of Cargo restraining net.			
REFERENCE	**11**	**WHEEL WELLS**	**S**	**NS**	**N/A**
	11.1	Is tire wear within limits?			
	11.2	Is brake wear within limits?			
	11.3	Is strut clean properly inflated?			
	11.4	Is linkage clean with no obvious defects?			
	11.5	Condition of landing slides.			
	11.6	Are placards installedand legible?			
	11.7	Is the general area clean with no fluid leaks?			
	11.8	Are grease fittings clean and have they been recently greased?			
	11.9	Is the truck area clean no fluid leaks?			
	11.10	Are accumulators properly charged?			

	11.11	Are safety devices/nets clean and properly installed?			
	11.12	General condition of undercarriage.			
REFERENCE	**12**	**ENGINES**	**S**	**NS**	**N/A**
	12.1	Are inlets clean, debris free, no blade damage?			
	12.2	Is the inlet free of pools of fluid?			
	12.3	Are all cowl latches secured?			
	12.4	Condition of engine mounts.			
REFERENCE	**12**	**ENGINES (Cont'd...)**	**S**	**NS**	**N/A**
	12.5	Is the exhaust outlet clean, debris free, no blade damage?			
	12.6	Is the exhaust outlet free of fluid?			
	12.7	Is the ground under engine free of debris, no pools of fluid?			
	12.8	Condition of magnetic plugs.			
REFERENCE	**13**	**MAIN GEAR BOX**	**S**	**NS**	**N/A**
	13.1	Condition of the main gear box.			
	13.2	Condition of main gear box coupling.			
	13.3	Condition of main gear box support diagonal cross member.			
	13.4	Condition of main gear box support bar.			

Item Number	**INSPECTOR'S REMARKS**

INSPECTOR(S)			
NAME/ASI#	SIGNATURE	ORG REP NAME	
		ORG REP SIGNATURE	

APPENDIX 9-F: JOB AID: AW-015- Acceptance of Foreign-Registered Aircraft Inspection

FILE REFERENCE: _____

Date of Evaluation		**Control #**	
Name of Operator		**AOC #**	
State of Operator		**Type of Aircraft**	
Org. Identifier		**Aircraft Reg #**	
Location			
Destination			
Action Taken			

KEY PERSONNEL MET:

	NAME	TITLE
1.		
2.		
3.		
4.		
5.		
6.		

PLEASE CHECK THE APPROPRIATE BOX FOR THE FOLLOWING; SATISFACTORY (S), NOT SATISFACTORY (NS) OR NOT APPLICABLE (N/A). INDICATE REGULATORY OR OTHER REFERENCE(S) FOR NOT SATISFACTORY (NS) ITEMS WHERE APPLICABLE. PROVIDE FURTHER DETAILS IN THE REMARKS SECTION IF REQUIRED.					
REFERENCE	**1**	**CHECKLIST ITEMS**	**S**	**NS**	**N/A**
	1.1	Is the Airworthiness Certificate issued by the country of registry.			
	1.2	Does the registration and identification meet the requirements of that country?			
	1.3	Does the aircraft meet requirements for issuance of a Liberia standard airworthiness certificate?			
	1.4	Does the aircraft conform to its type design approved under a valid type certificate?			
	1.5	Does the aircraft comply with applicable maintenance, operating, and equipment rules?			
REFERENCE		**CHECKLIST ITEMS (Conti…)**	**S**	**NS**	**N/A**
	1.6	Does the aircraft comply with Airworthiness Directives of the State of Manufacture or Design?			
	1.7	Does the aircraft comply with life-limited parts requirements?			
	1.8	Does the aircraft comply with the noise, fuel venting, and engine emission requirements of FAA SFAR §§ 36.1(d) and 36.7? ● *Any further noise and/or emission requirements adopted or amended by the FAA for U.S. registered aircraft shall apply equally to Liberia registered aircraft.*			
	1.9	Has the Foreign Maintenance Programme (If Adopted) been inspected?			
	1.10	Does the programme meets levels of safety equivalent to the AOC holder's existing programme? ● *If the AOC holder does not have a programme for the aircraft listed, the lessor's foreign programme must be submitted to the LCAA and be justified as an acceptable initial* maintenance programme.			
	1.11	Has the AOC holder Filed a Lease or Charter Agreement with the LCAA?			
	1.12	Does It satisfy the foreign country's requirements, including any special documentation required by that country to be carried on the aircraft?			

Item Number	REMARKS		
INSPECTOR(S)		ORG REP NAME	
NAME/ASI#	SIGNATURE	ORG REP SIGNATURE	

APPENDIX 9-G: FORM FSS/REG-008- SAMPLE C OF A COVER LETTER

Ref: xxxxxxxxxxxxxxxxx dd/mm/yyyy

The Accountable Manager
Operator's name xxxxxxxxxxx
P. O. Box xxxxxxx
Liberia.

Dear Sir,

CERTIFICATE OF AIRWORTHINESS FOR BOMBARDIER DHC-8-400 AIRCRAFT WITH REGISTRATION MARKING A8-XXX, S/N XXXX

Following the satisfactory outcome of the inspection of the above-mentioned aircraft by our team of Inspectors for the purpose of registration and issuance of Certificate of Airworthiness we enclose herewith Certificate of Airworthiness for the aircraft.

The certificate is valid from 10th of August, 2018 to the 9th of August, 2019 subject to the provisions of LCAR 5.3.6.

Yours faithfully,

xxxxxxxxxxxxxxxx
Director, Flight Safety Standards Directorate
For: Director-General.

Cc: Director-General

APPENDIX 9-H: FORM FSS/REG-009- Sample Letter of Notification to The State of Design of Aircraft

Ref: xxxxxxxxxxxxxxxxxx dd/mm/yyyy

Address of CAA OF State of Design

Dear Sir,

REGISTRATION OF A BOMBADIER DHC8-402 AIRCRAFT

The Bombadier DHC8-402 aircraft with serial numbers xxxx has now been put onto the Liberia Civil Aircraft Register as follow:

SERIAL NO.	PREVIOUS REGISTRATION MARKING	LIBERIA REGISTRATION MARKING
xxxx	C-FXIC	A8-xxx

We kindly advise you to amend your records accordingly.

The Liberia Civil Aviation Authority hereby kindly requests to be sent all continuing airworthiness information in respect of this aircraft type to the contact below:

The Technical Librarian
Liberia Civil Aviation Authority
Robertfield , Margibi County
Republic of Liberia

Email: lcaalibrary@lcaa.gov.lr

Yours faithfully,

xxxxxxxxxxxxxxxx
Director, Flight Safety Standards Directorate
For: Director-General.

Cc: Director-General
Deputy Director-General (T)

APPENDIX 9-I: FORM FSS/REG-001- Sample Letter for Mode S Assignment to Operator

Ref: xxxxxxxxxxxxxxxx dd/mm/yyyy

The Accountable Manager
Operator's name xxxxxxxxxxx
P. O. Box xxxxxxx
Liberia.

Dear Sir,

ASSIGNMENT OF 24 BIT MODE S CODE

Please be informed that Mode S code has been assigned to your Bombadier DHC8-402 aircraft as detailed below:

Serial Number of Aircraft: xxx
Registration Marking: A8-xxx
Assigned Code: 0000, 0100, 0100, 0000, 0101 1101

Kindly acknowledge receipt.

Yours faithfully,

xxxxxxxxxxxxxxxx
Director, Flight Safety Standards Directorate
For: Director-General.

Cc: Director-General

Deputy Director-General (T)

APPENDIX 9-J: FORM FSS/REG-009- Sample Radio Equipment Cover Letter

Ref: xxxxxxxxxxxxxxxxx dd/mm/yyyy

TO WHOM IT MAY CONCERN

RADIO EQUIPMENT ON BOARD BOMBARDIER DHC8-402 AIRCRAFT, SERIAL NUMBER xxxx, REGISTRATION MARKING A8-xxx

This is to attest that the above mentioned aircraft is equipped with the following radio equipment:

Description	Vendor PN	QTY
VHF Comm	CDU3933AE05	2
SOLID STATE CVR	980-6022-011	1
Passenger Audio Entertainment System	PAS3921AB02	1
RADAR WX	7021450-601	1
Radar Control Panel WX	7008471-687	1
TCAS II Computer 7.1	066-01146-2221	1
Radio Altimeter NAV RA	066-01153-0101	2
Receiver NAV VHF	066-1101-0060	2
Receiver NAV ADF *1*	066-1105-0010	2
Transceiver NAV DME	066-1107-0021	2
Receiver NAV ATC	066-01143-2101	2
HF Radio	KHF 950	0
ELT	S1821502-02	1
Passenger Address Amplifier	PA4028AB01	1

The reference number and date of this letter must be quoted in all correspondence in reference to the above.

Yours faithfully,

XXXXXXXXXXXXXXXX
Director, Directorate of Flight Safety Standards
For: Director-General.

Cc: Director-General

Deputy Director-General (T)

APPENDIX 9-K: FORM FSS/REG-003- Sample C of R Cover Letter

Ref: xxxxxxxxxxxxxxxxx dd/mm/yyyy

The Accountable Manager
Operator's name xxxxxxxxxxx
P. O. Box xxxxxxx
Liberia.

Dear Sir,

CERTIFICATE OF REGISTRATION FOR BOMBARDIER DHC-8-400 AIRCRAFT WITH REGISTRATION MARKING A8-xxx, S/N xxxx

The above aircraft and its maintenance documents were inspected from 17th -24th of February, 2018 for the purpose of registration and initial issuance of Certificate of Airworthiness.

The inspection was satisfactory. The aircraft has therefore been registered and duly entered on the Liberia Civil Aircraft Register with the registration marking A8-XXX. We hereby enclose herewith the Certificate of Registration for the aircraft.

The certificate shall remain in force subject to the provisions of the Liberia Civil Aviation Regulation, LCAR Part 4, subsection 4.6.1.

Yours faithfully,

xxxxxxxxxxxxxxxx
Director, Flight Safety Standards Directorate
For: Director-General.

Cc: Director-General

APPENDIX 9-L: FORM FSS/REG-013- Sample Letter of EGWS/ TAWS Installation

Ref: xxxxxxxxxxxxxxxx dd/mm/yyyy

TO WHOM IT MAY CONCERN

INSTALLATION OF EGPWS ON BOMBADIER DHC8-402 AIRCRAFT, S/N: xxxx AND REGISTRATION MARKING A8-xxx

This is to certify that EGPWS is installed on the above aircraft formerly bearing the registration mark C-FXIC.

The reference number and date of this letter must be quoted in all correspondence in reference to the above.

Yours faithfully,

xxxxxxxxxxxxxxx
Director, Flight Safety Standards Directorate
For: Director-General.

Cc: Director-General
Deputy Director-General (T)

APPENDIX 9-M: FORM FSS/REG-006- Sample Letter of Notification of Aircraft Registration to ICAO

Ref: xxxxxxxxxxxxxxxxxx dd/mm/yyyy

The Secretary to SICAS Panel
Air Navigation Bureau
International Civil Aviation Organization
999 University Street
Montreal, Quebec
Canada

Dear Sir/Madam,

ASSIGNMENT OF MODE "S" ADDRESS CODE TO BOMBARDIER DHC8-402 AIRCRAFT REGISTERED TO DAC INTERNATIONAL AIRLINES LIMITED

The aircraft listed below is operated by (Name of operator xxxxxxxxx), an Air Operator Certificate (AOC) holder, of the Republic of Liberia.

The aircraft has been duly placed on the Liberia Civil Register in accordance with the Liberia Civil Aviation Regulation.

The aircraft has been assigned the following Mode S address and ICAO codes.

AIRCRAFT ICAO TYPE	S/N	REGISTRATION MARKING	MODE "S" ADDRESS/ICAO CODE
BOMBARDIER DHC8-402	xxxx	A8-XXX	0000, 0100, 0100, 0000, 0110 0000

The above information is hereby submitted for your records.

Yours faithfully,

XXXXXXXXXXXXXXXX
Director, Flight Safety Standards Directorate
FOR: DIRECTOR GENERAL

Cc: Director-General
Deputy Director-General (T)

APPENDIX 9-N: FORM FSS/REG-007- Sample Letter for Radio License Application Support

Our Ref: xxxxxxxxxxxxxxxxx DD/MM/YYYY

The Director-General
Liberia Telecommunications Authority
Paynesville's City, Liberia

Dear Sir,

APPLICATION FOR RADIO STATION LICENCE

The Dauphine AS 365 N3 helicopter with serial number xxxx belonging to (name of operator xxxxxx) has been placed on the Liberia Civil Aircraft register with the assigned registration marking A8-XXX.

The radio equipment of the aircraft has been inspected and found to be satisfactory.

The aircraft requires a radio license to operate pursuant to LCAR Regulations subpart 8.2.1.8 and other applicable national requirements. It would be appreciated if you could grant the applicant the required aircraft Radio Station License.

Please find attached the list of radio equipment on board the aircraft.

Yours faithfully,

xxxxxxxxxxxxxxxx
Director, Flight Safety Standards Directorate
FOR: DIRECTOR GENERAL

Cc: Director-General
Deputy Director-General (T)

APPENDIX 9-O: FORM FSS/REG-005- Sample Letter of Notification to Manufacturer of Aircraft

Ref: xxxxxxxxxxxxxxxxxxxx dd/mm/yyyy

Bombardier Inc. Headquarters
800 René-Lévesque Blvd. West
Montréal, Québec H3B 1Y8
Canada

Tel.: +1 514 861 9481
+1 450 476 5792
EMAIL ADDRESS

Dear Sir,

REGISTRATION OF A BOMBADIER DHC8-402 AIRCRAFT

The Bombadier DHC8-402 aircraft with serial numbers xxxx has now been put onto the Liberia Civil Aircraft Register as follow:

SERIAL NO.	PREVIOUS REGISTRATION MARKING	LIBERIA REGISTRATION MARKING
xxxx	C-FXIC	A8-XXX

We kindly advise you to amend your records accordingly.

The Liberia Civil Aviation Authority hereby kindly requests to be sent all continuing airworthiness information in respect of this aircraft type to the contact below:

The Technical Librarian
Liberia Civil Aviation Authority
Robertfield, Margibi County
Republic of Liberia

Email: lcaalibrary@lcaa.gov.lr

Yours faithfully,

XXXXXXXXXXXXXXXX
Director, Flight Safety Standards Directorate
FOR: DIRECTOR GENERAL

Cc: Director-General
Deputy Director-General (T)

FORM FSS/REG-005B
SAMPLE LETTER OF NOTIFICATION TO MANUFACTURER OF AIRCRAFT

Ref: xxxxxxxxxxxxxxxxxxxx 3rd August, 2018

TO WHOM IT MAY CONCERN

NOTICE OF ASSIGNED MODE "S" ADDRESS AND ICAO CODE TO BOMBADIER DHC8-402, S/N: 4094 AND REGISTRATION MARKING A8-XXX

This is to certify that the above aircraft registered to and operated by DAC International Airline Limited is assigned the following Mode "S" Address and ICAO Code.

AIRCRAFT ICAO TYPE	S/N	REGISTRATION NUMBER	MODE "S" ADDRESS/ICAO CODE
BOMBADIER DHC8-402	4094	A8-XXX	0000, 0100, 0100, 0000, 0101 1101

The aircraft is under monitoring for height keeping.

……
BY THE AUTHORITY OF
DIRECTOR-GENERAL

CHAPTER 10: TYPE ACCEPTANCE CERTIFICATES FOR IMPORTED AIRCRAFT

10.1 OBJECTIVE

This chapter provides guidance in the procedure for the issue of a Type Acceptance Certificate by the Liberia Civil Aviation Authority for foreign aircraft types, using an automatic acceptance procedure.

10.2 BACKGROUND

(a) Prior to the issuance of first Certificate of Airworthiness to a new aircraft type it is a requirement for States of registry to conduct one of the following:

(1) aircraft certification and issue a type certificate

(2) aircraft type validation and issue a type certificate

(3) acceptance of the aircraft certification already conducted by the State of Design.

(b) Liberia does not have an Airworthiness Engineering Department (AED). As a result, Liberia meets its obligation by accepting the type certificate or equivalent document issued by a recognized State (refer to LCAR 5.2.2.4).

(c) Liberia issues a Type Acceptance Certificate on the basis of the Type Certificate issued by the recognized State after satisfactory review of the application documents and a satisfactory outcome of a familiarization visit to the Design and/or Manufacturing Organization's facility.

10.2.1 RECOGNIZED COUNTRIES

(a) Recognized country for the purpose of issuing type certificates is a state (ICAO contracting or not) where the Airworthiness section of Liberia Civil Aviation Authority has been found to have a comprehensive code of airworthiness certification and oversight. States such as the USA, UK would be recognized without investigation however other states may require an in-depth analysis. (refer to LCAR 5.2.2.5).

(b) Some of these countries are in the process of international harmonization and use or should use the term "Type Certificate", but earlier documents may be referred to as "Type Approval Certificate", "Certificate of Type Approval", "Fiche de Navigabilite" etc.

(c) The foreign National Airworthiness Authority (AUTHORIZED ENGINEERING SOURCE) that issued the original Type Certificate or equivalent document will be regarded as the nominated AUTHORIZED ENGINEERING SOURCE for airworthiness control of the aircraft listed on that certificate.

Note: This automatic acceptance procedure must not be applied in situations where the AUTHORIZED ENGINEERING SOURCE of a recognized country has issued a Type Acceptance Certificate or similar document on the basis that the AUTHORIZED ENGINEERING SOURCE of another country has issued a Type Certificate.

10.3 CERTIFICATE OF AIRWORTHINESS CATEGORIES

(a) Type Acceptance Certificates for foreign aircraft are issued to enable Certificates of Airworthiness (C of A) to be issued in one or more of the following categories:

(1) Transport;

(2) Normal;

(3) Utility;

(4) Acrobatic;

(5) Commuter;

(6) Manned free balloons;

(7) Primary;

(8) Restricted.

(b) C of A should usually be issued in the same category available under the foreign Type Certificate, subject to a review by the 'Authority' of the foreign certification basis, including any special conditions, waivers, exemptions, equivalent safety determinations etc. made by the foreign National Airworthiness Authority (AUTHORIZED ENGINEERING SOURCE).

10.4 APPLICATION FOR A TYPE ACCEPTANCE CERTIFICATE

10.4.1 ELIGIBILITY

Either the holder of the original Type Certificate or any other person may apply for a Type Acceptance Certificate in respect of a type certificated aircraft, certificated by a recognized country. The Type Acceptance Certificate is issued in respect of the aircraft type itself. There is no certificate holder.

10.4.2 AIRCRAFT TYPE DETAILS

The application should state exactly which models are to be included on the Type Acceptance Certificate. These models must be included on the foreign Type Certificate. Each model included on the Type Acceptance Certificate must be covered by the data requirements as indicated in the next subsection.

10.4.3 SUPPLY OF DATA

(a) The data, listed in Appendix 10-B, supporting the application should be supplied at the time of application, or, if it is not available at that time, a covering letter should be supplied giving the reasons and details of when the data will be available.

(b) If the application relates to a variant of an aircraft type for which there is already a Type Acceptance Certificate in force, then only data peculiar to the variant need be supplied. The Type Acceptance Certificate should be amended to include the new variant.

10.4.4 SUPPLY OF CONTINUING AIRWORTHINESS DATA

(a) An inherent requirement of type acceptance is the continued airworthiness support of the aircraft and components in the form of service bulletins and other instructions, amendments to documents, and foreign airworthiness directives etc.

(b) The applicant must arrange and submit to the 'Authority' an undertaking from the holder of the foreign Type Certificate to continue to supply to the 'Authority' those items listed in Appendix 10-B.

(c) The 'Authority' should arrange with the nominated AUTHORIZED ENGINEERING SOURCE for the supply of airworthiness directives issued by that AUTHORIZED ENGINEERING SOURCE for the type of aircraft concerned.

10.5 CONDITIONS, REFUSAL, SUSPENSION OR CANCELLATION

10.5.1 ISSUE OF A TYPE ACCEPTANCE CERTIFICATE SUBJECT TO CONDITIONS

(a) The 'Authority' may, under the relevant regulation, issue a Type Acceptance Certificate subject to a condition, if there are reasonable safety grounds, provided the condition is substantially the same as a condition imposed by the Authorized Engineering Source of a recognized country on the corresponding foreign Type certificate.

(b) The 'Authority' may also issue a Type Acceptance Certificate subject to other conditions, provided there are reasonable grounds for believing that issuing the certificate without imposing conditions or taking other measures would constitute a significant threat to aviation safety.

10.5.2 REFUSAL TO ISSUE A TYPE ACCEPTANCE CERTIFICATE

Note that 'Authority' may refuse to issue a Type Acceptance Certificate if there are reasonable safety grounds not to do so.

10.5.3 SUSPENSION OR CANCELLATION OF A TYPE ACCEPTANCE CERTIFICATE

The 'Authority' may suspend or cancel a Type Acceptance Certificate if it considers that it is necessary to do so in the interests of aviation safety. An inability on the part of the foreign Type Certificate holder to provide ongoing technical support for the aircraft type may constitute grounds for such suspension or cancellation.

10.5.4 CONSULTATION

The 'Authority' should consult with and consider the views of, the applicant, the AUTHORIZED ENGINEERING SOURCE that issued the foreign Type Certificate, and the manufacturer.

10.5.5 DIRECTOR SHOULD EXERCISE POWERS PERSONALLY

(a) Normally only the Director has the power to:

(1) issue a Type Acceptance Certificate subject to a condition in accordance with subsection 10.5.1;

(2) refuse to issue a Type Acceptance Certificate in accordance with subsection 10.5.2; or

(3) suspend or cancel a Type Acceptance Certificate in accordance with subsection 10.5.3.

10.6 AGED TRANSPORT CATEGORY AIRCRAFT

The applicant should be aware that before a standard C of A can be issued to such an aircraft, the 'Authority' may require additional data related to the aircraft history, structural integrity programs, supplementary inspections etc.

Appendix 10-A: JOB AID: AW-056 - Aircraft Type Acceptance

FILE REFERENCE: _____

Date		**Control #**	
Name of Operator		**Type of Aircraft**	
State of Operator		**Aircraft Reg. #**	
Location		**Present Aircraft Reg#**	
Maint Rep		**Liberia Reg # Assigned**	
Mgmt Rep			

AIRCRAFT TYPE/MAKE/MODEL: _____

SERIAL NO: _____

FUSELAGE NUMBER _____

DATE OF MANUFACTURE: _____

STATE OF DESIGN: _____

TYPE CERTIFICATE HOLDER: _____

APPLICABLE AIRWORTHINESS STANDARDS: _____

PLEASE CHECK THE APPROPRIATE BOX FOR THE FOLLOWING; SATISFACTORY (S), NOT SATISFACTORY (NS) OR NOT APPLICABLE (N/A). INDICATE REGULATORY OR OTHER REFERENCE(S) FOR NOT SATISFACTORY (NS) ITEMS WHERE APPLICABLE. PROVIDE FURTHER DETAILS IN THE REMARKS SECTION IF REQUIRED.

REFERENCE	1	CHECKLIST ITEMS	S	NS	N/A
	1.1	Has the design met all the relevant requirements specified in the airworthiness standards and special conditions laid down by the State of Design for the type of aircraft or component.			
	1.2	Check if Type Inspection has been completed and the prototype has been found to meet all the pertinent requirements by the State of Design.			
	1.3	All equipment, fittings, etc. are in accordance with the pertinent standards			
	1.4	Prototype aircraft has been officially test flown and found to comply with all the performance requirements of the pertinent airworthiness standards.			
	1.5	Availability of a copy of the applicant's flight trials.			

	1.6	Availability of reports showing the computations and tests required in connection with the calibration of instruments used for test purposes and in the correction of tests results to standard atmospheric conditions.			
	1.7	The Flight Manual has been prepared by the Manufacturer and approved by the CAA of State of Design			
	1.8	Availability of Type Certificate data sheet setting forth limitations prescribed by the applicable Airworthiness Directives and any other limitations and information found necessary for Type Certification.			
	1.9	The Servicing, Repair and Overhaul instructions have been prepared by the manufacturer and approved by the CAA of the State of Design as appropriate.			
	1.10	Production Drawings have been examined and approved by the CAA of the State of Design.			
	1.11	Availability of Type Design record together with any required design certificate.			

Item Number	**REMARKS**

INSPECTOR(S)		**ORG REP NAME**	
NAME/ASI#	**SIGNATURE**	**ORG REP SIGNATURE**	
		DATE	

Appendix 10-B: Examples of Technical Data, By Product, Which Should Normally Be Requested

(1) AIRCRAFT

a. A statement of the applicable design certification standards.

b. General interior arrangement configuration drawings.

c. Three-view drawing exterior configuration.

d. Master drawing list.

e. Master equipment list.

f. Aircraft Flight Manual including the Configuration Deviation List, if applicable.

g. Instructions for Continued Airworthiness.

h. Certification compliance (checklist).

i. Data and descriptive information needed by the Authority to approve the type certificate data sheet.

j. Listing of service life for critical parts subject to fatigue, if this information is not provided elsewhere in the above data.

(2) AIRCRAFT ENGINES

a. Cross-Section arrangement drawing.

b. Master drawing list.

c. Instructions for Continued Airworthiness.

d. Operating manual.

e. Installation manual.

f. Certification compliance (checklist).

g. Data and descriptive information needed by the 'Authority' to prepare the type certificate data sheet.

h. Listing of service life for critical parts subject to fatigue, if this information is not provided elsewhere in the above data.

(3) PROPELLERS

a. General arrangement drawings and model description.

b. Master drawing list.

c. Installation manual.

d. Instructions for Continued Airworthiness.

e. Operating manual.

f. Certification compliance (checklist).

g. Data and descriptive information needed by the 'Authority' to prepare the type certificate data sheet.

h. Listing of service life for critical parts subject to fatigue, if this information is not provided elsewhere in the above data.

CHAPTER 11: AIRWORTHINESS APPROVALS FOR EXPORTS

11.1 GENERAL

An exporter of an aircraft or an aeronautical product is normally required to obtain an export airworthiness approval from the Civil Aviation Authority of the State in which the aircraft is registered or in the case of a new aircraft or an aeronautical product, the State of Manufacture. The Civil Aviation Authority of the importing State normally revalidates the export approval. A number of States have identified certain special requirements/ conditions to which the aircraft or aeronautical product must conform before they will validate the export approval issued by the exporting State. In many cases information on such special requirements/conditions is not readily available. It is therefore important that the exporter obtain the necessary information on any special requirements/conditions from the Civil Aviation Authority of eth importing State. The additional design requirements considered necessary by the mi porting State, in addition to the requirements of exporting States, to provide a level of safety and environmental quality (including noise) equivalent to those provided by the importing State's certifications should be included in the Type Certification Data Sheet. When any of the special conditions cannot be satisfied, the exporters must obtain a statement from the Civil Aviation Authority to the importing State indicating that they will accept the deviation.

11.2 SPECIAL CONDITIONS

The additional design requirements considered necessary by the importing State, in addition to the requirements of the exporting State to provide a level of safety and environmental quality (including noise) equivalent to those provided by the importing State's certification basis are referred to as special conditions. These additional validation conditions should be included in the Type Certification Data Sheet. When any of the special conditions cannot be satisfied, the exporters must obtain a statement from the Civil Aviation Authority of the importing State indicating that they will accept the deviation.

11.3 CLASSIFICATION OF PRODUCTS FOR EXPORT

(a) The regulations issued by the LCAA concerning exports provide that any exporter or his authorized representative may obtain an export airworthiness approval. For this purpose, the products may be classified as follows:

(1) A class I product includes is a complete aircraft, aircraft engine, or propeller which has been type certificated in accordance with the applicable airworthiness requirements and for which the necessary Type Certificate Data Sheets or equivalent have been issued.

(2) A class II product includes a major component of class I product (e.g., wings, fuselages, Empennage surfaces, etc.), the failure of which would jeopardize the safety of a Class I product; or any part, material, or appliance.

(3) A class III product is any part or component which is not a class I or class II product and includes standard parts.

(b) In the case of an aircraft the export approval is normally issued in the form of an Export Certificate of Airworthiness. For other products, it may be issued in the form of airworthiness approval tags. Both should include, among other things, the conformity certification and should indicate whether the product is new, newly overhauled or used.

Note: *When the term "newly overhauled" is used to describe the product it means that the product has not been operated or placed in service except for functional testing, since having been overhauled, inspected and approved in accordance with the applicable airworthiness requirements, for return to service.*

11.4 ISSUANCE OF EXPORT CERTIFICATE

The Export Certificate of Airworthiness for an aircraft should not cover the flight approval for a foreign registered aircraft. Before an aircraft is flown the certificate should be either revalidated or replaced by a new certificate issued by the new State of Registry, and flight permit for export delivery should be issued by the Civil Aviation Authority of the exporting State.

11.5 APPLICATION FOR AN EXPORT AIRWORTHINESS APPROVAL

(a) A separated application for an export airworthiness approval should be made for:

(1) Each aircraft;

(2) Each engine and propeller, except that one application may be made for more than one engine or propeller, if all are of the same type and model and exported to the same purchaser and country;

(3) Each type of Class II product, except that one application may be used for more than one type of Class II product when:

(i) They are separated and identified in the application as to type of the related Class I product; and

(ii) They are to be exported to the same purchaser and country

11.5.1 EXPORT APPLICATION CONTENT

(a) Each application for export airworthiness approval of a class I product should include, as applicable:

(1) A statement of conformity, for each new product that has not been manufactured under a Production Certificate;

(2) A Mass and balance report with a loading schedule when applicable for all transport aircraft.

(i) This report should be based on an actual weighing of the aircraft within the preceding twelve months, after all major repairs or alterations to the aircraft.

(ii) Changes in equipment not classified as major changes that are made after the actual weighing may be accounted for on a' computer" basis and the report revised accordingly.

(iii) Manufacturers of new non-transport aircraft may submit reports having computed mass and balance data, in place of an actual weighing of the aircraft, its fleet mass control procedures approved by the LCAA, State of

Registry or Manufacturer's CAA have been established for such aircraft. In such cases, the following statement should be entered in each report:

"The mass and balance data shown in this report are computed on the basis of LCAA, State of Registry or Manufacturer's CAA approved procedures for establishing fleet mass averages. The mass and balance report should include an equipment list showing mass and moment arms of all required and optional items of equipment that are included in the certificated empty mass."

(3) A maintenance manual for each new product when such a manual is required to the applicable airworthiness rules;

(4) Evidence of compliance with the applicable Airworthiness Directives. A suitable notation should be made when such Directives are not complied with;

(5) When temporary installations are incorporated in an aircraft for the purpose of export delivery, the applications together with a statement that the installation will be remove and the aircraft restored to the approved configuration upon completion of the delivery flight;

(6) Historical records such as aircraft and engine log books, repair and alteration forms, etc., for used aircraft and newly overhauled products;

(7) For products intended for overseas shipment, the application form should describe the methods used, if any, for the preservation and packaging of such products to protect them against corrosion and damage while in transit or storage. The description should also indicate the duration of the effectiveness of such methods;

(8) The aircraft flight manual, when such material is required by the applicable airworthiness regulations for the particular aircraft;

(9) A statement as to the date when title passed or is expected to pass to a foreign purchaser; and

(10) The data required by the special requirements of the importing country.

11.5.2 ISSUE OF EXPORT CERTIFICATE OF AIRWORTHINESS FOR CLASS I PRODUCTS

(a) An applicant should be entitled to an export certificate of airworthiness for a class I product if he shows that at the time the product is submitted to LCAA for export airworthiness approval, it meets the following requirements, as applicable:

(1) New or used aircraft manufactured outside the country should have a valid LCAA Airworthiness Certificate;

(2) Used aircraft should have undergone an annual type inspection and be approved for return to service. The inspection should have been performed and properly documented within 30 days before the date the application is made for an Export Certificate of Airworthiness;

(3) Job Aid AW-010F should be used (all evidence should be collected and must be attached to the report);

(4) New engines and propellers should conform to the type design and should be in condition for safe operation;

(5) New engines and propellers which are not being exported as part of a certificated aircraft should have been newly overhauled; and

(6) The special requirements of the importing country should have been met.

11.5.3 ISSUE OF EXPORT AIRWORTHINESS APPROVAL TAGS FOR CLASS II PRODUCTS

(a) An applicant should be entitled to an Export Airworthiness Approval Tag for a Class II product if the shows that:

(1) The product conforms to the approved design data;

(2) The product is in a condition for safe operation;

(3) In the case of a newly overhauled product, it has not been operated or placed in service except for functional testing since having been overhauled, inspected and approved for return to service;

(4) The product is identified with at least the manufacturer's name, part number, model designation (when applicable), and serial number or equivalent; and

(5) The product meets the special requirements of the importing country.

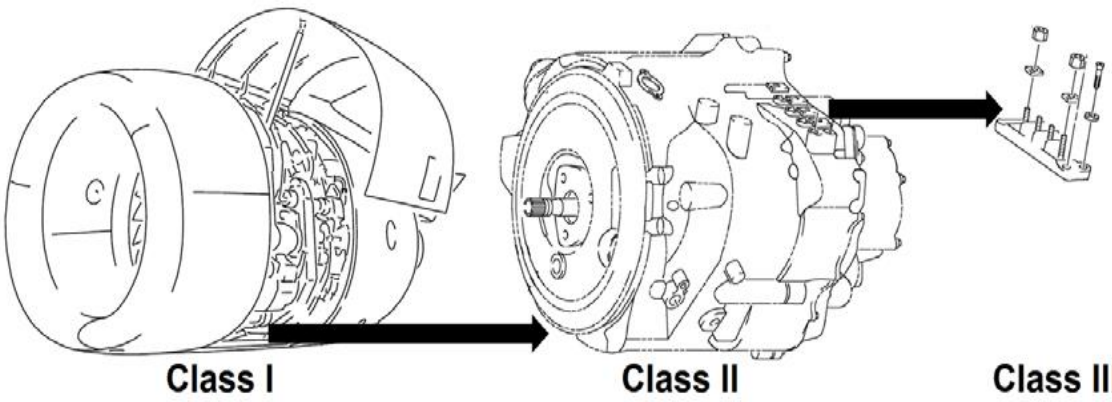
11.5.4 ISSUE OF EXPORT AIRWORTHINESS APPROVAL TAGS FOR CLASS III PRODUCTS

(a) An applicant should be entitled to an Export Airworthiness Approval Tag for Class III product if the shows that:

(1) The product conforms to the approved design data applicable to the Class 1 or Class II product of which it is a part;

(2) The product is in a condition for safe operation; and

(3) The product complies with the special requirements of the importing country.



Example of different classes of aeronautical products

Class I – Engine; Class II – CSD; Class III – Clamp

11.6 RESPONSIBILITIES OF EXPORTERS

(a) Each exporter receiving an export airworthiness approval for product should:

(1) Forward to the Civil Aviation Authority of the importing country documents and information necessary for the proper operation of products being exported, e.g., flight manuals, maintenance manuals, service bulletins, assembly instructions, and other material as is stipulated in the special requirements of the importing country. The documents, information, and material may be forwarded by means consistent with the special requirements of the importing country;

(2) Forward the manufacturer's assembly instructions and an approved flight test check-off form to the Civil Aviation Authority of the importing country when unassembled aircraft are being exported. These instructions should be in sufficient detail to permit whatever rigging, alignment, and ground testing is necessary to ensure that the aircraft will conform to the approved configuration when assembled;

(3) Secure all proper foreign entry clearances from all the countries involved when conducting sales demonstrations or delivery flights;

(4) When title to an aircraft passes or has passed to a foreign purchaser:

(i) Request cancellation of the current registration and Certificates of Airworthiness, giving the date of transfer of title, and the name and address of the foreign owner;

(ii) Return the Certificate of Registration and Certificate of Airworthiness to the LCAA; and

(iii) Submit a statement certifying that the State's identification and registration numbers have been removed from the aircraft.

11.7 PROCEDURE FOR EXPORT C of A

(a) Review the Application to determine eligibility.

(1) Individuals, including individual aircraft owners, who are engaged in exporting civil aircraft and related products, are eligible for an export airworthiness approval for a Class I or Class II product provided all of the applicable requirements described in section 1 paragraph 5, 6 and 7 as applicable are met.

(2) Only those who have an approved maintenance organizations are eligible to obtain export airworthiness approvals tags for Class III products covered by their approvals

(b) Prior to issuance of the Export C of A, the LCAA must determine that all of the conditions specified in section 1 paragraph 5, 6 and 7 have been met. The LCAA must ensure that the exporter has all of the documents and data required by importing country readily available for immediate shipment. The applicant must meet the airworthiness requirements of those other countries before Export certificate is issued.

(c) The LCAA should screen the special requirements of each prospective importing country to determine that there is no conflict. If a conflict exists, the exporter should be advised

that before an Export C of A can be issued, a statement must be obtained from each country affected, stating that the Export C of A would be validated if the aircraft is sold in that country. The statements should be referenced under Exceptions on the Export Certificate of Airworthiness.

(d) Inspect the Product.

(1) Coordinate with operator/applicant to schedule the inspection of the product.

(2) Ensure that the product conforms to the requirements of the importing/exporting country.

(e) If the product has been examined and found to be nonconforming with the type design, or the import type design; or the special import requirements have not been met, the Export C of A should not be issued until either—

(1) The applicant corrects the nonconformities, or

(2) The LCAA obtains a written statement from the CAA of the importing country signifying its acceptance of the product with the nonconformities as listed. Requests for acceptance of nonconformities to the importing country CAA should be transmitted to and received from authority to authority. The exporter should first prepare a technical description of the nonconformities to the type design or specific nonconformities related to other special importing requirements. The LCAA should then prepare an accompanying cover letter for direct transmittal to the importing CAA requesting the CAA's acceptance of the nonconformities and a return reply to the LCAA before export.

(f) If a written statement of acceptance is received by the LCAA from the importing CAA, the nonconformities should be listed on the Export C of A under "Exceptions," with a reference to the importing country's written statement of acceptance (for example, letter by subject and date, facsimile). Other items not related to the type design but failing to meet the importing country's requirements will be attached to the Export C of A. The completed Export C of A and a copy of the importing authority's letter, facsimile, or other such document, should be provided to the exporter, and the product may then be released for export.

(g) After showing that all of the requirements of LCAR Part 5 have been met, the LCAA will issue the Export C of A. Upon determining that the product is satisfactory, CAA Form will be prepared in duplicate. When the product being exported is an aircraft, the make, model, and serial number of all installed engines and propellers also must be listed.

(1) The Date of Issuance of an Export Airworthiness Approval. The certificate must be dated with the date the ASI or designee issued the certificate.

(2) The date of issuance of an export airworthiness approval is the date the product was inspected by the authority, found to comply with the applicable requirements, and determined to be airworthy

(h) The Export C of A is an official LCAA document issued to other countries. All entries must be typewritten and no erasures or strikeovers are permitted. The original and duplicate copy of the certificate must be signed in dark (preferably black) permanent ink above the typed name of the ASI or designee. The original will be given to the applicant

or applicant's representative, together with those documents required with the product. Provisions should be made to preclude the Export C of A from becoming mutilated in transit.

Appendix 11: JOB AID: AW-010F - Export Certificate of Airworthiness

DATE:	FILE REFERENCE:

SECTION A – GENERAL INFORMATION

OPERATOR	**NAME**	**CONTACT DETAILS**
OWNER	**NAME**	**CONTACT DETAILS**
OPERATOR'S MAINTENANCE ORGANIZATION		
LOCATION OF MAINTENANCE ORGANIZATION		
DESTINATION		
AIRCRAFT MSN		
DATE OF MANUFACTURE		

SECTION B – AIRFRAME

AIRCRAFT TYPE/MAKE/MODEL	
AIRCRAFT SERIAL NUMBER	
PRESENT REGISTRATION MARKS	**A8-**
TIME SINCE NEW (TSN)	
CYCLES SINCE NEW (CSN)	
FUSELAGE NUMBER	
REMARKS:	

SECTION C – ENGINE: TYPE _____

POSITION		#1	#2	#3	#4	APU
SERIAL NUMBER						
DATE INSTALLED						
TIME SINCE NEW (TSN)						
CYCLES SINCE NEW (CSN)						
COMPRESSOR	HOURS LIMITER					
	CYCLE LIMITER					
TURBINE	HOURS LIMITER					
	CYCLE LIMITER					
REMARKS:						

SECTION D – PROPELLER: TYPE_____

POSITION	#1	#2	#3	#4
SERIAL NUMBER				
DATE INSTALLED				
TIME SINCE NEW (TSN)				
TIME SINCE OVERHAUL (TSO)				
TIME REMAINING				
MANUFACTURER				
MANUFACTURE DATE				
REMARKS:				

SECTION E– LANDING GEARS: TYPE: _____

POSITION	NOSE	LEFT MAIN	RIGHT MAIN	CENTER
SERIAL NUMBER				
DATE INSTALLED				
TIME SINCE NEW (TSN)				
TIME SINCE OVERHAUL (TSO)				
TIME REMAINING				

REMARKS:

PLEASE CHECK THE APPROPRIATE BOX FOR THE FOLLOWING; SATISFACTORY (S), NOT SATISFACTORY (NS) OR NOT APPLICABLE (N/A). INDICATE REGULATORY OR OTHER REFERENCE(S) FOR NOT SATISFACTORY (NS) ITEMS WHERE APPLICABLE. PROVIDE FURTHER DETAILS IN THE REMARKS SECTION IF REQUIRED.

		CHECKLIST ITEMS			
REFERENCE	1	AIRCRAFT RECORDS	S	NS	N/A
	1.1	Records of Scheduled Maintenance			
	1.2	Records showing details of major repairs			
	1.3	Airframe Log Book records			
	1.4	Engine Log Book records			
	1.5	Proper Lob Book entries			
	1.6	Modification and Repair Record Book records			
	1.7	SB's Compliance Status			
	1.8	Airframe AD's Compliance Status			

	1.9	Engine(s) AD's Compliance Status			
	1.10	CPCP Compliance Status			
	1.11	Life-Limited Components Status			
	1.12	Mass and Balance Report			
	1.13	Flight Test Report			
	1.14	Aircraft Tech Log Book			
	1.15	Approved Flight Manual			
	1.16	Aircraft Insurance Certificate			
	1.17	Certificate of Release to Service			
	1.18	Previous C of A			
	1.19	A.O.C			
	1.20	MEL latest (current) Revision			
	1.21	Radio Licence			
	1.22	Maintenance Schedule			
	1.23	Scheduled Maintenance Compliance Status			
		PHYSICAL INSPECTION			
REFERENCE	**2**	**COCKPIT**	**S**	**NS**	**N/A**
	2.1	General Appearance of Cockpit			
	2.2	Are all placards in place and legible?			
	2.3	Freedom of Movement in Cockpit			
	2.4	Availability of Megaphones			
	2.5	Spare bulbs.			
	2.6	CVR Test (Bite)			
	2.7	FDR Test (Bite)			
	2.8	Clarity of Public Address System.			
	2.9	Availability/Security/Condition of Escape Ropes.			
	2.10	Availability/Condition of Axes.			
	2.11	General Appearance of Instrument Glasses.			

REFERENCE	3	LAVATORIES	S	NS	N/A
	3.1	Is a smoke detector Installed?			
REFERENCE	4	GALLEYS	S	NS	N/A
	4.1	Clarity of Doors/Exit Markings			
	4.2	Placards for door operating instructions			
	4.3	Accessibility of Emergency Exits			
	4.4	Markings of Emergency Exits			
REFERENCE	5	SEAT AREA	S	NS	N/A
	5.1	Condition of Seat Rails			
	5.2	Condition of Rollers and Pallet Locks			
	5.3	Condition and Security of Seats and Seat Belts			
	5.4	Security/Locking of Seat Tables			
REFERENCE	6	AIRCRAFT INTERIOR	S	NS	N/A
	6.1	General condition of Aircraft Interior			
	6.2	Availability/ Condition of Fire Extinguisher Agents.			
	6.3	Availability/ Condition of Life Vests.			
	6.4	Availability/ Condition of Life Rafts.			
	6.5	Availability/ Condition of Flash Lights.			
	6.6	Availability/ Condition of Escape Slides.			
	6.7	Availability/ Condition of Oxygen Systems			
	6.8	Contents of First Aid Box			
REFERENCE	7	EXTERNAL AVIONIC EQUIPMENT	S	NS	N/A
	7.1	Security of Avionic Equipment			
	7.2	Condition and Security of Aerials			
	7.3	Landing Lights- Condition/Operational Check			
	7.4	Anti-Collision Lights – Condition/Operational Check			
	7.5	Emergency Locator Beacon (ELT)			
REFERENCE	8	EXTERNAL: FUSELAGE	S	NS	N/A
	8.1	Condition of Fuselage			

	8.2	Evidence of no Oil / Hydraulic / Fuel Leaks			
REFERENCE	**9**	**EXTERNAL: WINGS**	**S**	**NS**	**N/A**
	9.1	General condition of wings			
	9.2	General condition of Control Surfaces			
	9.3	Condition of Static Wicks			
REFERENCE	**10**	**CARGO COMPARTMENT**	**S**	**NS**	**N/A**
	10.1	Condition/Security of Load Restraining Nets			
REFERENCE	**11**	**WHEEL WELLS**	**S**	**NS**	**N/A**
	11.1	General condition of tyres			
	11.2	General condition of under-carriages			
	11.3	Condition of Under-carriage bays			
REFERENCE	**12**	**ENGINES**	**S**	**NS**	**N/A**
	12.1	Engine Fire Test			
	12.2	Security and Condition of Cowlings			

Item Number	INSPECTOR'S REMARKS

INSPECTOR(S)			
NAME/ASI#	**SIGNATURE**	**ORG REP NAME**	
		ORG REP SIGNATURE	

CHAPTER 12: PROCEDURES FOR THE ACCEPTANCE & ISSUANCE OF AIRCRAFT NOISE CERTIFICATES

12.1 OBJECTIVE

The Liberian Civil Aviation Authority has developed regulations requiring airplanes to comply with noise certification standards as set out in LCARs Part 16.

12.2 REQUIREMENTS

(a) Annex 6, part 1, Section 6.13 states that "An aeroplane shall carry a document attesting noise certificate." The attestation may be contained in any document carried on board, approved by the State of Registry.

(b) Noise certification may be accepted by the State of Registry of an aircraft on the basis of satisfactory evidence that the aircraft complies with requirements which are at least equal to the applicable standards specified in the ICAO annex 16, Vol.1, (1.2).

(c) Annex 16 Vol.1 chapter 1 par.1.5 states that Contracting State shall recognize as valid a noise certification granted by another Contracting State provided that the requirements under which such certification was granted are at least equal to the applicable standards specified in the Annex.

(d) Annex 16 Vol. I chapter 1 par. 1.6 states that a contracting state shall suspend or revoke the noise certification of an aircraft on its Register of the aircraft ceases to comply with the applicable noise standards.

The State of Registry shall not remove the suspension of a noise certification or grant a new noise certification unless the aircraft is found, on re-assessment, to comply with the applicable noise standards.

12.3 PROCEDURE

(a) The owner/operator shall apply to LCAA in an acceptable form and manner for issuance of a Noise certificate.

(b) The assigned Airworthiness Inspector shall determine that—

(1) The State of Registry of aircraft is an ICAO member

(2) A noise certificate, in respect of the said aircraft, is in force.

(3) The data on the aircraft noise certificate/statement are not at variance with those contained in the flight manual of the respective aircraft.

(4) The certificate is properly issued and endorsed by the issuing authority.

12.4 ISSUANCE OF NOISE ACCEPTANCE CERTIFICATE

When all of the procedures in this section have been met, a noise acceptance certificate may be issued to an aircraft registered in Liberia.

APPENDIX 12-A: JOB AID: AW-011-Issuance of Noise Certificate

FILE REFERENCE: _____

Date		**Control #**	
Name of Operator		**Operator's Address**	
Name of Owner		**Owner's Address**	
Aircraft Type		**Aircraft MMS**	
Aircraft Manufacturer		**Aircraft Reg#**	

PLEASE CHECK THE APPROPRIATE BOX FOR THE FOLLOWING; SATISFACTORY (S), NOT SATISFACTORY (NS) OR NOT APPLICABLE (N/A). INDICATE REGULATORY OR OTHER REFERENCE(S) FOR NOT SATISFACTORY (NS) ITEMS WHERE APPLICABLE. PROVIDE FURTHER DETAILS IN THE REMARKS SECTION IF REQUIRED.					
		CHECKLIST ITEMS			
REFERENCE	**1**	**APPLICATION REVIEW**	**S**	**NS**	**N/A**
	1.1	Has the application form been properly completed?			
	1.2	Are the accompanying documents as listed therein available?			
	1.3	Is the State of Design of the aircraft an ICAO contracting state?			
	1.4	If granting noise certification based on approved documentation: Does thenoise certificate data contained in the approved document (e.g. approved flight manual, type certificate data sheet, etc.) conform to ICAO Annex 16, Vol. 1?			
	1.5	Where previous noise certificate is not available, was a relevant copy of the page from the aircraft flight manual provided?			
	1.6	If validating noise certification: Has the noise certificate been properly issued and endorsed by the certifying authority?			
	1.7	Was adequate information provided to make a determination if the noise certificate may be issued?			
REFERENCE	**2**	**NOISE CERTIFICATE COMPLETION**	**S**	**NS**	**N/A**
	2.1	Is the noise certificate number (i.e. C of R number) inserted?			
	2.2	Is the registration marks inserted?			

	2.3	Is the aircraft serial number inserted?			
	2.4	Is the year of manufacture inserted?			
	2.5	Is the maximum take-off weight inserted?			
	2.6	Is the engine manufacturer (e.g. Rolls Royce) inserted?			
	2.7	Is the engine model (e.g. JT8D-15A) inserted?			
	2.8	Is the type of engine (turbojet, turboprop) inserted?			
	2.9	Are the noise level values as specified on the previous State of Registry noise certificate (including the certification standard) inserted?.			
	2.10	Do those standards conform to at least the minimum requirements of Annex16, Vol. I?			
REFERENCE	**3**	**ISSUANCE OF NOISE CERTIFICATE**	**S**	**NS**	**N/A**
	3.1	Was the noise certification and application signed by LCAA?			
	3.2	Was a Action entry made to record the action of approval or disapproval?			
	3.3	If issued, was the database for this aircraft updated to show the issuance of this noise certificate?			
	3.4	If rejected, was a letter detailing the basis issued to the applicant?			

Item Number	REMARKS

INSPECTOR (s)			
NAME/ASI #	**SIGNATURE**	**ORG REP NAME**	
		ORG REP SIGNATURE	

CHAPTER 13: SPECIAL FLIGHT PERMIT

13.1 PURPOSE

This section provides guidance for evaluating an application for a special flight permit in accordance with LCARs Part 5.

13.2 GENERAL

13.3 BACKGROUND

(a) Special flight permits are issued for aircraft that may not currently meet applicable standard airworthiness requirements, but are capable of safe flight.

A special flight permit is not an authorization to deviate from the operational requirements of LCAR Part 8.

(b) This requirement applies to aircraft which may not meet applicable standard airworthiness requirements and which will be operated for a purpose acceptable to the LCAA.

(c) This requirement applies only to holders of operating certificates issued under Part 12 for aircraft operated and maintained under a continuous airworthiness maintenance program.

13.4 ELIGIBILITY

(a) The special flight permit shall be issued for the purpose of:

(1) Relocating aircraft to a base where repairs modifications or maintenance are to be performed, or to a point of storage.

(2) Delivering or exporting the aircraft, subject to the approval of Directorate of Flight Safety Standards

(3) Evacuating the aircraft from an area of impending danger or in cases of force majeure.

(b) Aircraft involved in an accident or incident may not be ferried prior to notifying and receiving written authorization from the Director Flight Safety Standards.

13.5 APPLICATION FOR SPECIAL FLIGHT PERMIT

(a) Application for Special Flight Permit and Special Airworthiness Certificate in letter form, are used for the administration of this function.

This requirement does not apply to authorizations covered by Continuing Authorization to Conduct Ferry Flights.

(b) The validity of the special flight permit is not affected by the operation of the aircraft outside the border of Liberia so long as it is operated for the intended purpose and within the time frame specified on the permit.

13.6 OPERATIONS OUTSIDE OF LIBERIA

(a) The special flight permit does not authorize flight over countries other than Liberia without permission of that country.

(b) If such operation is contemplated, the effective date of the permit is contingent upon authorization of the foreign country and it becomes the responsibility of the owner/operator to obtain such permission.

13.7 COMPLIANCE WITH AIRWORTHINESS DIRECTIVES REQUIRED

(a) No person may operate a product to which an Airworthiness Directive (AD) applies, except in accordance with the requirements of the AD.

(b) If an AD requires compliance before further flight and does not have a provision for the issuance of special flight permits, the operation of the aircraft to which it applies would not be appropriate, and a special flight permit shall not be issued.

13.8 PROCEDURES FOR ISSUE OF SPECIAL FLIGHT PERMIT

(a) Check that the application is signed by authorized personnel (QA chief, Engineering Director or equivalent post holders).

(b) Ensure that the details of defects are attached in form and manner acceptable to Liberia CAA.

(c) Check Flight Manual/POH for provision of the special nature of flight as requested by operator.

(d) If the flight is unsafe without further maintenance, make sure such maintenance is carried out.

(e) After necessary on the maintenance site, if it is allowed in accordance with Flight Manual/POH and other relevant manuals and documents, the special flight permit may be issued.

(f) The validity of permit shall be for ferry mission only or as sector mentioned in the permit.

(g) When the application for a special flight permit is found in compliance with all requirements, the LCAA Inspector should issue the Special Flight Permit Letter, together with operating limitations deemed necessary for safe operation.

(1) The operating limitations should be enumerated on a separate sheet, identified by the aircraft registration and serial number, dated, and signed.

(2) The applicant should be advised that the Special Flight Permit Letter and attached operating limitations must be displayed in the aircraft.

(h) The LCAA may assist the applicant by completing a LCAA form based on information furnished by telephone, letter, or facsimile (FAX).

(1) The name of the applicant should be entered in the space provided for their signature.
(2) A notation as to how the information was received should be entered above the name, e.g., "Received by letter dated ."

(i) The special flight permit shall contain following restrictions.

(1) The flight should be conducted in accordance with limitations of Flight Manual.

(2) The permit is valid in Liberian airspace only.

(3) The permit shall be for VFR Flight only.

(4) The flight should be through non-populated area.

(j) A copy of each certification document should be retained in the files of the LCAA.

13.9 AIRCRAFT INSPECTIONS

13.9.1 LCAA DECISION

(a) It is the responsibility of the LCAA to determine whether or not inspections or tests are necessary to ensure that the aircraft is capable of safe flight for the intended purpose.

(b) The LCAA inspector may make, or require the applicant to make, appropriate inspections or tests considered necessary for safety.

(c) The LCAA inspector should personally inspect damaged aircraft or an aircraft where the airworthiness is questionable in any respect. those aircraft models for which a T.C. has never been issued.

If an affirmative, technical determination cannot be made that a particular aircraft is capable of safe operation, because of insufficient design, inspection, and maintenance data that are normally available for a type certificated aircraft, the special flight permit should not be issued.

13.9.2 DELEGATION OF AUTHORITY

(a) When the LCAA inspector requires the applicant to make the inspection, the applicant must be advised that such inspections must be—

(1) Accomplished by an appropriately certificated maintenance engineer or approved maintenance organization familiar with all the procedures and requirements contained in this chapter; and

(2) Documented by an appropriate entry in the aircraft logbook by the authorized person who conducted the inspection.

(b) The LCAA inspector may delegate inspection authority to an authorized designee when the project is located in a remote area of impending danger. When an inspection is performed under these conditions it must be recorded in the aircraft logbook by the person delegated the authority to conduct the inspection.

13.10 SPECIAL OPERATING LIMITATIONS

(a) The LCAA should establish limitations as deemed necessary for safe operation. Since individual circumstances may vary greatly, a list of limitations applicable in every case cannot be provided.

(1) The objective is to ensure safe operation of the aircraft. If necessary, solicit the technical assistance of other inspectors or specialties.

(b) Limitations should be clear and concise so they can be easily understood. In addition to the limitations deemed necessary for the particular flight.

(c) The following items should be considered when establishing operating limitations—

(1) Conformity to the aircraft's technical data.

(2) Operational equipment necessary for safe operation of the aircraft.

(3) Special crew member and pilot qualifications required. For flights which involve long distances where various weather conditions may be encountered, the pilot-in-command should also be appropriately instrument rated.

(4) Aircraft weight limits.

(5) Fuel and fuel distribution limits.

(6) Centre of gravity limits.

(7) Manoeuvres to which the aircraft is limited.

(8) Limits on usage of flight equipment, such as autopilots, etc.

(9) Meteorological conditions to be avoided and the inspections required if inadvertently encountered.

(10) Airspeed limits.

(11) Operation in the overweight condition must be conducted to avoid cities, towns, villages, and congested areas, or any other areas where the flights might create hazardous exposure to persons or property.

(12) Runway selections if considered necessary for safety.

(13) Communications required with airport tower personnel to inform them prior to takeoff or landing of the non-standard condition of the aircraft.

When required to fly over an ICAO Country, the operating limitations issued with the special flight permit should include, when appropriate, the following statement

- "This aircraft does not comply with the International Standards of Annex 8 to the Convention on International Civil Aviation as follows:"
- (*DESCRIBE HERE THE ITEM(S) WHICH DO NOT COMPLY WITH THE AIRWORTHINESS REQUIREMENTS FOR STANDARD AIRCRAFT.*)

(14) When flight over another country is planned, the inspector must emphasize to the applicant that special permission must be obtained from the country over which the aircraft will be operated

(15) Any other limitation that should be prescribed for the particular flight.

13.11 FLIGHT AUTHORIZATION FOR FOREIGN REGISTERED AIRCRAFT

This section is to provide the LCAA with guidance information relating to issuing special flight authorizations to foreign-registered aircraft.

13.11.1 TECHNICAL REFERENCES

- LCAR Part 5

13.11.2 LCAA POLICIES

(a) Special flight authorizations for foreign aircraft are issued for aircraft that may not currently meet applicable airworthiness requirements, but are capable of safe flight to allow them to cross Liberia airspace.

(b) A special flight authorization for a foreign aircraft can only be issued if—

(1) The country of registry has issued a Special Flight Permit for the aircraft and has listed applicable limitations.

(2) The aircraft logbook contains a statement that the aircraft has been inspected and is in a safe condition for the intended flight.

(3) The person intending to operate the flight acknowledges and adheres to all listed limitations.

(c) There is no special form for a foreign registered aircraft owner to apply for this special flight authorization.

- Application must be made in writing by letter and or FAX.

No verbal requests or authorizations will be acceptable.

(d) The validity of the special flight authorization is not affected by the operation of the aircraft outside the border of Liberia, so long as it is operated within the time frame specified on the Special Flight Permit.

(e) The special authorization does not authorize flight over countries other than Liberia without permission of that country. If such operation is contemplated, it becomes the responsibility of the owner/operator to obtain such permission.

(f) The Special Flight Authorization for Foreign aircraft will be in letter format.

13.11.3 SPECIAL FLIGHT AUTHORIZATION PROCEDURES

(a) When the letter or FAX requesting a Special Flight Authorization for a Foreign Aircraft is received, the inspector should determine if it—

(1) Has a copy of the country of registry's Special Flight Permit.

(2) Has a copy of the list of applicable limitations imposed by the country of registry.

(3) Has a copy of the logbook entry made by a certified person that the aircraft is safe for the intended flight.

(4) Indicates the intended operator understands and intends to adhere to the list of limitations.

(b) When the LCAA Inspector determines all the above requirements are met he/she should issue the Special Flight Authorization Letter and advise the applicant that; —

(1) The Special Flight Authorization Letter along with the Special Flight Permit and attached operating limitations is to be displayed in the aircraft when travelling in Liberia airspace.

(2) The Special Flight Authorization is in effect for as long as the country of registry's Special Flight Permit is in effect.

(c) The completed and signed Special Flight Authorization may then be transmitted by FAX.

(1) The FAX authorization that is received for display in the aircraft at the point of departure will be considered the original authorization.

(2) This allows the aircraft to be moved when the flight cannot be delayed for the time period normally required for the delivery of the Special Flight Authorization Letter.

(d) A copy of each certification document should be retained in the files of the LCAA.

13.12 SPECIAL FLIGHT PERMIT WITH CONTINUING AUTHORIZATION TO CONDUCT FERRY FLIGHT

13.12.1 PURPOSE

This section provides guidance for evaluating an application to amend operations specifications for a special flight permit to conduct ferry flights. It also specifies the circumstances under which an aircraft without a valid Certificate of Airworthiness (C of A), suspended or deemed to have suspended C of A, may be permitted to undertake ferry flight and the procedure for issue of such special flight permit or ferry flight permit.

13.12.2 GENERAL

(a) Definition:

(1) **Damaged aircraft** - An aircraft that has sustained physical damage or has inoperative/malfunctioning equipment.

(2) **Issuance:** The authorizing regulation of the LCAA should not automatically authorize the issuance of permits to all operators. Therefore, an eligible operator's operations specifications or Company Manuals (operations and maintenance) will be used to authorize the issue of such permits and to ensure responsible utilization of the permit.

(b) Eligibility

(1) The special flight permit shall be issued only to operators subject to the following:

(i) Operators of large transport aircraft

(ii) Operators maintaining aircraft under a continuous airworthiness maintenance program.

NOTE: *Operators of small aircraft are not eligible.*

(2) Aircraft involved in an accident or incident may not be ferried prior to notifying and receiving written authorization from the Manager Flight Safety Standards.

(3) An airworthiness directive (AD) may dictate that safety demands further limitations. The AD may limit ferry flight to those specifically approved by the LCAA.

(4) The Liberia CARs provide that no person may operate an aircraft to which an AD applies except in accordance with the requirements of that AD. Therefore, if an AD Requires compliance before further flight, with no provision for the issuance of special flight permit, the operation of the specified aircraft would not be permitted.

(c) Manual Review

(1) The operator should consider certain conditions and limitations necessary before authorizing the operation of an aircraft. These conditions and limitations should be included in the operator's manuals.

(2) When reviewing manual material, the following items should be considered:

(i) Technical data

(ii) Operational equipment necessary for safe operation of the aircraft

(iii) Aircraft weight limits

(iv) Fuel distribution limits

(v) Center of gravity limits

(vi) Aircraft maneuver limitations

(vii) Flight equipment usage, limitations, e.g., autopilot, etc.

(viii) Airspeed limits

(ix) Meteorological limits, including:

- Conditions to be avoided
- Required inspections when these conditions are encountered
- Weather minimums

(d) Authorization for Ferry Flights with one Engine Inoperative.

Certain large transport category aircraft operators may be authorized to conduct a ferry flight of a four engine airplane or a turbine engine powered airplane equipped with three engines, with one engine inoperative, to a base for the purpose of repairing that engine. The following restrictions should apply:

(1) The particular airplane model must have had a test flight conducted with an engine inoperative in accordance with performance data contained in the applicable airplane flight manual.

(2) The approved airplane flight manual must contain the performance data.

(3) The operator's manual must contain operating procedures for the safe operation of the airplane, including the specific requirements listed in the appropriate regulation.

(4) The operator may not depart an airport where the initial climb-out is in thickly populated or the weather conditions at the takeoff or destination airport are less than those required for Visual Flight Rules (VFR) flight.

(5) Only required flight crewmembers can be carried aboard during this ferry flight.

(6) The required flight crewmembers must be trained, and be thoroughly familiar with the company's operating procedures and the airplane Approved Flight Manual, for one-engine inoperative ferry flights.

APPENDIX 13-A: Application for Issue of Special/Ferry Flight Permit

1. Name of the Owner /Operator:
2. Address of the Owner /Operator:
3. Aircraft Details:

   Make _____

   Model _____

   Serial Number _____

   Registration Marks_____
4. Purpose of the Flight:
5. Flight Plan:
6. Names of the

   Flight Crew: _____

   Ratings held: _____

   License validity: _____
7. Detailed assessment of defect/damage sustained:
8. Any limitation/restriction the applicant considers necessary for safe operation of the aircraft:
9. Engineering: _____
   Operation: _____
10. Proposed action to make the aircraft fit for ferry flight:
11. Any other information relevant to the flight for the purpose of prescribing Operating limitations:

Signature of Chief of Operations

QCM

Date:

Place:

APPENDIX 13-B: Special / Ferry Special Flight Permit

Special / Ferry flight permit is hereby granted to _____ to fly _____ aircraft,

Registration Mark _____ from _____ to _____for the purpose

of_____.

The Ferry/ Special Flight Permit is valid till _____.

The Ferry/ Special Flight Permit is valid subject to the following conditions:

1. A copy of this ferry/ special flight permit shall be carried on board the aircraft when operating under this special flight permit.

2. Before operating an aircraft that does not meet applicable airworthiness requirements, the operator shall make a determination that the aircraft can safely be flown to a station where maintenance or alterations can be performed. In addition, the operator will have the aircraft inspected in accordance with procedures contained in the operator's manual and have a certificated engineer certify in the aircraft logbook that the aircraft is in safe condition for the flight as specified in the operator's manual.

3. Only flight crew members and persons essential to operations of the aircraft shall be carried aboard during ferry flights where the aircraft flight characteristics may have been altered appreciably or the flight operations affected substantially.

4. Operating mass of the aircraft must be the minimum necessary for the flight with necessary reserve fuel load.

5. Flight shall be conducted in accordance with appropriate special conditions or limitations contained in Airplane Flight Manual / CDL/ DDPG of MEL.

6. This ferry/ special flight permit does not permit operation of a product to which an airworthiness directive applies except in accordance with the requirements of that directive.

7. Aircraft involved in an accident or incident shall not be ferried prior to notifying the LCAA.

8. If the flight involves operation over countries outside Liberia, the operator of the aircraft must obtain special/ ferry flight permit from the appropriate authorities of such countries prior to operation of such flight.

9. Any other conditions or limitations as considered necessary by the operator for safe operation of flight.

Authorized Signatory

CHAPTER-14: CONTINUING ANALYSIS & AUDITING PROGRAM

14.1 OBJECTIVE

(a) This chapter provides guidance for reviewing an operator/applicant's Continuous Analysis and Auditing Program so that it meets the necessary regulatory requirements. This process should not be confused with the requirement for an operator to have an internal audit program – this requirement is additional as it requires that an operator checks to verify that his maintenance program/schedule is effective in maintaining his fleet.

(b) Reference can also be made to other Chapters of this handbook including:

(1) Chapter16 'Reliability Program',
(2) Chapter 19 'Airworthiness Auditing' and
(3) Chapter 21 'Company Maintenance manual'

14.2 GENERAL

(a) A continuing analysis and audit system should be included in the operator's maintenance manual. The system shall ensure the adequacy of an operator's maintenance program and confirm that the program is properly followed and controlled. The authority may require revisions to an operator's maintenance program based on deficiencies or irregularities revealed by the continuing analysis and audit system.

(b) Continuing Analysis and Audit Program Functions

(1) A continuing analysis and audit system has two functions:

(i) The "audit function" which includes a follow up for those components removed, and the strip report must be a part of the Continuing Analysis and Audit Program. It must also include examining the administrative and supervisory aspects of the operator's program (including work done outside of the operator's basic organization). The audit must ensure that the Main Base and Line Stations, and shops operate in accordance with company procedure. Details of the audit function are contained in Chapter 16 of this handbook and include such things as:

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

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

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

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

(ii) 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:

(A) Daily mechanical problems for affected aircraft (daily monitoring)

(B) Deferred maintenance items including excessive number and times (daily monitoring)

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

(D) Mechanical Interruption Summary Reports (MIS) (long term monitoring)

(E) Contained engine failures (emergency response)

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

(G) The continuing analysis and audit program should include a system of data collection and analysis which may or may not be part of a reliability program (refer to Chapter 5 of this manual).

(c) The continuing analysis and audit 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.

14.3 REVIEWING THE OPERATOR'S PROGRAM

(a) For maximum effectiveness, the continuing analysis and audit program 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 audit responsibility is assigned to an organizational unit that has other duties, these functions should be performed independently of the other duties.

(b) Mechanical performance analysis may be performed as part of a reliability program or as an independent data collection and analysis system (See Chapter 5 of this manual "Reliability Program" & FAA Advisory Circular 120-17, Maintenance Control by Reliability Methods). The system should include charting or other appropriate methods for recording and accounting of pertinent data at specified intervals. This will ensure continuous program operation. Data collection and analysis are essential elements for supporting the condition monitoring process.

(c) The use of contract agencies tends to complicate an operator's continuous analysis and audit 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 continuous analysis and audit system. Therefore, the continuing analysis and audit program must include procedures for transmitting essential information back to the operator.

(d) When aircraft fleets are grouped for purposes involving data collection, the data from the total of the fleets may provide a valid comparison for behavior 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.

NOTE: *Unacceptable performance of a small fleet may not contribute a significant statistical impact unless the data from the smaller fleet is reviewed individually.*

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

(f) The complexity and sophistication of the continuous analysis and audit 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 which includes specified analysis points and repetitive examinations.

(g) A data collection and analysis program can use a manufacturer as a collection and analysis center if the Director agrees. The operator is still responsible for the development and implementation of corrective actions and the overall effectiveness of the program.

(h) The human factor principles will be taken into account while evaluating the maintenance program.

14.4 APPROVAL PROCESS

(a) Brief Operator/Applicant on program requirements and procedures. Inform the operator/applicant that an acceptable program must have a continuous internal audit and analysis system that accomplishes the following:

(1) Evaluates the organization's performance and compliance with regulatory requirements,

(2) Identifies the deficiencies

(3) Determines and implements corrective actions

(4) Determines the effectiveness of corrective actions

(b) Review the Operator/Applicant's Program. When the operator/applicant presents the complete continuing analysis and audit program, ensure that the program audits and analyzes the following:

(1) Aircraft inspections

(2) Scheduled maintenance

(3) Unscheduled maintenance

(4) Aircraft, engine, prop and appliance repair and overhaul

(5) Maintenance manuals

(6) Mechanical Reliability Reports (MRRs)

(7) Mechanical Interruption Summary Reports (MISRs)

(8) Vendor facilities and capabilities

(9) Maintenance organization staffing

(10) Required Inspection Item Program (RIIs)

(c) Review Operator's Manual. Ensure that the manual contains the following:

(1) An organizational chart that defines the lines of authority and separates QA from other functional areas.

(2) Definitions of responsibilities and duties

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

(4) Examples of forms or reports that are used

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

(i) Accountability for all inspection requirements

(ii) Routine and nonroutine maintenance records

(iii) Overhaul records

(iv) Methods of Airworthiness Directives (ADs) compliance

(v) Service bulletin compliance

(vi) Major repairs and alterations approval data

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

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

CHAPTER-15: INSPECTION AND EVALUATION OF AMO FACILITIES & EQUIPMENT

15.1 OBJECTIVE

This chapter provides guidance for evaluating a maintenance organization facility for original certification, change in rating, or change in location or facilities. This chapter can be applied to an AOC holder or a dedicated maintenance facility.

Note: ICAO Annex 6, Part 1, states: An operator shall ensure that there is provided an organization, including trained staff, workshops and other equipment and facilities, to maintain all aeroplanes in an airworthy condition when in use.

15.2 GENERAL

(a) When determining the suitability of permanent housing for the maintenance of airframes, the inspector should consider climatic conditions. This is to determine if worker efficiency will be adversely affected by high or low temperatures, excessive dust or sand, or other conditions. The inspector should also consider the maintenance being performed to determine if work processes are affected adversely by conditions.

(b) Because of the requirement for testing of systems on aircraft operating under IFR and other specialized services such as X-ray, magnaflux, etc., there may be a need for an AMO to have the capability to move from location to location.

(1) Certificate holder/applicants may move any or all of their material, equipment, and technical personnel from place to place for the purpose of performing their functions. The address shown on the maintenance organization application will be considered the station's permanent location.

(2) If the station wishes to establish an additional location different than that shown on the application, the applicant should apply for satellite certification. If facilities exist that the certificate holder/applicant does not want certificated as a satellite station, they must be inspected and accepted by the Director prior to being used.

(c) Applicants for Accessory or Instrument ratings must possess the equipment and have the capability to inspect, test, and where necessary calibrate the items that will be worked on.

15.3 SATELLITE MAINTENANCE ORGANIZATION INSPECTIONS

(a) An approved maintenance organization may apply for certification of additional facilities or locations as satellites of a parent organization. This enables the parent facility to control inspection procedures at each facility and location. Each satellite must satisfy all regulatory requirements for each rating sought. A satellite facility inspection is conducted in the same manner as a maintenance organization facility inspection.

(b) A letter must accompany the application. This letter must:

(1) Request the application to be processed
(2) Indicate when the facilities and equipment will be ready for inspection
(3) Show the certificate number of the parent station

(c) An application for the satellite station need not be limited to the ratings held by the parent organization. The ratings sought by the satellite must be on the application.

(d) A maintenance organization wishing to operate a satellite maintenance facility in a foreign country must apply for a foreign maintenance organization certificate, not a satellite certificate.

15.4 FOREIGN MAINTENANCE ORGANIZATIONS INSPECTIONS

(a) The supervisory or inspection personnel of a foreign maintenance organization must be able to understand the (insert national Regulations) and the maintenance and service instructions of the articles to be worked on. These personnel may not be required to hold national AME licenses or approvals.

(1) If no certificate is held, determination of performance qualifications is made by using oral tests, practical tests, or any method acceptable to the Director.

(2) Supervisory personnel or personnel responsible for the final inspection of work on an aircraft of (insert home country name) at a foreign maintenance organization must be able to read, write, and understand (English).

(b) Although foreign maintenance organizations are not required to comply with all national regulations, foreign maintenance organizations are required to make reports and keep records in compliance with the regulations

15.5 CONTRACT MAINTENANCE FACILITIES

(a) It may be required for an applicant for a maintenance organization certificate to provide a list of maintenance functions to be performed by other persons. To ensure the original certification criteria will continue to be met, the certificate holder must submit a revised listing when changes occur. It is the inspector's responsibility to ensure that the regulations allow the work to be contracted out. This listing must be retained in the airworthiness office files.

(b) If work is contracted out to a non-certificated person; the certificate holder/applicant is responsible for ensuring that all work is performed in accordance with regulatory requirements.

(c) If a certificated maintenance organization intends to perform job functions that were previously contracted out, senior inspectors should plan to observe these functions during surveillance. If this requires the addition of facilities or equipment to perform these functions, they must be inspected prior to use.

15.6 APPROVAL PROCESS

(a) Receive/Review Application Documents/Inspection Procedures Manual. Review the application for accuracy and a determination of ratings or location applied for. Also determine if any maintenance functions will be contracted out.

(b) Evaluate housing and facilities. Inspect the following:

(1) Housing and shop areas to ensure the following:

(i) Adequate housing includes sufficient work space for maintenance functions to be accomplished

(ii) If requesting an airframe rating, that housing includes:

(A) Suitable permanent housing for at least one of the heaviest aircraft within the weight class of the rating being sought

(B) If climatic conditions allow, a permanent work dock that meets the requirements of the regulations

(iii) Proper storage and protection of:

(A) Materials

(B) Parts

(C) Supplies

(iv) Proper identification and protection of parts and subassemblies during:

(A) Disassembly

(B) Cleaning

(C) Inspection

(D) Repair

(E) Alteration

(F) Assembly

(v) Segregation of the following:

(A) Incompatible work areas, e.g., metal shop, battery charging area, or painting area next to an assembly area

(B) Non partitioned parts cleaning areas

(vi) Proper ventilation, lighting, and temperature and humidity for the type and complexity of work being accomplished

(2) Technical documents to ensure that documents:

(i) Are in compliance with the regulations

(ii) Are appropriate for the maintenance to be performed

(iii) Are current, accurate, and complete and in maintenance organization's possession

(iv) Are easily accessible to personnel and are controlled (no unauthorized copies)

(v) Include a method to ensure revisions are made

(3) Equipment, tools, and test equipment, per rating sought, to ensure:

(i) Required types and quantities are available and under the control of the maintenance Organization.

(ii) All required items are serviceable and within calibration criteria, to include traceability to one of the following:

(A) National Standards

(B) Standard established by the item's manufacturer

(C) If foreign manufactured, the standards of the country where manufactured, if approved by the Director

(iii) A system exists which makes it readily apparent to the user that the item is not overdue for calibration.

(iv) A record keeping system exists of calibration results

NOTE: *If the maintenance organization utilizes an engine test cell, it must be correlated to the manufacturer's specifications.*

(c) Review qualified staff list. Ensure that:

(1) Personnel directly in charge of maintenance functions for the maintenance organization are licensed/ approved in accordance with the regulations

(2) The certificate holder/applicant has a list of supervisory and inspection personnel that list at least one appropriately licensed/ approved mechanic in a supervisory position.

(3) The certificate holder/applicant's staff list includes inspectors authorized to make final airworthiness determinations

(d) Analyze findings. If deficiencies are found, meet with certificate holder/applicant to discuss possible corrective actions.

CHAPTER-16: RELIABILITY PROGRAMS

16.1 PURPOSE

This chapter provides guidance for reviewing and approving reliability programs, providing technical assistance and continuous evaluation of reliability programs.

16.2 BACKGROUND AND POLICY

(a) This section provides guidance for Airworthiness Inspectors to use in reviewing and approving reliability programs and providing technical assistance to the AOC holder.

(b) This task is to be closely coordinated between both the maintenance and avionics specialties.

(c) Approving a reliability program is one of the most complex duties of an Airworthiness ASI and special attention must be given to every element of the proposed program.

16.2.1 POLICY STATEMENT

(a) Reliability programs establish the time limitations or standards for determining intervals between overhauls, inspections, and checks of airframes, engines, propellers, appliances and emergency equipment.

(b) Guidance on the program elements is listed in Advisory Circular (AC) 12-031, Maintenance Program Management Through Reliability Methods the Airline/Manufacturer Maintenance Program Planning Document, MSG-2/3, and/or Maintenance Tasks.

(c) It is important that the ASI explains all of the program requirements to the operator/applicant.

16.2.2 PRIMARY MAINTENANCE PROCESSES

(a) MSG-2, Primary Maintenance Processes Definitions—

(1) Hard Time (HT), Overhaul Time Limit or Part Life-Limit. This is a preventive primary maintenance process that requires a system, component, or appliance be either overhauled periodically (time limits) or removed from service (life limit).

(i) Time limits may only be adjusted based on operating experience or tests, in accordance with procedures in the operator's approved reliability program.

(2) On Condition (OC). This is also a preventive primary maintenance process that requires a system, component appliance be inspected periodically or checked against some appropriate physical standard to determine if it can continue in service. The standard ensures that the unit is removed from service before failure during normal operation.

(i) These standards may be adjusted based on operating experience or tests, as appropriate, in accordance with a carrier's approved reliability program or maintenance manual.

(3) Condition Monitoring (CM). MSG-2 introduced condition monitoring. This process is for systems, components, or appliances that have neither HT nor OC maintenance as their primary maintenance process. It is accomplished by appropriate means available to an operator for finding and solving problem areas.

(i) The user must control the reliability of systems or equipment based on knowledge gained by analysis of failures or other indications of deteriorations.

(b) Most maintenance programs are a combination of the above. When a new aircraft is developed the aircraft manufacturer organizes a maintenance review under published guidelines in the Maintenance Steering Guide MSG. The MSG 2 or 3 could have been used depending on the date of development. Regardless, all AOC holders buying the aircraft as well as certification authorities participate in developing the manufacturers program.

16.2.2.1 *MSG-3, Maintenance Task Definitions*

(a) The following definitions apply to MSG-3 maintenance philosophy

(1) *Lubrication/Servicing (LU/SV).* Any act of lubrication or servicing for the purpose of maintaining inherent design capabilities. The replenishment of the consumable must reduce the rate of functional deterioration.

(2) *Operational/Visual check (OP/VC).* Hidden functional failure categories. An operational check is a task to determine if an item is fulfilling its intended purpose. The check does not require quantitative tolerances, but is a failure finding task.

(i) A visual check is an observation to determine that an item is fulfilling its intended purpose and does not require quantitative tolerances.

(ii) This is a failure finding task that ensures an adequate availability of the hidden function, to reduce the risk of a multiple safety failures, and to avoid economic effects of multiple failures and be cost-effective.

(3) *Inspection/Functional check (IN/FC), all categories.*

(i) Detailed inspection. An intensive visual examination of a specific structural area, system, installation or assembly to detect damage, failure, or irregularity. Available lighting is normally supplemented with a direct source of good lighting at an intensity deemed appropriate by the ASI. Inspection aids such as mirrors, magnifying lenses, etc., may be used. Surface cleaning and elaborate access procedures may be required.

(ii) General visual (surveillance) inspection. A visual examination of an interior or exterior area, installation, or assembly to detect obvious damage, failure or irregularity. This level of inspection is made under normally available lighting conditions, such as daylight, hangar lighting, flashlight, or drop-light and may require removal or opening of access panels or doors. Stands, ladders, or platforms may be required to gain proximity to the area being checked.

(iii) Special detailed inspection. An intensive examination of a specific item(s), installation, or assembly to detect damage, failure or irregularity. The examination is likely to make extensive use of specialized inspection techniques and/or equipment. Intricate cleaning and substantial access or disassembly procedures may be required.

(iv) Functional check. A quantitative check to determine if one or more functions of an item perform within specified limits.

Reduced resistance to failure must be detectable, and there must be a reasonably consistent interval between a deterioration condition and functional failure.

(4) *Restoration (RS), all categories.* That work necessary to return an item to a specific standard.

(i) Since restoration may vary from cleaning or replacement of single parts to a complete overhaul, the scope of each assigned restoration task has to be specified.

(5) *Discard (DS), all categories.* The removal from service of an item at a specified life limit. Discard tasks are normally applied to so-called single celled parts such as cartridges, canisters, cylinders, engine disks, safe-life structural members, etc

16.3 DATA COLLECTION SYSTEM

(b) Typical sources of data collection include the following—

(1) Unscheduled removals

(2) Confirmed failures

(3) Pilot reports

(4) Sampling inspections

(5) Shop findings

(6) Functional checks

(7) Bench checks

(8) Service difficulty reports

(9) Mechanical Interruption Summaries

(10) Other sources the operator considers appropriate

(c) Not all of these sources may necessarily be covered in each and every program. However, the availability of additional information provides the operator with a span of invaluable operating history for determining success or failure in meeting program goals.

(d) Data collected must be accurate and factual to support a high degree of confidence for any derived conclusion. It must be obtained from units functioning under operational conditions and must relate directly to the established levels of performance.

16.3.1 DATA ANALYSIS AND THE APPLICATION TO MAINTENANCE CONTROLS

The objective of data analysis is to recognize the need for corrective action, establish what corrective action is needed, and determine the effectiveness of that action.

16.3.1.1 *Data Analysis Systems*

(a) Data analysis is the process of evaluating mechanical performance data to identify characteristics indicating a need for program adjustment, revising maintenance practices, improving (modifying) hardware, etc.

(1) The first step in analysis is to compare or measure data against acceptable performance levels.

(2) The standard may be a running average, tabulation of removal rates for past periods, graphs, charts, or any other means of depicting a "norm".

16.3.1.2 *Programs Incorporating Statistical Performance Standards*

(a) Reliability programs developed under Advisory Circular 12-031 and earlier criteria use parameters for reliability analysis such as delays per 100 departures for an aircraft system.

These are commonly called "alert" programmes

(b) They incorporate performance standards as described in this section. These standards define acceptable performance.

(c) System performance data usually is reinforced by component removal or confirmed failure data. The condition monitored process can be readily accommodated by this type of program.

16.3.1.3 *Programs Using Other Analysis Standards*

(a) Data compiled to assist in the day to day operation of the maintenance program may be used effectively as a basis for continuous mechanical performance analysis.

These are commonly called "non-alert" programmes

(1) Mechanical interruption summaries, flight record review, engine monitoring reports, incident reports, and engine and component analysis reports are examples of the types of information suitable for this monitoring method.

(i) The number and range of inputs must be sufficient to provide a basis for analysis equivalent to the statistical standard programs.

(2) Actuarial analysis should be conducted periodically to ensure that current process classifications are correct

16.4 PERFORMANCE STANDARDS

(a) The following factors are acceptable for establishing or revising a reliability program's performance standards—

(1) Past and present individual operator and industry experience. If industry experience is used, the program must include a provision for reviewing the standard after the operator has gained 1 year of operating experience.

(2) Performance analysis of similar equipment currently in service

(3) Aircraft or equipment manufacturers' reliability engineering analysis

(4) History of experience where reliability standards were acceptable to the airline industry

(b) The program should incorporate statistical performance standards and not significantly deviate from the instructions in Advisory Circular 12-031, as amended and include—

(1) Performance measurements expressed numerically in terms of—

(i) System or component failure
(ii) Pilot reports
(iii) Delays
(iv) A/C operating hours
(v) Number of landings
(vi) Cycles
(vii) Other

(2) Standards adjusted to—

(i) Operators experience
(ii) Seasonal
(iii) Environmental

(3) Procedures for periodic review—

(i) Upward adjustment
(ii) Downward adjustment

(4) Monitoring procedure—

(i) New Aircraft
(ii) Computing performance standards

(5) No statistical performance standards—

(i) Do not approve program

16.5 EVALUATING PROGRAM DISPLAYS & CORRECTION

16.5.1 CORRECTIVE ACTION SYSTEM

(a) Corrective action should be positive enough to restore performance effectively to an acceptable level within a reasonable time. The corrective action system must include provisions for the following—

(1) Notifying the organization responsible for taking the action

(2) Obtaining periodic feedback until performance reaches an acceptable level

(3) Encompassing methods that have been established for the overall maintenance program, such as work orders, special inspection procedures, engineering orders, and technical standards

(4) Critical failures in which loss of function or the secondary effects of failure could affect the airworthiness of the aircraft

16.5.2 STATISTICAL PERFORMANCE STANDARDS SYSTEM

(a) A performance measurement expressed numerically in terms of system or component failure, pilot report, delay, etc. (bracketed by hours of aircraft operation, number of landing, operating cycles, or other exposure measurement) serves as the basis for the standard.

Control limits or alert values are usually based on accepted statistical methods, such as standard deviations or the piston distribution.

(b) Some applications use an average or baseline method. The standard should be adjustable and should reflect the operator's experience during seasonal and environmental condition changes and variations.

(c) The program should include procedures for—

(1) Periodic review and adjusting the program as appropriate; and.

(2) Monitoring new aircraft until sufficient operating experience is available to compute performance standards, normally one year.

16.5.3 DATA DISPLAY & REPORTING SYSTEM

(a) Operators with programs incorporating statistical performance standards (alert programs) should develop a monthly report, with appropriate data displays summarizing the previous month's activity. This report should include the following—

(1) All aircraft systems controlled by the program in sufficient depth to enable the LCAA- technical directorates and other recipients to evaluate the effectiveness of the total maintenance program

(2) Systems that exceeded the established performance standards and discussion of what action has been taken or planned

(3) An explanation of changes that have been made or are planned in the aircraft maintenance program, including changes in maintenance and inspection intervals and changes from one maintenance process to another

(4) A discussion of continuing over-alert conditions carried forward from previous reports

(5) The progress of corrective action programs

(b) Programs using other analytical standards (non-alert programs) should consolidate or summarize significant reports used in controlling their program to provide for evaluating program effectiveness. These reports may be computer printouts, summaries, or other forms.

(c) A typical program of this type reports the following information—

(1) Mechanical Interruption Summary (MIS) reports

(2) Mechanical Reliability Reports (MRR)

(3) Maintenance process and interval assignments (master specification)

(4) Weekly update to the maintenance Process and interval assignments

(5) Daily repetitive item listing by aircraft

(6) Monthly component premature removal report, including removal rate

(7) Monthly engine shutdown and removal report

(8) Quarterly engine reliability analysis report

(9) Engine threshold adjustment report

(10) Worksheets for maintenance process/task and interval changes (not provided to the LCAA- technical directorates but the LCAA approves the process/task changes)

16.5.4 PROGRAM REVIEW SYSTEM

(a) The program should include a procedure for revision which is compatible with LCAA approvals. The procedures should identify organizational elements involved in the revision process and the authority.

(b) The program areas requiring formal LCAA approval include any changes to the program that involve the following—

(1) Procedures relating to reliability measurement/ performance standards

(2) Data collection

(3) Data analysis methods and application to the total maintenance program

(4) Process/task changes

(5) Adding or deleting components/systems

(6) Adding or deleting aircraft types

(7) Procedural and organizational changes concerning administration of the program

16.6 INTERVAL ADJUSTMENTS & PROCESS CHANGES

16.6.1 INTERVAL ADJUSTMENT

(a) Reliability programs provide an operator with a method of adjusting maintenance, inspection, and overhaul intervals without prior LCAA approval.

(1) This does not relieve the operator or the LCAA of their responsibilities regarding the effects of the program on safety.

16.6.2 INTERVAL ADJUSTMENT PROCEDURES

(a) Procedures for adjusting maintenance intervals must be included in the program. Maintenance interval adjustments should not interfere with ongoing corrective action.

(b) There should be special procedures for escalating systems or components whose current performance exceeds control limits.

(c) Typical considerations for adjusting hard time or on condition intervals include the, following—

(1) Sampling

(2) Actuarial studies

(3) Unit performance

- Methods for adjusting aircraft/engine check intervals should be included if the programme controls these intervals.
- Sampling criteria should be specified.

(4) Inspector or maintenance findings

(5) Pilot reports

16.6.3 CLASSIFYING THE MAINTENANCE PROCESSES AND/OR TASKS

(a) The program should include procedures for the classification and assignment of maintenance processes and/or tasks and for changing from one process and/or task to another.

(1) Refer to MSG-2 for maintenance processes and MSG-3 for maintenance tasks.

(b) It should include the authority and procedures for changing maintenance specifications and the related documents to reflect the interval adjustment or processes and/or task changes.

16.7 RELIABILITY PROGRAM APPROVAL PROCEDURES

16.7.1 MEET WITH OPERATOR/APPLICANT

(a) When related program information is requested, provide Advisory Circular 12-031, Maintenance Control by Reliability Methods,

(b) Advise the operator/applicant of the following program requirements—

(1) Program application

(2) Organizational structure

(3) Data Collection system

(4) Methods of data analysis and application to maintenance control

(5) Procedures for establishing and revising performance standards

(6) Definition of significant terms

(7) Program displays and status of corrective action programs

(8) Procedures for program revision

(9) Procedures for maintenance control changes

16.7.2 EVALUATE THE PROGRAM APPLICATION PROCEDURES

(a) When the applicant submits a formal program, ensure that the program document defines the following—

(1) Components, systems, or complete aircraft controlled by the program. Individual systems and/or components are identified by Air Transportation Association Specification 100.

(i) A list of all components controlled by the program must be included as an appendix to the program document or included by reference (e.g., time limits, manuals, or computer report).

(2) The portion of the maintenance program controlled by the reliability program (overhaul and/or inspection, check periods, etc.).

16.7.3 EVALUATE ORGANIZATIONAL STRUCTURE

(a) The structure must be described adequately and address committee membership, if appropriate, and meeting frequency.

(b) Ensure that the reliability program includes an organizational chart that shows the following—

(1) The relationships among organizational elements responsible for administering the program

(2) The two organizational elements responsible for approving changes to maintenance controls and specifying the duties and responsibilities for initiating maintenance program revisions

One of the two organizations must have inspection or quality control responsibility or have overall programme responsibility.

16.7.4 EVALUATE THE ORGANIZATIONAL RESPONSIBILITIES

(a) Determine if the reliability program document addresses the following—

(1) The method of exchanging information among organizational elements. This may be displayed in a diagram.

(2) Activities and responsibilities of each organizational element and/or reliability control committee for enforcing policy and ensuring corrective action

(b) Ensure that authority is delegated to each organizational element to enforce policy.

16.7.5 EVALUATE THE DATA COLLECTION SYSTEM

(a) Ensure that the reliability document fully describes the data collection system for the aircraft, component, and/or systems to be controlled. The following must be addressed—

(1) Flow of information

(2) Identification of sources of information

(3) Steps of data development from source to analysis

(4) Organizational responsibilities for each step of data development

(b) Ensure that the document includes samples of data to be collected, such as powerplant disassembly and inspection reports, component condition reports, mechanical delay and cancellation reports, flight record reports, premature removal reports, in-flight shutdowns, confirmed failure reports, internal leakage reports, and engine shutdown reports.

(c) Ensure that the reliability document includes a graphic portrayal of program operations. It must be a closed loop and show source data, data correction, and analysis.

16.7.6 EVALUATE THE METHODS OF DATA ANALYSIS & APPLICATION TO MAINTENANCE CONTROLS

(a) Ensure that the data analysis system includes the following—

(1) One or more of the types of action appropriate to the trend or level of reliability experienced, including—

(i) Actuarial or engineering studies employed to determine a need for maintenance program changes

(ii) Maintenance program changes involving inspection frequency and content, functional checks, overhaul procedures, and time limits

(iii) Aircraft, aircraft system, or component modification or repair

(iv) Changes in operating procedures and techniques

(2) The effects on maintenance controls such as overhaul time, inspection and check periods, and overhaul and/or inspection procedures

(3) Procedures for evaluating critical failures as they occur

(4) Documentation used to support and initiate changes to the maintenance program, including modifications, special inspections, or fleet campaigns.

(i) The program must reference the operator's manual procedures for handling these documents.

(5) A corrective action program that shows the results of corrective actions in a reasonable period of time.

(i) Depending on the effect on safety, a "reasonable" period of time can vary from immediate to an overhaul cycle period.

(ii) Each corrective action plan or program must be made a matter of record and include a planned completion date.

(iii) Samples of forms used to implement these actions must be included in the program document.

(6) A description of statistical techniques used to determine operating reliability levels

16.7.7 EVALUATE THE PROCEDURES FOR ESTABLISHING & REVISING PERFORMANCE STANDARDS

(a) Ensure that each program includes one of the following for each aircraft system and/or component controlled by the program—

(1) Initial performance standards defining the area of acceptable reliability

(2) Methods, data, and a schedule to establish the performance standard

(b) Ensure that the performance standard is Responsive and sensitive to the level of reliability experienced and is stable without being fixed.

- The standard should not be so high that abnormal variations would not cause an alert or
- So low that it is constantly exceeded in spite of the best known corrective action measures.

(c) Ensure that the procedures specify the organizational elements responsible for monitoring and revising the performance standard, as well as when and how to revise the standard

16.7.8 EVALUATE DEFINITIONS

(a) Verify that each program clearly defines all significant terms used in the program.

(1) Definitions must reflect their intended use in the program and will therefore vary from program to program.

(2) Acronyms and abbreviations unique to the program also must be defined.

16.7.9 EVALUATE PROGRAM DISPLAYS, CORRECTIVE ACTIONS & REPORTING

(a) Ensure that the program describes reports, charts, and graphs used to document operating experience.

(1) Responsibilities for these reports must be established and the reporting elements must be clearly identified and described.

(b) Ensure that the program displays containing the essential information for each aircraft, aircraft system, and component controlled by the program are addressed

Each system and component must be identified by the appropriate Air Transportation Association Specification 100 system code number.

(c) Ensure that the program includes displays showing—

(1) Performance trends

(2) The current month's performance

(3) Reliability performance standards (alert values)

(d) The program must include the status of corrective action programs. This includes all corrective action programs implemented since the last reporting period.

16.7.10 EVALUATE THE INTERVAL ADJUSTMENTS & PROCESS AND/OR TASK CHANGES SYSTEM

(a) Review the change system procedures. Ensure that there are special procedures for escalating systems or components whose current performance exceeds control limits.

(b) Ensure that the program does not allow for the maintenance interval adjustment of any Certification Maintenance Requirements CMR) items.

- The operator may not use its reliability programme as a basis for adjusting the repeat interval for its corrosion prevention and control programme
- The operator may, however, use the reliability programme for recording data for later submission to the LCAA technical directorates to help substantiate repeat interval changes.

(1) CMR's are part of the certification basis.

(2) No CMR item may be escalated through the operator maintenance/reliability program.

(3) CMR's are the responsibility of State of Design/Manufacture engineering as far as approval and escalation.

(c) Ensure that the program includes provisions for notifying the LCAA when changes are made.

16.7.11 EVALUATE THE PROCEDURES FOR PROGRAM REVISIONS

(a) The reliability document must accomplish the following—

(1) Identify and isolate areas which require LCAA approval for program revision, including the following—

(i) Reliability measurement

(ii) Changes involving performance standards, including instructions relating to the development of these standards

(iii) Data collection system

- If the operator proposes that all revisions to the programme document be approved by the LCAA relevant directorate, isolation of those areas requiring LCAA approval is not required.
- The document must, however, recognize each of the adjacent requirements and must contain procedures for adequately administering and implementing changes required by these actions.

(iv) Data analysis methods and application to maintenance program

(v) Any procedural or organizational change concerning program administration

(2) Identify the organizational element responsible for approving amendments to the program

(3) Provide a periodic review to determine that the established performance standard is still realistic

(4) Provide procedures for distributing approved revisions

(5) Reference the operator's manual and provide the overhaul and inspection periods, work content, and other maintenance program activities controlled by the program

16.7.12 EVALUATE THE PROCEDURES FOR MAINTENANCE CONTROL CHANGES

(a) Ensure that the reliability program document addresses the following—

(1) Procedures for maintenance control changes to the reliability program

(2) The organizational elements responsible for preparing substantiation reports to justify maintenance control changes.

At least two separate organizational elements are required, one of which exercises inspection or quality control responsibility for the operator.

(3) Processes used to specify maintenance control changes (e.g., sampling, functional checks, bench checks, decision tree analysis, and unscheduled removal)

(4) Procedures covering all maintenance program activities controlled by the program

(5) Procedures for amending operations specifications, as required

(6) Procedures to ensure maintenance interval adjustments are not interfering with ongoing corrective actions

(7) Critical failures and procedures for taking corrective action

(8) Procedures for notifying the LCAA, when increased time limit adjustments or other program adjustments occur are addressed

16.7.13 ANALYZE RELIABILITY PROGRAM EVALUATION

(a) Upon completion, record all deficiencies noted.

(b) Determine the appropriate corrective action(s) to be taken.

(c) Deficiencies noted in the program must be given to the operator/applicant in writing.

16.8 APPROVAL OF CONTRACT RELIABILITY PROGRAMS

This section provides guidance for approving contracted reliability programs for airline operators who contract out their maintenance.

16.8.1 GENERAL

(a) Definitions

(1) Operator: An air operator contracting with another air operator for a maintenance program controlled by a reliability program.

(2) Contractor: An operator contracting out an approved maintenance program controlled by a reliability program to another operator.

(b) Responsibility

This task is performed by the Airworthiness Inspectors (AWIs) assigned to the operator/applicant. Special attention must be given to evaluate each element of a proposed program.

(c) General Considerations

(1) Traditionally, an aircraft maintenance program is based on—

(i) Integrity of the system, component, or installation

(ii) The capability of the facility performing the maintenance

(iii) The types of operation and environmental conditions in which the equipment is used

(2) Equipment similarities and operating characteristics, such as utilization, flight cycle length, and environment must be considered when evaluating a contractual arrangement.

(3) Program approval and the need to adjust inspection intervals, overhaul periods, etc., must be based on the suitability of the program.

16.8.2 CONTRACTUAL MAINTENANCE AGREEMENTS

(a) Contractual maintenance agreements are used by operators for various reasons, including:

(1) The impracticality of staffing and equipping maintenance facilities

(2) Lack of a technical support staff to develop effective maintenance programs

(3) Insufficient reliability control due to lack of statistical data

(b) Under contractual maintenance agreements, an operator's aircraft is treated as a part of a contractor's operating fleet. The operator is not required to develop its own reliability program for this arrangement. The operator must, however, have a continuing analysis and surveillance system and must participate in the contractual arrangement as necessary to uphold its airworthiness responsibilities.

(c) An operator/applicant must provide the Senior Airworthiness Inspector with information and data needed to show the effectiveness of this agreement.

(d) Traditionally, an aircraft maintenance program is based on:

(1) Integrity of the system, component, or installation

(2) The capability of the facility performing the maintenance

(3) The types of operation and environmental conditions in which the equipment is used

(e) Equipment similarities and operating characteristics, such as utilization, flight cycle length, and environment must be considered when evaluating a contractual arrangement. Program approval and the need to adjust inspection intervals, overhaul periods, etc., must be based on the suitability of the program.

16.8.3 OPERATOR AND CONTRACTOR COMPATIBILITY

(a) When evaluating a contractual arrangement for a reliability program, the following must be considered:

(1) Equipment: When model, configuration, or previous maintenance programs vary between the operator/applicant's equipment and the contractor's equipment, the program must identify the maintenance tasks required to include the operator/applicant's equipment in the contractor's program. The program also must also show additional tasks required to address specific differences in equipment.

(2) Utilization: If the operator's projected annual utilization differs significantly from the contractor's, consideration should be given to imposing calendar limits for inspection intervals in place of or in addition to flight hours.

(3) Flight Cycle Length: If the operator's ratio of flight hours per cycle differs significantly from the contractor's ratio, the operator's maintenance program may need adjustment to compensate for the differences.

(4) Environment: The operator's maintenance program may also need to be adjusted if the operating environments of the operator/applicant and contractor differ

significantly. The operator/applicant may need to change existing maintenance tasks, adjust intervals, and/or add new maintenance tasks.

16.8.4 RELIABILITY PROGRAM DOCUMENT

When an air carrier develops reliability programs for use by other air carriers, the reliability program document must define the responsibilities of the participating air carriers and include procedures for interface between the two. The document must be based on the premise that the operator adopts appropriate portions of the contractor's approved aircraft maintenance program. The reliability program must meet the requirements of the authority.

16.8.5 DATA ANALYSIS

The contractor's reliability program must describe the data analysis system. The contractor should consolidate all data collected, analyze the data, and return it to the operator/applicant in a usable form. This analysis should compare the mechanical performance of the operator/applicant's aircraft to acceptable levels and to the performance of the contractor's fleet.

16.8.6 PROGRAM DISPLAYS AND STATUS OF CORRECTIVE ACTION PROGRAMS

(a) Displays and reports must highlight the systems that have exceeded the established performance standard. "Over alert" conditions should be carried over from previous reports and a status of ongoing corrective action should be provided.

(b) The contractor's program must describe the reports, charts, and graphs used to document operating experience. Responsibilities for these reports must be established and the reporting elements must be clearly identified and described.

(c) Program display containing the essential information for each aircraft, aircraft system, and component controlled by the program must be described. Each system and component must be identified by the appropriate Air Transportation Association Specification 100 system code number.

(d) The following must be displayed:

(1) Performance trends

(2) The current month's performance (graphical or tabular presentations may be used)

(3) A minimum of 12 months experience

(4) The reliability performance standards (alert values)

(e) The status of corrective action programs must include all corrective action programs implemented since the last reporting period.

(f) The contractor must have manual procedures or a contractual requirement to provide the operator with reports that reflect performance experience and status of corrective action.

16.8.7 CONTRACTUAL AGREEMENT

The requirements imposed on the contractor by the operator's maintenance program, reliability program, and operations specifications must be supported by the contractual agreement. The operations specifications issued to the operator are not binding on the contractor. It is the operator/applicant's responsibility to ensure that all requirements of the specifications, program, and manual are met.

16.8.8 APPROVAL

The Director General may approve the use of the reliability program by issuing operations specifications or approval of the Company MM. Program changes must be approved by the Senior Airworthiness Inspectors either on an individual basis or by procedures approved as part of the reliability program.

16.9 CONTRACT RELIABILITY PROGRAM EVALUATION PROCEDURES

16.9.1 Meet with the operator/applicant

(a) Provide the operator/applicant with appropriate information.

(1) Upon request for reliability program information, provide LCAA reliability Advisory Circular.

(2) Advise the operator/applicant that the application for authorization to use a contractor's reliability program consists of at least the following documents:

(i) Contractor's approved reliability program

(ii) Operator/applicant's manual procedures to support the reliability program

(iii) Operations specifications checklist/worksheet

(iv) The contractual agreement between the operator/applicant and the contractor

(3) Advise the applicant that the reliability program must include the following:

(1) For the operator/applicant and contractor:

(A) Adequate organizational structure

(B) Data collection and analysis

(C) Program revisions

(D) Details of contractual arrangements

(2) For the contractor only:

(A) Adjustment of time limits and process changes

(B) Definition of significant terms

(C) Procedures for revising performance standards

(3) Provisions for compatibility between the operator/applicant and the contractor regarding types of equipment, operational environment, flight length, and aircraft utilization.

16.9.2 CONTACT THE SERVICE PROVIDER'S STATE AUTHORITY

(a) Accomplish the following:

(1) Ensure that the contractor has a valid certificate, an approved continuous airworthiness maintenance program, and an approved reliability program (if applicable) for the type equipment operated by the operator/applicant

(2) Review the content of the contractor's reliability program (if applicable)

(3) Determine the types of equipment the operator/applicant has in operation

(b) Determine if the operator/applicant's and the Contractor's Equipment, Utilization, Flight Cycle Length, and Environment are compatible

16.9.3 EVALUATE PROGRAM APPLICATION PROCEDURES

(a) Ensure that the contractor's reliability program includes the following:

(1) Components, systems, or complete aircraft controlled by the program. Individual systems and/or components are identified by Air Transportation Association Specification 100. A list of all components controlled by the program must be included.

(2) A complete aircraft inspection program, including the portion of the maintenance program controlled by the reliability program (overhaul and/or inspection, check periods, etc.)

(3) Evaluation of conditions and trends found during the inspection of the aircraft that will result in corrective action

16.9.4 EVALUATE THE OPERATOR/APPLICANT'S AND THE CONTRACTOR'S ORGANIZATIONAL STRUCTURES

(a) The organizational charts just show the following:

(1) The relationship between the participants responsible for administering the program

(2) The authority delegated to each organizational element

16.9.5 EVALUATE ORGANIZATIONAL RESPONSIBILITIES

(a) Ensure that the contractor's reliability program document and the operator/applicant's procedures describe how information is exchanged between organizational elements. This may be displayed in a diagram.

(b) Ensure that the reliability program document and the operator/applicant's procedures define the activities and responsibilities of each organizational element (Engineering, Quality Control, Flight Operations, etc.) and/or reliability control committee for enforcing policy and ensuring corrective action.

(c) Compare the operator/applicant's organizational structure and personnel duties and responsibilities with the requirements in the contractual agreement and the reliability program.

16.9.6 EVALUATE THE DATA COLLECTION SYSTEM

(a) Ensure that the contractor's program fully describes the data collection system as it relates to the aircraft, components, and/or systems to be controlled. The program must:

(1) Address the flow of information

(i) Identify any sources of information

(ii) Specify the steps of data development from source to analysis

(iii) Describe the organizational responsibilities for each step of data development

(b) Ensure the program includes samples of data to be collected, such as reports for the following:

(i) Powerplant disassembly and inspection

(ii) Component condition

(iii) Mechanical delay and cancellation

(iv) Flight log

(v) Premature removal

(vi) In-flight

(vii) Confirmed failure

(viii) Internal leakage

(ix) Engine shutdown

(c) Verify that the operator's manual includes procedures for collecting the required data and sending it to the contractor in accordance with the contractual arrangement. The required data should include corrective actions as well as shop repair records for work performed away from the contractor's facility.

16.9.7 EVALUATE METHODS OF DATA ANALYSIS AND APPLICATION TO MAINTENANCE CONTROLS

(a) Ensure the data analysis system includes the following:

(1) One or more of the types of action appropriate to the trend or level of reliability experienced, such as:

(i) Actuarial or engineering studies employed to determine a need for maintenance program changes

(ii) Maintenance program changes involving inspection frequency and content, functional checks, overhaul procedures, and time limits

(iii) Aircraft, aircraft system, or component modification or repair

(iv) Changes in operating procedures and techniques

(2) Effects on maintenance controls, such as overhaul time, inspection and check periods, and overhaul and/or inspection procedures

(3) Procedures for evaluating critical failures as they occur

(4) Documentation required for maintenance program changes, modifications, special inspections, or fleet campaigns. The contractor's manual must provide procedures for retaining these documents.

(5) A corrective action program that shows the results of corrective actions in a reasonable period of time. Depending on the effect on safety, a "reasonable" period of time can vary from immediate to the time period of an overhaul cycle.

(6) A description of statistical techniques used to determine operating reliability levels

(7) Procedures to inform the operator/applicant of changes to maintenance controls

(8) Data analysis that considers the past experience of both the contractor and the operator/applicant

(9) An adequate, timely flow of information between the contractor and the operator/applicant

16.9.8 EVALUATE OPERATOR/APPLICANT'S MANUAL

(a) Ensure the operator/applicant has manual procedures to accomplish the following:

(1) Performing corrective action through the person responsible

(2) Notifying persons responsible for taking corrective action

(3) Informing the contractor when corrective action changes were made and the extent of those changes

(4) Follow up to ensure corrective actions taken are effective

NOTE: *A corrective action is effective if the out-of-limit condition is brought back to an acceptable level of performance.*

16.9.9 EVALUATE PROCEDURES FOR REVISING THE RELIABILITY PROGRAM

(a) Ensure there are procedures for the contractor to obtain CAA approval before changing any of the following elements of the reliability program:

(1) Performance standards

(2) Data collection

(3) Data analysis system

(4) Process/task

(5) Procedures/organization concerning program administration

(6) Changes from alert-type programs to non alert-type programs or vice versa

(7) Adding or deleting aircraft, components, or systems

NOTE: *Changes to these aspects of the reliability program must be coordinated between the Senior Airworthiness Inspectors assigned to the operator/applicant and the contractor.*

16.9.10 EVALUATE PROCEDURES FOR REVISING PERFORMANCE STANDARDS

(a) Ensure the contractor's procedures specify the organizational elements responsible for monitoring and revising the performance standard and the content of those revisions. Performance standards should be revised when they are not responsive or sensitive enough to reflect changes in actual performance.

(b) If the operator/applicant submits a program which does not incorporate statistical performance standards or which deviates significantly from the states standards (e.g. AC 12-031), contact the contractor's assigned Airworthiness Inspector.

(1) Examine the basis for the deviations and the integrity of the program and determine if any restrictions apply.

(2) If unresolved issues about the contractor's program remain, contact head office for guidance.

16.9.11 EVALUATE DEFINITIONS

Verify that the reliability program clearly defines unique terms, acronyms, and abbreviations as applied to the program.

16.9.12 EVALUATE PROGRAM DISPLAYS AND STATUS OF CORRECTIVE ACTION PROGRAMS

Ensure that the contractual agreement or the contractor's manual requires the contractor to provide the operator with reports that reflect performance experience and corrective action status.

16.9.13 EVALUATE PROCEDURES FOR MAINTENANCE CONTROL CHANGES

(a) Verify that the contractor's reliability program document:

(1) Describes the procedures for maintenance control changes to the reliability program

(2) Identifies the organizational elements responsible for preparing reports that justify maintenance control changes. At least two separate organizational elements are required, one of which exercises inspection or quality control responsibility for the operator/applicant.

(3) Specifies the processes used to determine maintenance control changes, such as sampling, functional checks, bench checks, decision tree analysis, and unscheduled removal

(4) Provides procedures to cover all maintenance program activities controlled by the program

(5) Recognizes critical failures and contains procedures for taking corrective actions

(6) Provides procedures to ensure that any maintenance interval adjustments will not interfere with ongoing corrective actions

(7) Contains procedures for notifying the LCAA when time limitations adjustments or other program changes occur

16.9.14 REVIEW CONTRACTUAL ARRANGEMENT

(a) Ensure the contract:

(1) Identifies participating parties

(2) Identifies applicable equipment

(3) Defines the responsibilities of both contracting parties

(4) Supports the responsibilities of the contractor specified in the reliability program

16.9.15 INSPECT CONTRACT MAINTENANCE FACILITY

Determine if the contractor is capable of meeting its contractual obligations. Provide the district office with information necessary to perform the inspections, such as the contractual arrangement and operator/applicant's manual procedures.

16.9.16 ANALYZE THE FINDINGS

(a) Record all deficiencies noted.

NOTE: *If discrepancies are found in the approved reliability program, contact the contractor's assigned Airworthiness Inspector to resolve the discrepancies.*

(b) Determine appropriate corrective action(s) to be taken.

(c) Advise the operator/applicant of discrepancies. Agree on the corrective action to be taken.

(d) Completion of this task results in one of the following—

(1) Issued operations specifications authorizing the use of the service provider's reliability program

(2) A letter to the operator/applicant denying the authorization

16.9.17 DOCUMENT TASK

File all supporting paperwork in the operator/applicant's office file.

APPENDIX 16-A: JOB AID: AW-023A- Evaluate Reliability Programme

FILE REFERENCE: _____

KEY PERSONNEL MET:

NAME	TITLE
1.	
2.	
3.	
4.	
5.	

Date		**Control #**	
Name of Operator		**AOC #**	
State of Operator		**Type of Aircraft**	
Location		**Aircraft Reg#**	
Destination			
Action Taken			

PLEASE CHECK THE APPROPRIATE BOX FOR THE FOLLOWING; SATISFACTORY (S), NOT SATISFACTORY (NS) OR NOT APPLICABLE (N/A). INDICATE REGULATORY OR OTHER REFERENCE(S) FOR NOT SATISFACTORY (NS) ITEMS WHERE APPLICABLE. PROVIDE FURTHER DETAILS IN THE REMARKS SECTION IF REQUIRED.

		CHECKLIST ITEMS			
REFERENCE	**1**	**MONTHLY REPORTS TO LCAA**	**S**	**NS**	**N/A**
	1.1	A summary of defects and corrective action?			
	1.2	A summary of unscheduled component removals?			
	1.3	A summary of in-flight engine shutdowns?			

AIRCRAFT CONFIGURATION	
● **Aircraft Make & Model?**	
● **Engine Make & Model?**	

	1.4	A summary of in-flight propeller feathering (if Applicable)?			
REFERENCE		**MONTHLY REPORTS TO LCAA (Conti…)**	**S**	**NS**	**N/A**
	1.5	A summary of delays/cancellations/diversions due to technical/maintenance reasons?			
	1.6	The aircraft, engine and propeller hours for the reporting period and the total time in service for the aircraft, engine and propeller?			

	1.7	The number of unscheduled engine removals and reason for removal?			
	1.8	The unscheduled engine removal rate per 1000 engine hours?			
	1.9	The in-flight engine shutdown rate per 1000 hours			
	1.10	The in-flight propeller feathering per 1000 hours (if applicable)?			
	1.11	The number of aircraft in the programme?			
REFERENCE	**2**	**OTHER REQUIREMENTS**	**S**	**NS**	**N/A**
	2.1	Are the investigation procedures to be undertaken in the event of unsatisfactory reliability or condition alert in place?			
	2.2	Does the operator have a training programme in place?			
	2.3	Does the operator have procedures for reporting required information to the MTC and /or the manufacturer?			
	2.4	Does the GCAA require a Reliability Programme?			
	2.5	Does the manual provide for a Reliability Programme by a Contractor?			
	2.6	Are there provisions for the contractor to be provided with all necessary data?			
	2.7	Does the Contract include sufficient information to determine what the contractor is actually providing to the operator?			

Item Number	REMARKS

INSPECTOR NAME		**ORG REP NAME**	
INSPECTOR SIGNATURE		**ORG REP SIGNATURE**	

APPENDIX 16-B: JOB AID: AW-023B- Monitor Reliability Programme

FILE REFERENCE: _____

KEY PERSONNEL MET:

NAME	TITLE
1.	
2.	
3.	
4.	
5.	

Date		**Control #**	
Name of Operator		**AOC #**	
State of Operator		**Type of Aircraft**	
Location		**Aircraft Reg#**	
Destination			
Action Taken			

PLEASE CHECK THE APPROPRIATE BOX FOR THE FOLLOWING; SATISFACTORY (S), NOT SATISFACTORY (NS) OR NOT APPLICABLE (N/A). INDICATE REGULATORY OR OTHER REFERENCE(S) FOR NOT SATISFACTORY (NS) ITEMS WHERE APPLICABLE. PROVIDE FURTHER DETAILS IN THE REMARKS SECTION IF REQUIRED.

		CHECKLIST ITEMS			
REFERENCE	**1**	**AIRWORTHINESS DIRECTIVES/MANDATORY SERVICE BULLETINS**	**S**	**NS**	**N/A**
	1.1	Is there a master list (Summary Sheet) of all ADs/ Mandatory Service Bulletinsfor the aircraft, its engines and/or components?			
	1.2	Does the list account for all ADs and/or Mandatory Service Bulletins issued forthat make/model?			
	1.3	Have applicable ADs and Mandatory Service Bulletins been complied with?			
	1.4	Are ADs/Mandatory Service Bulletins accomplished within specified times?			

REFERENCE	**4**	**DATA DISPLAY & REPORTING SYSTEM**	**S**	**NS**	**N/A**
	4.1	Operators with programmes including statistical Performance standards should develop monthly report including the following:			
	4.2	● All aircraft systems controlled by the programme			

	4.3	● Systems that exceeded the established performance standard			
	4.4	● Changes that have been made or planned in aircraft maintenance programme / inspections			
	4.5	● Over alert conditions carried forward from previous reports			
	4.6	● The progress of corrective actions			
	4.7	Operators using other analytical standards (non alert) should develop report including the following:			
	4.8	● Mechanical Interruption Summary			
	4.9	● Mechanical Reliability Reports			
	4.10	● Maintenance process/task and interval assignments			
	4.11	● Weekly update to the maintenance process			
	4.12	● Daily repetitive item listing by aircraft			
	4.13	● Monthly component premature removal report			
	4.14	● Monthly engine shutdown and removal			
	4.15	● Quarterly engine reliability analysis report			
	4.16	● Engine threshold adjustment report			
	4.17	● Worksheets for maintenance process/task and interval changes			
REFERENCE	**5**	**PROGRAMME REVIEW SYSTEM**	**S**	**NS**	**N/A**
	5.1	Does the programme include a procedure for revision?			
	5.2	Does the programme provide a method of adjusting maintenance / inspection /overhaul intervals			
	5.3	Does the programme provide a procedure of adjusting maintenance intervals?			
REFERENCE	**6**	**EVALUATION OF RELIABILITY PROGRAMME**	**S**	**NS**	**N/A**
	6.1	Does the programme document define components, systems or complete aircraft?			
	6.2	Does the programme document define the portion of the maintenance controlled?			
	6.3	Does the Organization structure described adequately?			
	6.4	Does the Organization structure show the relationship among organizational elements responsible for initiating the			

		maintenance? Programme revision?			
	6.5	Does the Organization structure shows the two organizational elements responsble for approving changes in the maintenance. Programme?			
	6.6	Does the reliability programme determine method of exchanging information among organizational elements?			
	6.7	Does the reliability programme addresses activities and responsibilities among organizational elements?			
	6.8	Does the reliability programme that LCAA is delegated to each organizational element?			
	6.9	Does the reliability programme address flow of information?			
	6.10	Does the reliability programme address identification of sources			
	6.11	Does the reliability programme address steps of data development from source to analysis?			
	6.12	Does the reliability programme address Organizational responsibilities for each step of data development?			

Item Number	REMARKS

INSPECTOR NAME		**ORG REP NAME**	
INSPECTOR SIGNATURE		**ORG REP SIGNATURE**	

CHAPTER-17: EVALUATING OPERATOR'S MASS & BALANCE CONTROL PROGRAM

17.1 BACKGROUND AND OBJECTIVES

This chapter provides guidance for evaluating an operator/applicant's mass and balance control program.

17.2 GENERAL

(a) Approved mass and balance control procedures are the only means for an operator/applicant to authorize the use of other than known masses for crew, passengers, baggage, or cargo. The mass and balance control program, including loading schedules and charts, are approved on operations specifications by the Director. This program must be included in the operator/applicant's policies and procedures manual.

(b) The operator/applicant may develop and submit for approval any method or procedure by which it can show that an aircraft:

(1) Is properly loaded according to approved configuration (loading schedules or charts)

(2) Will not exceed authorized mass and balance limitations during all ground and flight operations

(3) Will be periodically reweighed and its data reevaluated

(4) Will have its data recalculated, if changes necessitate

(5) The operator/applicant's mass and balance control procedures may either be an independently controlled document which includes all the instructions and procedures for maintenance, operations, and baggage/cargo control, or it may be included in the manual.

17.3 ESTABLISHED MASS AND CENTER OF GRAVITY (CG) LIMITS

(a) During type certification, the aircraft manufacturer must flight test mass and balance under all conditions and establish center of gravity limits. These limits are approved by the State of design.

(b) If an operator/applicant proposes an unusual or complex mass and balance program, or a program substantially different from the approved Aircraft Flight Manual or Pilot Operating Handbook, additional assistance should be requested.

17.4 LOADING PROCEDURES

(a) Use of Average Passenger masses. For some types of regular operations, average passenger and baggage weights may be authorized.

(1) Average masses may be determined by actually weighing passengers and baggage and documenting the masses. Average masses must be based on acceptable data collected during actual operations.

(2) Generally, average masses for operations in warm climates are lighter than those in colder climates. In establishing average passenger and baggage masses, operating environment must be considered. For example, clothing worn or carried in colder climates may affect the established weight.

NOTE: *The average passenger and baggage weights in found in documents such as FAA Advisory Circular 120-27, Aircraft Weight and Balance Control, is for guidance only and must be evaluated for applicability to individual operators in the various countries they operate in.*

(b) Nonstandard Mass Groups. Average weights are not suitable for groups that tend to be heavier or lighter than the average. The operator/applicant must use actual masses for loading nonstandard mass groups and their baggage (such as athletic squads, military personnel, and children's groups).

(c) Carry-on Baggage. Procedures must be provided for controlling carry-on baggage.

(1) Carry-on baggage must be limited to articles that may be placed in overhead compartments or under seats. No article may be placed in an overhead compartment that causes the mass limit of the compartment to be exceeded.

(2) Carry-on baggage mass must either be accounted for in the same manner as checked baggage or be added to the passenger mass.

(3) Operators using average masses for computing mass and balance should reevaluate carry-on baggage mass at least once per year.

17.5 AIRCRAFT WEIGHTS

(a) Weighing of Aircraft

(1) The frequency of weighing aircraft operated under light aircraft operating rules may be at set intervals of 3-5 years. Both the operator/applicant's operations specifications and manual must reflect this requirement.

(2) Aircraft operated under heavy aircraft operating rules are not normally required to be weighed every 5 years however if the operator has a properly controlled weight control program approved by the Director this requirement may be extended.

(b) Use of Fleet Weights. A fleet generally is considered to be three or more aircraft of the same model and configuration. This allows realistic averages to be determined.

(1) Aircraft operating under fleet weights must be weighed in accordance with the operator/applicant's instructions. The operating weights and center of gravity position must be within established limits. The use of fleet weights is authorized by operations specifications.

(2) An operator's empty fleet weight is determined by averaging aircraft weights as follows:

Fleet Size	Weighing Policy
3 aircraft	Weigh all aircraft
4 to 9 aircraft	Weigh 3 aircraft plus at least 50 percent of the number over 3
Over 9 aircraft	Weigh 6 aircraft plus at least 10 percent of the number over 9

(c) Scales used to weigh passengers, aircraft, cargo, and baggage must be calibrated and traceable to a national standard. Calibration must be performed in accordance with the civil authority for weights and measures having jurisdiction over the area in which the scales are used. The frequency of testing depends on use and handling.

17.6 CONTRACTORS

An operator/applicant may use a contractor to weigh items required to be weighed. However, the operator/applicant is responsible for ensuring the contractor complies with the operator/applicant's approved weight and balance control program. This includes ensuring scales are calibrated and tested in accordance with the operator/applicant's Policies and Procedures Manual.

17.7 EVALUATION PROCEDURES

(a) Coordinate with operator/applicant. Operator/applicant must submit the following for review:

(1) Manual or revision

(2) Weight and Balance Program document (if not part of manual)

(3) Pertinent company procedures

(4) Instructions for completing forms used in aircraft weight control and aircraft loading

(5) Mathematical justification for loading provisions or schedules

(b) Review the Operator/Applicant's Manual/Program document. The manual must include procedures, levels of authority, and information appropriate to (National Requirements). In addition, the following must be included:

(1) Manual introduction, to include:

(i) Description of the philosophy and the goals of the manual

(ii) Description of the division of contents between volumes, if more than one volume

(iii) List of effective pages, including dates

(2) Manual revision and distribution procedures, to ensure:

(i) Current information is provided to all manual holders

(ii) Manuals are available to maintenance, operations and ground personnel and are furnished to the Director

(3) Definitions of all significant terms used in the program. The definitions must reflect their intended use. Acronyms or abbreviations unique to the manual must also be defined.

(4) Description of the organizational unit responsible for the control and maintenance of the weight and balance program, to include:

(i) Definitions of lines of authority

(ii) Description of the support structure

(5) Job descriptions for all elements

(6) Training programs that include the following:

(i) Maintenance personnel

(ii) Operations and dispatch personnel

(iii) Ground handling personnel

(7) A means of documenting and retaining individual training records

(8) Procedures for:

(i) Determining standards and schedules for calibration of aircraft scales

(ii) Pre-weighing instructions and requirements

(iii) Determining which aircraft are to be weighed

(iv) Establishing and maintaining equipment lists for each aircraft

(v) Recording the type and serial number for each scale used, airplane weight, residual fluids, and scale tare weights

(vi) Initial weighing of aircraft

(vii) Monitoring and adjusting individual aircraft or fleet, empty weight and center of gravity

(viii) Periodic re-weighing of aircraft

(ix) Ensuring aircraft are configured in accordance with approved data

(9) A loading schedule consisting of graphs/tables or a special loading schedule for a calculator or computerized program. These schedules must ensure pertinent data is available concerning all probable weight and balance conditions of the aircraft

(10) A load manifest on which all required loading information shall be entered by personnel responsible for weight and balance control, including procedures for:

(i) Completing the load manifest

(ii) Ensuring load manifest is carried on the aircraft

(iii) Retaining the load manifest for the time periods specified in the (National Regulations)

(iv) Distribution of the load manifest in accordance with (National regulations)

(11) Procedures to be used by crew members, cargo handlers, and other personnel concerned with aircraft loading, for the following:

(i) Distribution of passengers

(ii) Distribution of fuel

(iii) Distribution of cargo

(iv) Verification and acceptance of actual cargo weights as listed on a bill of lading Restriction of passenger movement during flight, if applicable

(v) Hazardous material requirements, if applicable

(12) A drawing of each cargo and/or passenger configuration to include emergency equipment locations

(13) Mathematical justification for loading provisions or schedules. This may be included under separate cover and not as part of the company manual.

(14) An alternate procedure for allowing manual computations, if a computerized weight and balance program is utilized

(15) Procedures for a weight range system, if applicable, that ensures:

(i) The range is typical of passengers carried on similar operations

(ii) Computations for critical load considerations support the ranges

(iii) Personnel responsible for loading the aircraft are required to prepare appropriate loading records

(iv) The system includes methods for loading passengers whose weights are outside the range

(v) Loading records indicate the number of passengers within the stated range and account for passengers that do not fall within the range

(16) A system for loading nonstandard weight groups, such as athletic squads or military groups and their baggage, which must utilize actual weights for both passengers and baggage

(17) Procedures to verify actual weight of cargo

(18) Standards and schedules for calibration of commercial scales used to determine baggage/cargo weights

(19) Procedures to ensure that carry-on baggage is limited to articles which may be placed in overhead compartments or under seats. Carry-on baggage weight must be accounted for in the same manner as checked baggage or added to the average passenger weight.

(c) Review Operator/Applicant's Operations Specifications. Review the draft operations specifications to ensure that operations specifications Paragraph E include the following:

(1) Aircraft make/model/series
(2) Type of loading schedule
(3) Loading schedule instructions for:

(i) Passenger and crew (average or actual weight)

(ii) Baggage (average or actual weight) and cargo (actual)

(iii) Nonstandard weight groups

(4) Weight and balance control procedures

NOTE: *The above items must be referenced by indicating the locations of the same items in the operator/applicant's manuals, e.g., volume, chapter, etc.*

(d) Analyze the results. Upon completion of review, analyze the results and determine whether the operator/applicant's manual and operations specifications meet all requirements.

CHAPTER-18: LEASE AND INTERCHANGE OF AIRCRAFT

18.1 BACKGROUND

(a) The material in this part is intended to provide guidance to Airworthiness Inspectors in meeting their responsibilities and the states relating to continuing airworthiness when

they are involved, either representing the State of the Operator or the State of Registry, in the transfer of aircraft under lease, charter or interchange arrangements. The responsibilities of States in these circumstances are referred to in Note I which precedes Chapter 3 of Annex 6, Part I and the Note which precedes Part II of Annex 8.

(b) The entry into force of Article 83 *bis* of the Chicago Convention has created the opportunity for the State of registry to delegate certain functions and duties. However, the purpose of the material in this document is to draw the attention of the two airworthiness authorities involved, the State of Registry and the State of the Operator, to problems directly concerning continuing airworthiness which have to be considered when such transfers occur, irrespective of Article 83 *bis.*

(c) Authorities should give due consideration to the objectives of continuing airworthiness and to the transfer of information as required in:

(1) Annex 6, Part I, 8.6, "Modifications and repairs";

(2) Annex 6, Part 1, 8.4, "Records";

(3) Annex 6, Part I, 11.3, "Maintenance program"; and

(4) Annex 8, Part II, 4.2, "Information related to continuing airworthiness of aircraft".

In doing so, authorities should also take into account the type/length of transfers, etc., and should develop administrative procedures and arrangements between the States involved to ensure that the continuing airworthiness of the aircraft is maintained.

(d) Chapter 10 of ICAO Doc 8335, Manual of Procedures for Operational Inspection, Certification and *Continued Surveillance* advises of legal and practical operational problems to be considered by the authorities in the certification of an operator proposing to utilize leased aircraft.

(e) Irrespective of the various types of arrangements and categories of lease, charter and interchange (Doc 8335), this part will discuss the following issues in relation to the transfer of aircraft between the State of Registry and the State of the Operator:

(1) acceptance of the "type design";

(2) maintenance;

(3) information on faults, malfunctions and defects and other occurrences;

(4) mandatory continuing airworthiness information;

(5) distribution of mandatory continuing airworthiness information.

18.2 LEASE OF FOREIGN REGISTERED AIRCRAFT

(a) For those aircraft intended to be operated in Liberia which are not registered by the State of Operator, LCAA requires evidence of conformity with oversight responsibilities of the State of Registry and the State of the Operator for each aircraft so operated.

18.2.1 DRY LEASE

(a) A dry lease is understood to be the lease of an aircraft where the aircraft is operated under the AOC of the lessee. It is a lease where the aircraft is provided without a crew, operated under the custody and the operational and commercial control of the lessee using the lessee's airline designator code and traffic rights.

(b) Where an aircraft is operated under a dry lease arrangement from the State of Registry to another state (the State of the Operator) and the registration is not changed, the applicant shall provide LCAA with the following information:

(1) the aircraft type and serial number;

(2) the name and address of the registered owner;

(3) State of Registry nationality and registration marks;

(4) Certificate of Airworthiness and statement from the registered owner that the aircraft fully complies with the airworthiness requirements of the State of Registry;

(5) name, address and signature of the lessee or person responsible for operational control of the aircraft under the lease agreement, including a statement that such individual and the parties to the lease agreement fully understand their respective responsibilities under the applicable regulations;

(6) Once satisfied that the lease agreement is a dry lease, a review of the Operations Specifications issued by the State of the Operator shall be carried out to ensure all aspects of the lease have been considered. During the evaluation of the application, LCAA should ensure that the responsibilities of the State of Registry and State of Operator have been clearly defined.

18.2.2 WET LEASE

(a) A wet lease is where the aircraft is provided with a crew. In wet leases the lessor normally exercises operational control of the aircraft. A wet lease situation therefore means that an aircraft will be operated under an AOC issued by the State of the lessor.

(b) In the rare event that there is a determination that the lessee will be the operator of a wet leased aircraft under a wet lease agreement, LCAA must determine whether the lessee can effectively maintain operational control of the aircraft. In such cases, the training and supervision of the flight crew, including how they are to be integrated into the lessee's operations, become critical considerations. If it is apparent that the lessee will not be able to maintain effective operational control under the terms of the agreement, the LCAA should not approve the proposed operations with a wet leased aircraft.

(c) LCAA shall ensure that the wet lease operation is authorized by the State of the Operator, with identification of the operator who has operational control of the aircraft.

(d) Some wet leasing operations, charters or sub-charters, are organized for short terms at very short notice (for example, where an operator wishes to replace an unserviceable aircraft on a particular service and is forced to contract with another operator for that service to be operated). In the case of short term wet lease, charter or sub-charter, the lessor will retain all responsibilities and operational control.

(e) Where application is made to operate an aircraft that is wet leased, LCAA shall require:

(1) That the operator from whom the applicant is leasing the aircraft hold a valid AOC (containing the required privileges) prior to the LCAA processing the applicant's request; and

(2) The documentation required by 20.2.1(b).

18.2.3 PROCEDURES

(a) Liberia AOC holders may lease foreign registered aircraft to augment their operations in times of difficulty under the following conditions or terms:

(1) AOC holders in Liberia who wish to lease a foreign registered aircraft shall inform the Authority at least two weeks in advance prior to the commencement of operations.

(2) A lease agreement between the AOC holder in Liberia and the foreign Operator/Company shall be provided.

(3) The State of Registry and the airworthiness code under which the aircraft will be operated shall be identified.

(4) The responsibility for the accomplishment of maintenance in accordance with the designated airworthiness code shall be specifically identified.

(5) The responsibility for keeping the aircraft maintenance records in accordance with the designated airworthiness code shall be identified.

(6) The maintenance/inspection program that will be utilized shall be specifically identified.

(7) The aircraft shall be operated under the terms and conditions of an AOC issued by the State of registry.

(8) Inspections of Operational/Maintenance facilities, aircraft and its documents shall be conducted by Aviation Safety Inspectors.

(9) While the aircraft is being operated by the AOC holder in Liberia, the State of Registry of the aircraft shall be responsible for the Safety Oversight of the aircraft or the State of Registry may arrange with the Authority under article 83 bis for the Safety Oversight.

(10) During the period of operation of the aircraft Aviation Safety Inspectors shall from time to time carry out Ramp Inspections. The Operator and the State of Registry shall be informed of any deficiencies found during these inspections for the necessary corrective action.

18.3 ACCEPTANCE OF THE TYPE DESIGN

(a) The laws of the State of Registry generally prescribe the airworthiness and the design-related operational requirements for aircraft registered in that State and operated by an operator under its jurisdiction However, the laws of the State of the Operator may also require that foreign-registered aircraft utilized by operators under its jurisdiction comply with the same airworthiness and design-related operational requirements, as if they were registered in that State.

(b) Notwithstanding the above, the States of Registry and of the Operator should, when prescribing the airworthiness and design-related operational requirements, give due consideration to the period of time for which the aircraft is transferred.

(c) Resulting from the above the following issues should be considered when an aircraft is transferred from the State of Registry to the State of the Operator:

(1) The differences between the type certification basis of the State of Registry and that of the State of the Operator;

(2) The differences between the design-related operational requirements of the State of Registry and those of the State of the Operator; and

(3) The respective responsibilities of the State of Registry and the State of the Operator with respect to the approval of:

(i) changes to the type design, including those required to take into consideration the differences stated in a) and b); and

(ii) repairs which require a design approval before implementation.

(d) The responsibility that the aircraft, and any modification to it, complies with an approved design is in general that of the State of Registry. To preserve this responsibility, the State of the Operator should not endorse the implementation of any change without prior approval by the State of Registry.

(e) To discharge their respective functions States could enter into bilateral airworthiness and transfer of aircraft arrangements part of which describe procedures for:

(1) the approval of the changes to the type design;

(2) the performance and the certification of the changes; and

(3) the record-keeping of the changes.

(4) any transfer of the responsibilities referred to in 20.3(c), between the State of Registry and that of the Operator

18.4 MAINTENANCE

(a) Although the maintenance program is usually approved by the State of Registry (Annex 6, Part I), the legislation of a State may require it to approve the maintenance program for all aircraft operated by the operators of that State. Other factors may, by necessity or for convenience, lead to the use of a third State's maintenance program, in the case of transferred aircraft.

(b) Some of the factors influencing the selection of the maintenance to be applied when aircraft are transferred are:

(1) the period of time for which the aircraft is transferred;

(2) the differences between the maintenance requirements of the State of Registry and those of the State of the Operator and the compatibility of their approved maintenance programs;

(3) the absence of requirements regarding the approval of the maintenance program by the State of the Operator and/or of the State of Registry; and

(4) the distance between the place where the aircraft is operated and the State of the Operator, i.e. the aircraft may be operated in a third State for the duration of the transfer.

(c) Arrangements and procedures regarding the maintenance, the performance and certification of maintenance, including the signing of maintenance releases and the record-keeping should be acceptable to both the State of Registry and the State of the Operator. These arrangements and procedures could be developed on a case-by-case basis or be the subject of bilateral airworthiness and/or transfer arrangements.

(d) If the agreement is determined to be a wet lease, the lessor normally exercises operational control over the aircraft and the responsibility for the airworthiness and operational oversight of the airplane will remain with the State of Registry. If the agreement is in the nature of a dry lease, then responsibility for operational control will normally rest with the lessee, and it may be advantageous for the State of Registry to enter into agreement with the State of the operator to transfer or share various facts of operational and airworthiness oversight. However, leasing agreements are often very complex instruments wherein the line between wet and dry is blurred and arguments for which operator should exercise day to day operational control are not clear cut. For example, flight crews may be comprised of a mix of personnel from both the lessor and lessee.

(e) Whatever the case, the authorities will firmly establish, through written agreements with each other, which State will have the responsibility for every facet of operational and airworthiness oversight of the leased aircraft. All responsibilities must be considered and assigned: those associated with the State of Registry, and those associated with the State of the operator of the airline which has operational control.

(f) Historically there have been a number of difficulties associated with the maintenance of transferred aircraft. To facilitate transfers in a safe and efficient manner, expanded guidance on maintenance aspects is contained in Appendix A to this Part.

18.5 INFORMATION ON FAULTS, MALFUNCTIONS AND DEFECTS AND OTHER OCCURRENCES

(a) Annex 8, Part II, requires the State of Registry to ensure that there exists a system whereby information on faults, malfunctions, defects and other occurrences is transferred to the organization responsible for the type design. Furthermore, the same document requires contracting states to establish which type of service information is to be reported by operators, organizations responsible for type design and maintenance organizations.

(b) It is clear from above that the State of Registry is responsible for ensuring the transfer of information on defects to the organization responsible for the type design. For an operator of an aircraft subject to a transfer, it may not be appropriate, convenient or enforceable to report defects according to the system of the State of Registry. Therefore specific arrangements between the State of Registry and the State of the Operator should be developed to ensure that the information on defects for the aircraft is transferred to the organization responsible for the type design.

(c) At the time an aircraft is transferred the two authorities and the operators involved should decide which reporting system and procedures apply, to ensure that the information is transmitted to the organization responsible for the type design and, as required, to the State of Registry.

(d) Some of the factors influencing the selection of the system to be used for reporting information on defects, when aircraft are transferred, are:

(1) the period of time for which the aircraft is transferred;

(2) the compatibility/differences between the reporting system of the State of Registry and that of the State of the Operator;

(3) the absence of a reporting system in the State of the Operator and/or the State of Registry; and

(4) the regulatory requirements of the States involved.

18.6 MANDATORY CONTINUING AIRWORTHINESS INFORMATION

(a) In general, the State of Registry has prime regulatory responsibility for the airworthiness of the aircraft. If the State of Registry is also the State of Design, it will normally be the originator of mandatory continuing airworthiness information, such as airworthiness directives (AD).

(b) If the State of Registry is not the State of Design, it should have procedures in place to respond to mandatory continuing airworthiness information received from the State of Design and should decide whether the information will be made mandatory in its State. When made mandatory, the State of Registry will either issue its own mandatory information or require compliance with issued by the State of Design.

(c) Notwithstanding 21.6(a) and 21.6(b), the State of Registry, without being the State of Design, may issue mandatory continuing airworthiness information applicable to aircraft registered in its State.

(d) Similarly, the State of the Operator may, in certain circumstances, issue mandatory continuing airworthiness information applicable to aircraft operated and/or registered in its State. In such cases 21.6(d) should also be considered before the implementation of the information.

(e) Where an aircraft is transferred from the State of Registry to the State of the Operator, irrespective of the fact that either State could be the State of Design, unnecessary cost may arise if the State of Registry and the State of the Operator impose different mandatory continuing airworthiness information on the same aircraft. It is therefore recommended that:

(1) the authorities of the State of Registry and of the State of the Operator in consultation with the registered owner and the operator of transferred aircraft should determine which of the States' mandatory continuing airworthiness information will apply to the transferred aircraft, before they enter into a transfer agreement; and

(2) the states involved in aircraft transfer should develop administrative procedures to this effect.

(f) The intent of 18.6(e) can be achieved, by a general 'agreement or arrangement on aircraft transfer" between the States or authorities involved or by individual arrangements at the time of transfer.

18.7 DISTRIBUTION OF MANDATORY CONTINUING AIRWORTHINESS INFORMATION

(a) The mandatory continuing airworthiness information issued by the State of Registry in the form of an AD, or equivalent, or issued by the State of Design and made mandatory by the State of Registry, should be made available to affected operators by the State of Registry. Some States disseminate this mandatory information directly to each registered owner of

an affected aircraft on their registers and rely on the registered owner to transmit the information to the operator. Other states make the information available through the offices of their airworthiness authorities or also publish the information and make it available by subscription.

(b) As described in 18.5 (d), the mandatory continuing airworthiness information issued, in certain circumstances, by the State of the Operator, and made mandatory on aircraft registered in another state and operated in its state (State of the Operator), should be

Date		Control #	

made available to affected operators by the State of the Operator.

(c) When an aircraft is transferred to another state, distribution of mandatory continuing airworthiness information by the State of Registry may be accomplished by making the mandatory documents available to the registered aircraft owner, who should be responsible for transmitting them to the aircraft operator. If the State of Registry has an agreement with the State of the Operator to provide surveillance and assistance, or if the State of the Operator wishes to be kept informed regarding transferred aircraft operated by its operators, then the State of Registry should also transmit the mandatory continuing airworthiness information documents to the State of the Operator.

APPENDIX 18-A: JOB AID: AW-013-OPS-016-Aircraft Leasing

AW-013

FILE REFERENCE: _____

Name of Operator		**AOC #**	
State of Operator		**Type of Aircraft**	
Location		**Aircraft Reg#**	
Destination			
Action Taken			

KEY PERSONNEL MET:

	NAME	TITLE
1.		
2.		
3.		
4.		
5.		

PLEASE CHECK THE APPROPRIATE BOX FOR THE FOLLOWING; SATISFACTORY (S), NOT SATISFACTORY (NS) OR NOT APPLICABLE (N/A). INDICATE REGULATORY OR OTHER REFERENCE(S) FOR NOT SATISFACTORY (NS) ITEMS WHERE APPLICABLE. PROVIDE FURTHER DETAILS IN THE REMARKS SECTION IF REQUIRED.					
		CHECKLIST ITEMS			
REFERENCE	**1**	**LEASE PACKAGE COMMENTS - GENERAL**	**S**	**NS**	**N/A**
	1.1	Agreement on airworthiness certificate status/basis?			
	1.2	Statement of status of Non-repetitive AD?			
	1.3	Statement of status of repetitive AD?			
	1.4	Statement regarding Operations & maintenance control?			
	1.5	List of major repairs & modifications?			
	1.6	Statement of the last major inspection of the aircraft?			
	1.7	Statement relating to the status of installed powerplants?			
REFERENCE		**LEASE PACKAGE COMMENTS – GENERAL (Conti…)**	**S**	**NS**	**N/A**
	1.8	Statement relating to the status of installed components?			
	1.9	Certificate of Registration.			
	1.10	Radio License.			
	1.11	Noise Certificate.			
	1.12	Aircraft Insurance.			

REFERENCE	2	EVALUATION OF LEASE AGREEMENT	S	NS	N/A
	2.1	Is the lease agreement provided a certified true copy?			
	2.2	Does the agreement define the type of lease (dry, wet or damp)?			
	2.3	Is the lessor and lessee properly identified?			
	2.4	Is the aircraft identified by aircraft make and model, registration number and manufacturer's serial number?			
	2.5	Is the effective dates of the lease properly identified?			
	2.6	Is the State of Registry and the airworthiness code under which the aircraft willbe maintained identified?			
	2.7	Are the responsibilities for the accomplishment of maintenance in accordance with the designated airworthiness code specifically identified?			
	2.8	Is the entity responsible for keeping the aircraft maintenance records in accordancewith the designated airworthiness code specifically identified?			
	2.9	Is the maintenance/inspection programme that will be utilized specifically identified?			
	2.10	Is the person responsible for signing ofthe maintenance release identified?			
	2.11	Is the person responsible for airworthiness of aircraft and performance of maintenance identified?			
	2.12	Do the CAA Attorneys agree with the transfer/lease?			
REFERENCE	**3**	**PREVIOUS OPERATING AUTHORITY**	**S**	**NS**	**N/A**
	3.1	Does the package contain a copy of the operating authority issued by theresponsible regulatoryauthority of the last operator?			
REFERENCE	**4**	**CURRENT INSPECTION STATUS SUMMARY**	**S**	**NS**	**N/A**
	4.1	Is there a Current Inspection Status Summary that Includes the following: ● the aircraft total time			
	4.2	● the aircraft total cycles or landings;			
	4.3	● the time and landings since the last major scheduled maintenance or inspection;			
	4.4	● the scheduled major inspection intervals and the time remaining to the next inspection;			
	4.5	● the powerplants by position and serial number.			

	4.6	The listing should show, for each powerplant, the: ● time since new?			
	4.7	● cycles since new?			
	4.8	● time and/or cycles remaining to the next life limited part removal?			
REFERENCE	**5**	**SUMMARY OF CURRENT STATUS OF LIFE-LIMITED PARTS**	**S**	**NS**	**N/A**
	5.1	Is there a listing of life limited components and what is the current status of the Airframe/Engine/Propeller?			
	5.2	Life Limited Parts (Engines).			
	5.3	Life Limited Parts (Landing Gear).			
REFERENCE	**6**	**CURRENT STATUS OF AIRWORTHINESS DIRECTIVES**	**S**	**NS**	**N/A**
	6.1	Does the listing contain: ● a concise description of the required action?			
	6.2	● the method of compliance?			
	6.3	● the time in service and the date of AD accomplishment?			
	6.4	● for AD having requirements for recurring actioNS the date of AD accomplishment andwhen the next recurring action is due (date, hours, cycles, etc.).?			
REFERENCE	**7**	**AIRCRAFT MAINTENANCE PROGRAMME INTEGRATION**	**S**	**NS**	**N/A**
	7.1	Is the maintenance/inspection programme to be changed for the aircraft?			
	7.2	Has the integration or proration plan for the two programmes been presented?			
	7.3	Is a listing of each scheduled maintenance/inspection item under both the oldand new programme shown?			
	7.4	Is the method of transfer or bridging from one to the other identified?			
REFERENCE	**8**	**LESSOR MAINTENANCE AND OPERATIONAL (SEE SECTION 3,JOB AID OPS-016) FACILITIES**	**S**	**NS**	**N/A**
	8.1	Management Support Arrangements.			
	8.2	Aircraft Maintenance Manuals.			
	8.3	Aircraft Maintenance Schedules.			
	8.4	Amendments and Control of Manuals.			
	8.5	Hangar Space.			
	8.6	Hangar Equipment.			

	8.7	Office Accommodation.			
	8.8	Office Equipment.			
	8.9	Fire Precautions.			
	8.10	Qualifications of Maintenance Personnel.			
	8.11	Current Certificate of Release to Service (CRS).			
	8.12	Maintenance Approval from Organization's National Aviation Authorities.			
	8.13	Physical appearance of Aircraft.			
	8.14	Training Procedures for staff (Maintenance and Operations).			

Item Number	REMARKS

INSPECTOR(S)		

NAME/ASI #	SIGNATURE	ORG REP NAME	
		ORG REP SIGNATURE	

JOB AIDS: AWS-013-OPS-016 Rev 01
Aircraft Leasing

OPS-016

Date		Control #	
Name of Operator		AOC #	
State of Operator		Type of Aircraft	
Location		Aircraft Reg#	
Destination			
Action Taken			

PLEASE CHECK THE APPROPRIATE BOX FOR THE FOLLOWING; SATISFACTORY (S), NOT SATISFACTORY (NS) OR NOT APPLICABLE (N/A). INDICATE REGULATORY OR OTHER REFERENCE(S) FOR NOT SATISFACTORY (NS) ITEMS WHERE APPLICABLE. PROVIDE FURTHER DETAILS IN THE REMARKS SECTION IF REQUIRED.		
	CHECKLIST ITEMS	

REFERENCE	1	DOCUMENTATION SUBMITTED TO SRD	S	NS	N/A
	1.1	Is the lease agreement provided a certified true copy?			
	1.2	Has the operator provided analysis detailing how the leasing arrangements, particularly those between the parties, conform with the LCARs?			
	1.3	For foreign air operators: A copy of the applicable AOC and operations specifications was provided?			
	1.4	For foreign air operators: A copy of the Liberia economic authorization allowing commercial air transport operations to and from Liberia was provided?			
	1.5	Copies of the licenses and other required documents for the crew members to be used were provided?			
REFERENCE		**DOCUMENTATION SUBMITTED TO SRD (Conti…)**	**S**	**NS**	**N/A**
	1.6	A copy of the crew training and qualification records was provided?			
	1.7	Copies of each required aircraft document (C of R, C of A, Noise& Radio) are available?			
	1.8	A copy of the aircraft maintenance records is available?			
	1.9	A copy of the approved Minimum Equipment List was provided?			
	1.10	A copy of the approved Maintenance Program (and bridging documents, if applicable) for the aircraft was provided?			
	1.11	A copy of the applicable Maintenance Control Manual for the aircraft was provided?			
	1.12	A copy of the documents showing the aircraft's conformity with applicable airworthiness requirements for the aircraft involved was provided?			
	1.13	An operator-generated assessment of aircraft differences (variances) from the current fleet is provided?			
	1.14	The necessary documentation authorizing the GCAA-SRD worldwide access for inspection to the aircraft and crews involved is provided?			
REFERENCE	**2**	**CONTENTS OF THE LEASING AGREEMENT**	**S**	**NS**	**N/A**
	2.1	The official names of the parties are included?			
	2.2	The official addresses of the parties are included?			
	2.3	The duration of the agreement is included with specific start and expiration dates?			
	2.4	The make, model, series and registration numbers of each aircraft involved in the agreement are included?			
	2.5	An explanation of the type of operations that will be conducted by the lessee are included?			
	2.6	The interchange points are included?			
	2.7	The specifications regarding which party has responsibility and authority for operational control are included?			

	2.8	The specifications regarding which party has the responsibility and authority for provision of aeronautical data, weather and flight planning and release are included?			
	2.9	The specifications regarding which party has the responsibility and authority for provision of aircraft loading, computation of mass and balance and performance associated with each flight of the aircraft are included?			
	2.10	The specifications regarding which party has responsibility and authority for crew scheduling are included?			
	2.11	The specifications regarding which party has responsibility and authority for maintaining crew training, proficiency and line checks, and currency requirements are included?			
	2.12	The specifications regarding which part.7 has responsibility and authority for maintenance control are included?			
	2.13	The specifications regarding which party has responsibility and authority for arranging maintenance for the aircraft are included?			
	2.14	The specifications regarding which party has responsibility andauthority for maintaining the maintenance records for the aircraft current form included?			
	2.15	All other items, conditions or limitations specified by the SRD as necessary for this particular agreement are included?			
	2.16	Has LCAA noted the lessor Authority concerning intentions to approve/issue wet lease approval and any conditions attached?			
	2.17	Is the wet lease operation authorized by the State of Operator concerning responsibility for operational control?			
REFERENCE	**3**	**FLIGHT OPERATIONS ASSESSMENT RESULTS**	**S**	**NS**	**N/A**
	3.1	Lease agreement determined to be acceptable?			
	3.2	Arrangements for operational control for the duration of lease are acceptable?			
	3.3	Arrangements for provision of aeronautical data, weather and flight planning and release associated with each flight of the aircraft for the duration of the lease are acceptable?			
	3.4	Arrangements for provision of aircraft loading, computation of mass and balance and performance associated with each flight of the aircraft for the duration of the lease are acceptable?			
	3.5	Crew licenses and medicals determined to be acceptable for the operations proposed?			
	3.6	Crew qualifications determined to be acceptable for start of service?			
	3.7	Arrangements for maintaining crew training, proficiency and line checks, and currency requirements for the duration of the lease are acceptable?			
	3.8	Arrangements for maintaining flight and cabin crew REGULATORY REFERENCE documents current and available for the duration of the lease are acceptable?			
	3.9	Assessment of the compatibility with lessee's aircraft fleet approvals complete and necessary any necessary arrangements for variances determined to be acceptable? (dry lease)			
	3.10	Arrangements and documentation necessary for SRD unrestricted right of access for inspection for the duration of the lease determined to be acceptable? (foreign-registered aircraft)			
	3.11	Are the voyage results provided?			

	3.12	Simulator Approvals.			
	3.13	Flight Training Staff.			
	3.14	Manuals to be carried out by Aircraft.			
	3.15	Minimum Flight Deck Crew.			
	3.16	What are the Duties of Flight Deck Crew?			
	3.17	What is the Airfield Operating Minima?			
	3.18	What is the Regulated Take Off Weight (RTOWs) of the Aircraft?			
	3.19	Technical Log Book of Aircraft.			
	3.20	State Regulations.			
REFERENCE	**4**	**MAINTENANCE ASSESSMENT RESULTS**	**S**	**NS**	**N/A**
	4.1	Assigned maintenance inspector reports that all necessary maintenance assessment and document arrangements have been completed?			
REFERENCE	**5**	**83BIAS DOCUMENTATION COMPLETED**	**S**	**NS**	**N/A**
	5.1	The official agreement for transfer of maintenance responsibility for the airworthiness of the aircraft involved has been signed by all parties?			
	5.2	Notification (in the proper format) has been made to ICAO of the transfer of maintenance responsibility for the airworthiness of the aircraft involved?			
REFERENCE	**6**	**SRD ACCEPTANCE DOCUMENTS COMPLETION**	**S**	**NS**	**N/A**
	6.1	Letter of Acceptance for aircraft lease/interchange/codeshare arrangements issued?			
	6.2	ORG Aircraft Leasing Arrangements entries made to reflect acceptance of leasing/interchange/codeshare arrangements?			
	6.3	ORG Aircraft Listing entries made to reflect inclusion of the leased aircraft? (dry-lease)			
	6.4	Aircraft display operations specifications issued to include each aircraft involved in lease arrangements? (dry-lease)			
	6.5	Master operations specifications updated to include new aircraft and leasing arrangements signed?			

Item Number	REMARKS

INSPECTOR(S)			
NAME/ASI #	**SIGNATURE**	**ORG REP NAME**	
		ORG REP SIGNATURE	

CHAPTER 19: AIRWORTHINESS AUDITING

19.1 GENERAL INFORMATION

(a) Authority - The applicable sections of the Liberia Civil Aviation Regulations which, in turn, are based on the Civil Aviation Act, will provide the basis for the procedures in this chapter of the inspector's handbook.

(b) Deviations - Depending upon the nature of the particular problem or job, it may sometimes become necessary to deviate from the policies and procedures outlined in this manual. When a deviation becomes necessary, the Inspector involved should be guided by sound judgment, making certain that all deviations are substantiated, documented and concurred by the Audit Manager. Substantial deviations from this handbook must be approved by the Director.

19.2 DEFINITIONS

(a) Standard audit terminology common to both the authority and industry.

(1) **Audit** - An in-depth review of the activities of an organization to verify conformance with current regulatory standards.

(2) **Audit Manager** - The appointed leader of a group of individuals conducting an audit.

(3) **Inspection** - The examination of a specific item such as a component, aircraft or in-flight check.

(4) **Auditee** - the Company to be audited.

(5) **Audit Finding** - the determination or observation and recording of the adequacy or inadequacy of the conformance of a product, process, or procedure characteristic to the specified standard.

(6) **Certification** - A determination of competence, qualification or quality by the authority for which a certificate, endorsement or other official document is issued in accordance with the procedures approved by the Minister. This includes original issuance, denial, renewal, and amendments to the document and related manuals.

(7) **Characteristic** - Any distinct property or attribute of a product, process, or service that can be described and measured to determine conformance or non-conformance to specified requirements.

(8) **Confirmation** - that the representations (verbal or written) are in accordance with the data or findings obtained from different sources.

(9) **Conformance** - The state of meeting specified requirements of a standard, specification or regulation.

(10) **Non-Conformance** - A deficiency in characteristics, documentation, or procedures which renders the quality of a product or service unacceptable or indeterminate, or not according to specified requirements, e.g. physical defects, test failures, inadequate documentation etc.

(11) **Documented** - Recorded in writing, signed, dated and retained.

(12) **Audit activities** - Those activities by which information is obtained to verify the auditee's conformance with the applicable regulations standards, e.g. interviews, observations, examination of evidence, recording, etc.

(13) **Observation** - A finding which relates to an unacceptable practice or concern which is not tied to a standard.

(14) **Procedure** - A document that specifies as applicable, the purpose and scope of an activity; what shall be done and by whom; when, where, and how it shall be done; what materials, equipment, and documentation shall be used, and how it shall be controlled.

(15) **Verification** - The independent reviewing, inspecting, examining, measuring, testing, checking, witnessing, monitoring, or otherwise establishing and documenting, that products, processes, services, and documents conform to specified requirements. This includes confirmation that an activity, condition, or control conforms to requirements specified in documents such as contracts, codes, standards, drawings, specification, program element descriptions, and procedures and technical procedures.

(16) **Working Papers** - All documents required by the auditor or audit team to plan and implement the audit. Includes audit schedules, auditor assignments, checklists and report forms used by auditors.

19.3 WHY DO WE AUDIT

(a) Initial Certification - Prior to the issue of an Air Carrier Operating Certificate all areas of the company will be audited to ensure that the required standards will be met.

(b) Surveillance - The auditee is audited on a systematic basis to ensure conformance with the standards and conditions of their approved document. The frequency of such audits will be determined at the time of initial certification or by a separate policy.

(c) Request for additional authority - Prior to granting additional authorities to amend the Air Carrier Certificate, a full or partial audit may be conducted.

(d) Special Purpose Audit - An audit which was not previously identified as a requirement by the authorities Audit Plan, but deemed necessary due to operational circumstances.

(b) These audits are non-scheduled in that they are the result of an identified deficiency within the company.

19.4 TEAM COMPOSITION, RESPONSIBILITIES AND ATTRIBUTES

(a) **Audit Manager -** To maintain the integrity of the audit process the Audit Manager shall:

(1) ensure that all relevant sections within the authority as well as company officials have been advised of the audit dates;

(2) ensure that non audit activities with the carrier are reduced to a minimum throughout the audit period;

(3) ensure that any activities between the authority and the company are coordinated through the Audit Manager during the audit period;

(4) maintain contact with the Director as appropriate, and report progress of the field work, potential problems, changes to the objectives or scope of work and other significant matters arising during the audit.

(5) maintain ongoing communication with the senior management of the company;

(6) ensures that all decisions and approvals required from the Director are obtained on a timely basis.

(7) exercise line authority over assigned audit staff and observers and control time and resource budgets;

(8) ensure that all functions of the audit team have been completed prior to releasing the individual members;

(9) ensure that all non-conformance items are based on specific regulations/standards and supported by objective evidence and detailed analysis;

(10) prepare the draft audit report/post-audit letter and debrief the Director as applicable;

(11) co-ordinate the post audit meeting with senior company management and the authority.

(12) brief the Director of any non-conformance items which may substantiate enforcement action in accordance with the relevant sections of the Airworthiness Regulations.

(b) Team Leader - The duties of the Team Leader are:

(1) to maintain ongoing communication with the Audit Manager;

(2) to plan and manage the audit activities of the team, where necessary assigning Deputy Team Leaders;

(3) to de-brief management upon completion of the audit of his/her speciality area;

(4) to be familiar with the auditing procedure and the associated documentation;

(5) to become familiar with the company's policies, instructions and procedures;

(6) to draft sections of the report as required by the Audit Manager.

(c) Team Member - The duties of the team member are:

(1) to study and expand as necessary the audit checklists applicable to the functions assigned;

(2) to become familiar with the company's policies, instructions and procedures;

(3) to be familiar with the auditing procedures and associated documentation;

(4) to conduct and document audit field work through all phases of the audit;

(5) to ensure that all findings have supporting evidence.

(6) to maintain contact with the Team Leader and ensure that the audit progress is reported and potential problems addressed.

(d) Observer - The duties of the observer are:

(1) to be familiar with the auditing procedure and the associated documentation;

(2) to accompany the audit team during the entire audit, witness and take notes on its activities;

(3) to avoid participation in the audit unless specifically requested to do so by the team leader/audit manager;

(4) to address comments only to the accompanying auditors;

(5) to remain with the assigned group. Assignment to other groups must be approved by the Audit Manager.

(e) Attributes of the Auditing Inspector

(1) sound knowledge of the aeronautical regulations and technical expertise;

(2) fundamental knowledge of the industry or activity being regulated;

(3) skills in communication;

(4) be able to anticipate problems and assess the seriousness of observed weaknesses.

(5) is able to organize his/her work, to question, to look for objective evidence, to construct checklists and use them effectively without being limited by them, etc..

(6) has knowledge of the criteria against which the audited object is to be evaluated. In addition, inspectors involved in audit assignments require other skills and qualities such as:

(i) Salesmanship - opening the job in a hostile environment, securing information, the whole truth and selling new ideas or procedures.

(ii) Ability to analyze - to break the whole into parts, and to determine validity.

(iii) Creativity - to develop a clear picture of a situation and to produce a solution.

(iv) Personal Suitability - courtesy, appearance, integrity and competence.

(f) Conflict of Interest and Confidentiality

(1) In selection of the Audit Manager/Team Leaders/Members or Observers there shall be no conflict of interest, real or perceived by the auditor, the auditee or others.

(2) Types of conflict of interest include:

(i) Former employer;

(ii) Organization ties;

(iii) Direct involvement;

(iv) Acceptance of gifts or favours;

(v) Family ties.

(vi) Confidentiality must be maintained:

(vii) At site or away from the site

(viii) In general, keep the conversation between you and other team members.

19.5 PHASES OF THE AUDIT

(a) INITIATION

(b) AUDIT

(c) POST AUDIT

(1) <u>The Initiation Phase - This phase includes:</u>

(i) Establishing the 'Need for the Audit'

The CAA Section proposing the audit will prepare a 'Briefing Paper' for the Director including details of the type of audit proposed and expected resources and budgetary expenditure. The Director will appoint the Audit Manager.

(ii) Team Selection

The Audit Manager will negotiate the intended Team Leaders with the respective Deputy Directors and when they are appointed they will jointly nominate the Team Members and confirm their availability for release with the Section Heads. The Audit Manager will then propose the full team to the director for approval.

(iii) Team Preparation –

(A) Team Preparation -Documentation Review

Review the company files to gain an understanding of current and past events/occurrences, making notes and flag items for further reference.

Review the auditee's manuals against the applicable requirements: Operations Manual, Maintenance and or Quality Control Manual,

Operating Certificate, Operations Specifications etc., making notes and flagging items for further reference.

During the documentary review record anything and everything that may be noncompliant, suspect or curious.

Information gained through this period can be used to add additional questions to the audit checklists.

During the 'Documentation Review' the following questions will assist in assessing the company's documentation:

- **Scope:** Is there a scope statement identifying what each procedure/description covers? Does it include the purpose?
- **Completeness:** Are all the activities described?
- **Language:** Is the documentation written in language that can easily be understood by the people who have to read it, follow it or implement it? Is it simple and practical? Is it free of all ambiguity or 'double talk' and conflicting statements?
- **Responsibilities:** Does it clearly specify who is responsible for what?
- **References:** Are the required documents and records identified and their use explained?
- **Forms:** Are sample forms included and referenced in the descriptions?
- **Review:** Are there arrangements to ensure that the documentation is reviewed by the appropriate people? Is there a mechanism for ensuring the documentation is kept current, up to date and properly supported?
- **Access:** Does it clearly identify all the areas and individuals that might need access to the documentation and ensure that access?
- **Changes:** Is there provision to ensure that all changes receive the same care and authorization as the original?
- **Obsolete Documents:** Is there provision for removal of obsolete documents?

(B) Reference Material - The following legislative documents and manuals should be readily available. Team members must ensure that all reference documents include the latest amendments.

- Aviation Act
- Civil Aviation Regulations
- Advisory Circulars issued by the Authority

- Advisory Circulars adopted by the authority
- Instructions to staff
- Policy Letters
- Notices To Operators
- Aircraft Flight Manuals & MELs
- Aircraft Maintenance Overhaul & Repair Manuals
- Type Certificates and Type Certificate Data Sheets
- Airworthiness Directives

(C) Team Preparation-Audit Plan

The Audit Plan will be prepared jointly, by the Team Leader Operations and the Team Leader Airworthiness. The plan will be approved by the Audit Manager.

Sample Audit Plan (ITALIC)

INTRODUCTION

1. General

An audit of _____ Airlines main base is scheduled for the period ____ to ____. Audits of the Route Stations will follow during the period ____ to ____.

2. Objectives

The objective of the audit is to conduct an analysis of _____ policies, standards, procedures, and facilities with respect to aircraft operations and maintenance, in order to ensure that conformance with _____ delegated authorities and legislative requirements are being met, and that maximum provision for flight safety is practiced.

3. Procedure

Standard audit procedures will be used throughout, and will include interviews with management, supervisory and other _____ personnel, facility inspections and a review of the related policies, procedures, standards and records utilized by the company.

SCOPE OF THE AUDIT

4. General

To determine the adequacy of facilities, policies, procedures, standards, and personnel qualification, the procedures detailed in this Section will be applied, but not necessarily limited to the following _____ departments:

A. AIRWORTHINESS

CODE	TOPIC	EXAMPLE
A-1	*Maintenance Control Manual*	*a review of the _____ approved Manuals for applicability, approval status, completeness and conformance with the Regulations*
		a review of other related _____ and the

A-2	*Technical Publications*	*authority's publications for applicability, approval status and completeness*
A-3	*Company Quality Audits*	*the effectiveness of the company's quality audits (in house, sub-contractors, route stations and line stations, leases etc.)*
A-4	*Engineering*	*Engineering procedures as related to quality control and maintenance; (Airworthiness Directives, Modifications, Repair Schemes, TSO Changes, Test Equipment etc.)*
A-5	*Support/Overhaul Shops*	*support/overhaul shops for conformance to approved procedures*
A-6	*Aircraft Maintenance Records*	*aircraft records, flight time and technical logs, inspection intervals, certification and release to service*
A-7	*Sample Aircraft for Conformance*	*a selected sample of aircraft for conformance with acceptable standards and the maintenance control manual*
A-8	*Parts/Material Control & Storage*	*parts and material control including source inspections, parts pooling procedures, certification of foreign purchases, parts, etc.*
A-9	*Maintenance Program*	*Maintenance programs as related to airframes, engines and aircraft components*
A-10	*Reliability Program*	*reliability programs as related to airframes, engines and aircraft components*
A-11	*Minimum Equipment List (MEL) & defect control*	*Procedures relating to MEL, conformance with the MMEL, configuration deviation, defect related ferry flights and defect control*
A-12	*Test Flights*	*Maintenance related test flights*
A-13	*Maintenance Contracts*	*Maintenance contract arrangements with respect to lease aircraft, owned aircraft, scheduled and charter flight maintenance, monitoring procedures etc.*
A-14	*Certification of Components*	*control of and procedures for certification of components both in country and at foreign repair facilities*
A-15	*Mandatory Defect Reporting*	*reporting and investigation of Service Difficulties & Major Defects*
A-16	*Airworthiness Directives/Bulletins Conformance*	*records of compliance and conformance procedures*
A-17	*Maintenance Training Standards*	*facilities, program. Curriculum and records for initial and ongoing training*
A-18	*Licensing Certification Standards*	*standards and procedures for maintenance and inspection personnel*
A-19	*Fuelling /fire Prevention*	*refuel/defuel procedures, firefighting and training for ramp and maintenance personnel*
A-20	*Facilities/General*	*adequacy of hangar facilities and support shops for intended maintenance and overhaul.*
A-21	*Test Measuring Equipment*	*adequacy of calibration system, traceability to a national standard, records and compliance with system*

A-22	*Weight & Balance*	*aircraft weighing - initial and repeat, compilation of weight and centre of gravity schedules.*
A-23	*Corrosion Control/Ageing Aircraft Program*	*compliance with mandatory requirements and manufacturers recommendations. participation in National/International seminars etc.*
A-24	*Non Destructive Testing*	*qualified personnel, facilities, equipment and control procedures.*
A-25	*Other Specialized Work*	
A-26	*Ground support equipment*	*adequacy for each fleet, maintenance and calibration of electrical units etc.*
A-27		
A-28	*Route Stations and Line Stations*	*staffing, facilities, procedures, records and equipment*

O. OPERATIONS

CODE	***TOPIC***	***EXAMPLE***
O-1	*Company Operations Manual*	*review of approved manuals for applicability, approval status, completeness and conformance with Regulations*
O-2	*Ops Specs*	*review for completeness and conformance*
O-3	*Manuals - AOM, AFM, EM etc.*	*review of other related company and the authority publications for applicability, approval status, completeness etc.*
O-4	*Flight Crew Training Programs & Company Check Airman & Instructor*	*review all training programs against regulations. Review qualification and selection requirements of company check airman and instructors.*
O -5	*Flight Crew Training Records and Currency*	*review pilot's record keeping system against the requirements.*
O-6	*Simulator Evaluation*	*review adequacy of simulators against training needs and control procedures etc.*
O-7	*Dispatch & Flight Watch*	*flight dispatch centres, procedures and training of dispatchers.*
O-8	*Flight Documentation*	*review of sample flight documentation both for pre-flight, during and post-flight*
O-9	*Passenger Safety*	*Flight Attendant manual, procedures, training and records*
O-10	*Cabin Crew and FOO Training & Records*	*review cabin and FOO training and records, including currency against requirements.*
O-11	*Flight Safety Programs*	*review the function of the flight safety office and content/effectiveness of safety programs*
O-12	*Aircraft Documentation*	*inspect aircraft for required documentation and review the system to determine compliance with the*
O-13	*Minimum Equipment List (MEL)*	*evaluate MEL applicability and system to update and control MELs*
O-14	*Dangerous Goods*	*review of procedures for applicability and conformance to approved standards.*

O-15	*Flight Duty Time Limitation Records*	*review pilot, cabin attendant and dispatcher FDT recording and scheduling system.*
O-16	*Flight and Ground Inspection*	*conduct ramp and en-route inspections to determine compliance with company procedures and the requirements.*
O-17	*Facilities and Aircraft Equipment*	*inspection of aircraft installed equipment, ground and airport facilities against the requirements.*
O-18	*Aircraft Performance*	*review of airport analysis and enroute/landing performance against the requirements.*

(D) Team Preparation - Pre Audit Team Meeting

The purpose of this meeting is to ensure that all members understand;

- The material which has been presented to them i.e. Timetables, Audit Plan, etc.
- Their duties and responsibilities.
- Their specific audit area.
- The audit check lists.
- The position of any observer.
- The team plan in general.

Any questions regarding the audit should be answered at this time. Any differences should be discussed before leaving for the audit.

(2) <u>The Audit Phase - This phase includes:</u>

(i) <u>Pre Audit Company Meeting</u>

Preliminary preparation coupled with the following guidelines will provide the basic elements of a successful meeting.

The meeting should:

- take place on the auditee's premises;
- be attended by all senior management levels;
- provide maximum information regarding Audit and related procedures;
- be concise but precise, brief but clear.

The Audit Manager should:

- introduce all members of the audit team with a brief background of each, including observers;
- explain purpose of the Pre-Audit Meeting;

- state the objective and scope of the audit;
- explain the method of performing the audit;
- cover the method of communication between the Audit Team and the Auditee;
- explain the method of handling any non-conformance's detected;
- establish a time and place for the Post-Audit Meeting;
- answer any and all questions put forth by the auditee.

By the end of this meeting, both sides should have a clear understanding as to what will take place.

Agreement should be reached between both parties regarding the Auditee's provision to the Audit Team for adequate working facilities including:

- Office or Conference Room
- Photocopier
- Secretarial assistance
- Measuring or Test Equipment

Conformation should be obtained in writing of the agreement to provide the required facilities etc.

(ii) The Audit

The audit will be conducted against an 'Audit Checklist' compiled from the topics described in the 'Scope' and constructed into the 'Audit Plan'.

To detect a non-conformance, a guideline that reflects the standard must be followed. In this way the Checklist tells you what should be happening and observation confirms what is happening.

The gap between should and is will generally be a non-conformance.

(iii) The Audit Checklist must:

- be used when monitoring a process, procedure or program;
- be updated to reflect the latest revision;
- be complete in its entirety;
- be signed by the auditor (Team Member) responsible for that audit area;
- get you started, keep you on track, confirm completion; and
- be as flexible as necessary to add questions to support specific situations.

If used correctly, the audit check list can be an extremely valuable auditing tool. However, if not handled correctly, it can ruin a good audit.

The following guidelines will assist in getting the most effective use from the checklist: a

(a) When you (as auditor) enter a department or area, ask the host to explain how the system works.

(b) Question how the personnel work in accordance with the system.

(c) Evaluate the above information against the Standard/Manual, and decide if it meets or fails to meet the requirements.

(d) Record examples of numbers, procedures, documents, drawings, measuring and testing equipment in each area.

(e) Finally use the checklist to ensure that all aspects of the requirements have been met.

Note: Never gain access to files or other company documents without appropriate authorization.

Company representative should be present during document review whenever possible.

The three main steps in conducting a physical audit are:

- Observing
- Interviewing
- Documenting

It should be noted that all steps, Interviewing, Observing and Documenting are on-going and inter-related. There is no specific sequence to be followed.

Observing: This is normally the first step and is common to all types of physical audits. Your observations will lead you into those areas that may or may not require more investigation.

Observing is a learned skill that will improve with each audit carried out.

Interviewing: The interview is probably the single most important element of any audit. The success of your audit will be largely dependent upon your skills as an interviewer.

Each interview scenario will be different. You will have to assess the climate and decide on the approach to take - whether friendly or formal - or somewhere in between.
Generally speaking it is good practice to establish a friendly atmosphere, if possible, at the beginning of the interview (small talk in known areas of common interest) and then outline the roles to be played by both parties.

The following points will be helpful in developing or improving your personalized interview technique:

- Make personal contact with your subject immediately.
- Keep the contact 'human'.

- Five minutes of warm-up before you start will pay off in good co-operation.
- Describe the assignment briefly so that the person being questioned will see their part in the total picture.
- Make him/her feel he/she is on the 'inside'.
- Invite him/her to feel the importance of his/her role in the program.
- Have an outline of the material you intend to cover.
- Use this as a guide to be sure you are getting all the data.
- At the start of the interview, put company representatives at ease and ask them to describe things in their own words.
- Start the interview with the least complex, simple questions to alert the company representative to the type of questions that will be asked.
- Be flexible with the questions asked.
- Rephrase or reword the sentences if they prove too complex, confrontary or open to misunderstanding in any way.
- Listen to the answer provided (do not interrupt if at all possible) and restate the respondent's answer to avoid any misunderstanding. (paraphrasing)
- Do not hesitate to request additional information or explanation if there is any chance of a misunderstanding.
- Be sure to note data such as the names of persons interviewed and their titles.
- Identify each interview separately for easy identification.
- Indicate page number and date.
- Take care in writing so you can easily read your own notes.
- Record the relevant details immediately - do not rely on your memory.

Here are some valuable **Don'ts** that apply to all interviewing:

- Do not harass or talk down to the respondent.
- Avoid challenging respondents even if their statements are contradictory.
- Don't begin an interview with preconceived ideas about the auditee or the particular area.

- Don't interrupt the story to insert your own ideas.
- Don't let the interview get diverted into areas that are obviously not pertinent.
- Don't let blanket statements or broad generalizations obscure the facts.
- Don't let half-understood problems go.
- Don't follow an established sequence of questions just because you have them written down or memorized.
- Don't be overpowered by the person being interviewed, be sure you leave feeling you were the interviewer and not the interviewed.
- Don't become involved in operational problems or offer solutions that will distract from the primary purpose of information gathering.
- Don't waste the auditee's time.
- Don't think and plan on his time, do your preplanning in advance of the interview.
- Don't ask CLOSED questions that can be answered with YES or NO.

SAMPLING

The sample size of a population and selection criteria have a direct impact on the validity and confidence level of the results. The following guidelines should be used:

(a) each sample group must stand-alone. If there are 1400 pilots, 2800 flight attendants, 180 maintenance personnel, and 15 dispatchers, each of the four groups must be considered separately;

(b) the P goal is to achieve a 95 per cent confidence level with the results of the sample tested. Often, this goal may not be appropriate; therefore, the audit team must carefully consider both the sample size and the time devoted to the task. Random sampling may be considered an acceptable alternative;

(c) the chart found in the Appendix will help determine the sample size needed to achieve a 95 per cent confidence level for populations of 400 or more. For smaller populations, a larger sample must be examined and the following guide should be used:

Population	Sample
100:	50 per cent
199:	40 per cent
399:	35 per cent

RECORDING AND DOCUMENTING

In taking notes during the audit to record findings and observations remember to:

(a) Identify the area; function; process; program etc.

(b) Identify the time; date and location.

(c) List examples in detail - 3 or 4 are sufficient.

(d) Record serial numbers and revision numbers.

(e) Note all supporting documentation.

(f) Note all references to conversations.

(g) Record any other information which will allow you to gain additional insight.

(h) Note: Anything and everything will help you and the team as a future reference.

(i) Reference the checklist number.

(j) Take time to write clearly - to be a good record it has to be legible.

(k) Use whatever abbreviations you can live with.

(l) Make sketches if necessary.

The necessity of a successful record is to ensure recall for later use as a possible documented recording and for discussion with other team members.

The importance of accurate note taking and record keeping cannot be over emphasized. Notes must be complete in every detail for use in confirming and substantiating what you have seen and heard, when required to document the findings in the report.

i. Analysis of Findings

Analysis is the keystone in conducting audits. It is an organized method of identifying problem areas with a logical approach to determine necessary corrective action and is used:

- to ensure that the audit is based on a valid objective and accurate assessment of the organization or facility;
- to identify a problem at its source and pinpoint the cause at its highest level;
- to ensure standardization of problem determination; and to have a documented record of the process used when establishing non-conformances.

Analysis should be used after recorded observations, at the end of each day or at the daily team meeting - always the sooner the better.

AUDIT FINDING

Audit Findings are recorded on form …. and form the most important record for both the authority and the company being audited. It is therefore extremely important that the form is completed accurately and in sufficient detail to be 'stand-alone'.

All Audit Findings must;

- Specify the Area of Audit (Topic from the Scope)
- Identify the reference standard - the requirements/Manual/Procedure;
- Quote specific details - 'Objective Evidence'.

It must be noted that the company representative who signs (if required) against the finding is purely signing to confirm that the recorded situation was correct at the time the auditor made the finding. He is not necessarily the person responsible for the area or function detailed and should not be held accountable for the finding or corrective action.

At the time of the audit finding being recorded the corrective action will not be detailed and may not be until after the audit has been completed and exit meeting held with the company.

Completed forms that in any way do not meet the above criteria cannot be passed to the company as 'Audit Findings'. It is not the auditors function or responsibility to establish blame for the 'finding' or at this stage of reporting to attempt to establish a 'Root Cause'.

The Audit Finding forms should be completed by hand and passed to the Deputy/Team Leader each day. The administrative assistant will then key the details of the form into the system to produce the printed version.

CONFIRMATION REQUEST

Proper use of the Confirmation Request Form …… can greatly reduce Inspector workload during the Initiation and Audit Phases. For example, when an auditee appears to have missed a required maintenance operation an Inspector could have to review a considerable amount of paperwork to secure confirmation. To avoid that time consuming operation, the company would be issued with a Confirmation Request Form (CRF) requesting proof that the apparently missed item had in fact been correctly completed at the scheduled time.

In following this process, the auditee is afforded the opportunity to prevent aircraft 'grounding', and it also ensures that the auditor is possession of all the facts before proceeding with further action. This means that the auditor has saved valuable time by not having to search through the records systems to produce necessary supportive information. In addition, the auditor receives a signed document from the auditee to use as part of the supportive evidence package.

The CRF is effective because:

- where initial evidence indicates a nonconformance, the burden is on the company to show otherwise;
- the auditor makes the final determination based on auditee produced facts as to which direction to proceed;
- the auditor is compelled to view the state of the company records management system from the auditor's perspective;
- arbitrary findings based on subjective examples are eliminated;
- the auditee is not faced with major surprises at the end of the audit because all contentious issues have been dealt with in an open manner; and
- the auditor has more time to devote to the business of auditing rather than chasing a paper trail.

AUDIT RECORD LOG

Each Team Leader will maintain a record log, to be updated daily, of all 'Audit Findings' and 'Confirmation Requests'. The format and control of the log will be decided by the Team Leader. This may vary from a simple title, time and date book to a direct file of photocopied duplicates. Each form will have been assigned a sequential number for accountability. This process will ensure that at the end of the audit, all forms have been satisfactorily answered and appropriate action taken.

This log will ultimately form part of the formal audit record.

ii. Communications during the audit:

Within the Team

It is essential that each Team Member continuously inform his Deputy Team Leader of both the progress of his auditing and the findings/confirmation requests that are raised.

It is essential that Team Members do not engage in debates with the auditee any dispute in interpretation of the standards or aspect of a finding must be referred to the Team Leader.

At the end of each day of the audit the Team Leader will conduct a meeting to review the day's progress and confirm that the audit plan is on schedule.

The results of this meeting together with the 'Audit Findings' and 'Confirmation Requests' will then be passed by the Team Leader to the Audit Manager.

Between the Team and Auditee

The Audit Manager is responsible for communications with the auditee and will hold regular meetings during the course of the audit to ensure that the senior management of the company is fully aware of both progress and findings.

Safety Issues

During the course of the audit, should at any time a 'Safety Issue' be noted this must immediately be reported to the Team Leader. The Team Leader will contact the Audit Manager and determine what the approach will be to the company.

Once notification has been made to the company it is expected that they will take the initiative to correct the 'threat to safety'. In the event that the company does not take immediate action the Audit Manager will determine the action to be taken by the Team to resolve the issue.

iii. Post Audit (Exit) Meeting

Once the entire audit is complete, the audit Manager shall conduct the final briefing with the auditee. The Audit Manager and Team Leader(s) will make the determination of how many Team Members attend the meeting and who will speak at the meeting other than him/herself and the Team Leaders.

This meeting must not come up with any surprises to the auditee, it will be a summary of the briefing sessions held throughout the course of the audit. If this meeting is a shock to the management, it is evidence of procedures not being followed during the course of the audit.

The speakers must present their findings in a clear and concise manner.

The meeting should:

- be chaired by the audit Manager;
- be cordial, diplomatic, clear, and polite;
- take into account the personalities and background of the company representatives;
- thank the auditee for their co-operation;
- summarize audit findings;
- state the areas of strength as well as the areas that are deficient;
- outline the progression of the report following the meeting;
- explain the company's obligations regarding the corrective action plan; state how the response system works; and
- discuss follow-up action.

(3) The Post Audit Phase - this phase includes:

The Audit Report

The 'Audit Report' is a complete report describing both the organization and the findings of the audit; it does not include the Team recommendations as a result of the audit. Recommendations will be made following agreement of the corrective actions and be in a supplementary document to the report.

The audit report should cover:

(a) An overview of the auditee.

- history and development of the company with detail of current operations, bases and sub bases;
- details of fleet;
- Staffing
- contracts for operations and maintenance.

(b) Auditee's organizational structure.

- positions and names of key personnel, including charts where this is the easiest format.

(c) Date of Audit and locations covered.

(d) The Audit Team

(e) Purpose of the audit.

(f) Types of Findings.

- audit Findings of 'Non Conformance';
- observations.

(g) The coverage of the audit.

- list the areas audited and the references used in the Audit Findings.

(h) Overall Conformance.

- detail the areas where conformance was found;
- summarize areas of non-conformance, giving examples.
- state that copies of all nonconformance Audit Findings are attached.

Note: This section of the report forms the 'Executive Summary', the Audit Manager will determine whether it should lead the report or be contained within the body of the report.

Parallel Report

(a) An audit may identify observations and/or deficiencies in, or the misapplication of, Civil Aviation legislation, policies and procedures. Where an observation or deficiency indicates a need for revised policies, standards, procedures or guidelines, a finding shall be made against Civil Aviation and not the auditee. Where a nonconformance to a regulatory requirement is found, and that requirement required Civil Aviation approval (i.e., document or manual approval), a finding shall be made against the auditee (so that the non-conformance is resolved through the Corrective Action Plan) as well as Civil Aviation.

(b) Findings against Civil Aviation will be described in a document called the parallel report. The audit manager will forward the parallel report to the Director within 30 days of the completion of the audit and shall identify the problem, cause, responsibility and recommended solution for each finding. All supporting documentation shall be included in the parallel report.

(c) Civil Aviation deficiencies shall neither be included nor referenced in the audit report.

Parallel Report Follow-Up

Parallel report items shall be forwarded to Director who will assign an appropriate office for co-ordination and follow-up of those deficiencies.

Approval and Distribution

The report will be agreed by the full team and approved by the Audit Manager.
Distribution will be to:

- The Auditee
- Team Members
- Director

Auditee Corrective Action Proposals.

Before the Team can make a final recommendation as a conclusion of the audit the auditee's proposals for corrective actions must be received, reviewed and accepted.

In the Post-Audit Meeting the company will have been requested to forward all corrective action proposals through the Team Leaders who will then be responsible for prompt review by the team members.

Depending on the nature of the audit findings, the company's corrective action should involve:

(a) Immediate Corrective Action. This is action taken immediately upon identification of the audit finding to remove the immediate threat to aviation safety;

(b) Short-Term Corrective Action. This is short-term action to correct a non-conformance that does not pose an immediate threat to aviation safety, which ensures that conformance is established quickly until long-term action is completed to prevent recurrence of the problem. Short-term corrective action will normally take place within 30 days; and

(c) Long-Term Corrective Action. This is longer-term action and has two components. The first will involve identifying the cause of the problem and indicating the measures the company will take to prevent a recurrence. These measures should focus on a system change. The second component will include a timetable for company implementation of the long-term corrective action. Long-term corrective action will normally take place within twelve months.

Long-term corrective action should be accompanied by the forwarding of supporting documents for review. Short-term corrective action should also be accompanied by the forwarding of supporting documents, which may take the form of logbook entries, purchase orders, memoranda or revised inspection procedure cards. It is important to verify as much supporting documentation as possible during subsequent surveillance.

When the Team Leaders are satisfied that all corrective action proposals have been received a full team meeting will be convened to formulate and agree the final recommendations.
These recommendations will form a supplement to the Audit Report and should include:

- an overall recommendation based on the particular objectives of the audit;
- acceptance or otherwise of the scheduled compliance time for corrective actions;
- frequency of follow-up to the findings; and
- period and extent of future surveillance.

The Audit Manager will present the final recommendations to the Director (for Approval).
Subject to approval by the Director the final result of the audit can then be forwarded to the company.

Follow-up

The Team Leaders will control and monitor the follow-up to all corrective actions, using the applicable team member for the corrective action to the Audit Finding that he/she raised.

When the necessary follow-up has been completed and is satisfactory the result will be notified to the Director and the audit file retained for future audit reference.

Audit Finding Form

Company Name	Base Location	File

Area of Audit: **No.**

Non- Conformance With:

Examples

Name and Signature of Auditor	Date

Company Corrective Action: Immediate, Short and/or Long Term

Signature/Title	Date

Civil Aviation Division Response

Audit Follow up

Target Completion Date	Item Completed	Inspector

Conformation Request Form

CRF No.	**Company Name**
Name of Auditor	**Area of Audit**
Company Representative	**Title**

Subject Matter

Auditor's Signature — Date and Time

Company Response Required By:	**Date and Time**

Company Response

Company Representative's Signature — Date and Time

For Inspector Use Only

Company Response Accepted ☐ Company Response Rejected ☐ Audit Finding: Yes ☐ No ☐

Auditor's Signature — Date and Time

CHAPTER 20: MAINTENANCE TRAINING PROGRAM/RECORD

20.1 OBJECTIVE

This chapter provides guidance for evaluating and accepting an operator/applicant's maintenance/inspection training program.

20.2 GENERAL

(a) Effective training is the basis for a successful maintenance/inspection program. Although many procedures for maintaining and inspecting aircraft may be similar, the equipment, procedures, and task documentation used may all be unique to the operator/applicant's specific programs.

(b) State requirements normally require that maintenance/inspections be performed in accordance with the operator/applicant's manual.

(c) Maintenance/inspection training programs are the most efficient manner to inform personnel of the requirements of the operator/applicant's program.

20.3 COORDINATION REQUIREMENTS AND SCHEDULING

Airworthiness Inspectors (AWIs) should encourage applicants to discuss pending maintenance/inspection training program development with the certification team before the program is submitted for final acceptance. It is especially important that programs be reviewed for conformity with appropriate regulatory requirements. This review can reduce the number of major changes an operator will have to make after a program has been printed and distributed.

20.4 SCHEDULING MAINTENANCE TRAINING PROGRAMS

Delays in program acceptance results in delays in the certification process. To facilitate the evaluation of the training programs, the applicant should be encouraged to schedule a classroom training session in a timely manner.

20.5 CONTENT OF MAINTENANCE/INSPECTION TRAINING PROGRAMS

(a) The operator/applicant's training program should include company indoctrination and technical training (formal and on-the-job training). The program should contain a list of tasks to be taught and a method for recording the training. Completion of the training must be entered in the individual's training record.

(b) Company Indoctrination: Each maintenance/inspection employee should receive instruction in the use of the operator/applicant's manuals, policies, procedures, and forms.

(c) Maintenance/Inspection Technical Training

(1) Training may consist of a combination of formal (classroom) instruction and on the job training. The operator/applicant may give training credit to individuals for experience gained while employed by other operators.

(2) Procedures unique to the operator/applicant should be taught. Training records should indicate the amount of formal training, on the job training, and experience each individual receives.

(3) Technical training may be contracted to another operator, manufacturer, or in the case of a specialized process, to a person knowledgeable in that specialized process. The operator/applicant is responsible for the content and quality of such training.

(4) The authority normally does not establish a fixed amount of time for indoctrination or technical training courses, but should use a minimum time proportional to the operator/applicant's complexity.

(d) Responsibilities for persons other than an Operator's employees

State regulations normally require each certificate holder to be primarily responsible for having a training program and ensuring that the training received throughout the operator's system is of equal quality and effectiveness. This covers all persons such as the certificate holder's employees, contract personnel for emergency maintenance and servicing, etc.

(1) each certificate holder or person who performs maintenance shall have a training program to ensure that each person, including inspection personnel, is fully informed about procedures, techniques, and new equipment in use and is competent to perform the applicable duties.

(2) no person may use any person to perform duplicate inspections unless the person performing the inspections is appropriately certificated, properly trained, qualified, and authorized to do so.

NOTE: *A person can be defined as an individual, firm, partnership, corporation, company, association, joint stock association, or a governmental unit.*

(e) Category II/III Maintenance Personnel Training: Each applicant for Category II/III must establish an initial and recurrent training program. This program must be acceptable to the Administrator and cover all personnel performing quality control inspection and maintenance work on Category II/III airborne systems and equipment. Training records for such personnel are to be kept current and made available to the AUTHORIZED ENGINEERING SOURCE for inspection.

(f) Recurrent Training: The operator/applicant's training program should ensure that deficiencies discovered through continuous analysis and surveillance and/or reliability programs are corrected during recurrent training. Additionally, recurrent training should include at least the following:

(1) Review, reinforcement, and upgrading of all training given in both indoctrination and technical subjects

(2) Input from maintenance bulletins and/or maintenance newsletters

(3) Critical tasks, such as run-up/taxi, Duplicate Inspections, and Nondestructive Inspection (NDI)

(g) Training Records: Training records must be retained by the operator/applicant to document that personnel are adequately trained. Training records should be maintained

at a central location, but may be maintained at other locations provided these locations are listed in the operator/applicant's manual.

(h) Special Emphasis Training: Special maintenance/inspection training programs are required when new or different types of aircraft and/or equipment are introduced.

20.6 ACCEPTING THE MAINTENANCE/INSPECTION TRAINING PROGRAM

The task of acceptance differs from approval in that no specific procedure or vehicle is used to accept a training program. The program is approved by the general manager upon acceptance by the Authorized Engineering Source. A list of effective pages will show acceptance date of the maintenance/inspection training program.

20.7 PROCEDURES

(a) Review Operator File

(b) Review Schedule of Events. If this task is performed as a part of an original certification, review the Schedule of Events to ensure that this task can be accomplished in accordance with the schedule.

(c) Review Maintenance/ Training Programs. The program should include the following elements in the Maintenance Training Program:

(1) The name of the person responsible for the overall administration of the maintenance program

(2) The name(s) of the person(s) responsible for other processes within the maintenance training program (e.g., recordkeeping, revisions to training programs, and security of the program)

(3) Designated maintenance training instructors

(4) A description of how instructors are determined to be qualified

(5) Procedures used to authorize instructors

(6) A file on the instructors consisting of qualifications, authorizations, and other documents pertaining to instructor assignments

(7) A list describing what type of training is required for new employees (Indoctrination, on-the-job training, etc.)

(8) Procedures for evaluating, crediting, and documenting a new employee's previous training

(9) Procedures for determining what additional training is required for a new employee

(10) A schedule for recurrent training, a description of recurrent training, and procedures for determining requirements for other training

(11) Recordkeeping procedures, including records of the following:

(i) Training dates

(ii) Who performed the training (instructor should indicate by signing)

(iii) The number of hours of training performed

(iv) The content of the training performed

(12) Criteria for determining the quality of the training program (training standards)

(13) Evaluation of the need to revise training programs

(14) A training syllabus that describes the following:

(i) Content of each training course

(ii) Format of training (classroom, on the job training)

(iii) Duration of training courses

(iv) Standards for grading students

(v) Training aids

(15) Criteria to determine acceptability of contract training, to include:

(i) Qualifications of instructors

(ii) Criteria to establish appropriateness of reference material being taught

(iii) Reporting procedures to inform operator of student progress

(iv) Criteria to determine adequacy of facilities Criteria to evaluate contractor's training syllabus

(d) Observe Operator/Applicant Performing Training. This observation is performed regardless of whether the operator performs the training or contracts with another company.

(1) Ensure that facilities are adequate, including classrooms, training aids, and reference materials.

(2) Evaluate the instructor's presentation and knowledge.

(3) Ensure that course content and instruction is in accordance with the training syllabus.

(4) Ensure that training recordkeeping is performed in accordance with maintenance/RII inspection program.

(e) Analyze Findings. Evaluate all deficiencies to determine what changes will be required.

(f) Debrief the Operator/Applicant

(1) If deficiencies are discovered during the review, return the program to the operator/applicant with a letter describing the problem areas, if necessary. If this review is being performed as a part of a certification, inform the operator/applicant that issuance of the certificate will be withheld until deficiencies are corrected.

(2) Schedule a meeting with the operator/applicant to discuss the problem areas if it may be helpful in resolving deficiencies. Discuss how to resolve deficiencies.

20.8 TASK OUTCOMES

(a) File Form

(b) Successful completion of this task will result in the following:

(1) A letter to the operator/applicant indicating acceptance of the program

(2) The original accepted program sent to the operator/applicant along with instructions to provide a copy of the program to the RO

CHAPTER 21: COMPANY MAINTENANCE MANUAL

21.1 OBJECTIVE

(a) This chapter provides guidance for evaluating an operator/applicant's company manual or revision to ensure that policies, procedures, and technical criteria meet state regulatory requirements.

(b) ICAO Annex 6, Chapter 11.3, states that: A maintenance manual provided in accordance with 8.2 shall contain the following information in respect of the aeroplanes operated:

(1) procedures for servicing and maintenance;

(2) an aeroplane maintenance program, approved by the State of Registry, containing maintenance tasks and intervals at which these tasks are to be performed;

(3) the responsibilities of the various classes of skilled maintenance personnel;

(4) the servicing and maintenance methods which may be prescribed by, or which require the prior approval of, the State of Registry; and

(5) the procedure for preparing the maintenance release, the circumstances under which this release is to be issued and the personnel required to sign it.

21.2 GENERAL

(a) A company manual should enable the operator's maintenance and servicing personnel to carry out their duties at a high level of safety. The complexity of the manual will vary with the complexity of the operation. The manual should cover specific items in accordance with the (Applicable State Regulations), but may include additional items at the discretion of the applicant. A manual is therefore accepted rather than approved.

(b) Manual acceptance can be a cause of delay in the certification process

(1) If the operator/applicant does not have experienced and qualified personnel to prepare an acceptable manual, the use of a consultant may be appropriate. A consultant can be used in an advisory position only.

(2) After the review, the manual should be returned to the operator/applicant with a list of any discrepancies found. The operator/applicant should be informed that final certification will not be completed until discrepancies are corrected. Inspectors should be concerned primarily with ensuring regulatory compliance.

21.3 REVIEWING OPERATOR/APPLICANT'S MANUAL

(a) The manual is an administrative tool used to control and direct personnel. It should define all aspects of the maintenance operation.

(1) The policies and procedures section should address organizational matters.

(2) The maintenance section should address policies and procedures for administering the inspection and maintenance requirements, test flight requirements, and other subjects, as applicable.

(b) The manual should include detailed instructions or specific references for accomplishing inspection and maintenance functions. It should also include forms, instructions, and references for recurring non routine requirements such as engine changes and inspections following abnormal occurrences (hard landings, lightning strikes, severe turbulence, high brake energy stops, etc.).

(c) Manufacturers' technical manuals provide instructions for accomplishing specific tasks. These documents also establish methods, technical standards, measurements, and operational test procedures. The policy and procedures section of the operator's manual should describe areas of application for the pertinent technical documents.

(d) The following are examples of manual sections and titles. The list which follows is not exhaustive, but includes the principal topics which need to be considered for inclusion as procedures in the manual. The operator should not be required to follow the order laid out below however all topics listed below should be included in his manual. If this manual is used also to comply with the maintenance manual requirements of Annex 6, Part I, 11.3, b) which states that the manual shall contain: an aeroplane maintenance program, approved by the State of Registry, containing maintenance tasks and intervals at which these tasks are to be performed; the aeroplane maintenance program should be included.

Suggested content:

Part 1 - Management

1.1 Corporate commitment by the accountable manager

1.2 Background Description of the organization

1.3 Management Organization Chart

1.4 Duties and responsibilities of management personnel 1.5 Training Policy

1.5 List of certifying staff

1.6 General description of facilities at each approved location

1.7 Scope of work under the approval

1.8 Notification procedures to the airworthiness authority regarding changes to the organization’s activities/approval/location/personnel.

1.9 Amendment procedures for the manual

Part 2- Maintenance Procedures

2.1 Supplier evaluation procedure

2.2 Acceptance/inspection of aircraft components and material from outside contractors.

2.3 Storage, labeling/tagging and release of aircraft components and material to aircraft maintenance.

2.4 Return of defective aircraft components to store.

2.5 Control of defective components sent to outside contractors for overhaul, etc.

2.6 Sub-contract procedures

2.7 Acceptance of tools and equipment.

2.8 Calibration of tools and equipment.

2.9 Use of tooling and equipment by staff (including alternate tools).

2.10 Cleanliness standards of maintenance facilities.

2.11 Technical Maintenance Data for aircraft/aircraft components including manufacturers service information and updating and availability to staff.

2.12 Airworthiness directives procedure

2.13 SB/Optional modification procedure.

2.14 Repair procedure.

2.15 Weight & balance control

2.16 Procedures for compliance with an operator's aircraft maintenance program

2.17 Maintenance documentation in use and completion of same.

2.18 Technical record control.

2.19 Records for the operator (if the organization is not an operator itself).

2.20 Control of computer maintenance record systems

2.21 Rectification of defects arising during base maintenance.

2.22 Release to service procedures to include:

(a) issue of the maintenance release required by Annex 6, Part 1, 8.5;

(b) Certification as airworthy after overhaul, component replacement, inspection, modification or repair.

2.23 Reporting of defects and other occurrences as required by the airworthiness authority.

2.24 MEL revision and control of MEL.

Part 3 - Line Maintenance Procedures (when applicable)

3.1 Line maintenance control of aircraft components tools, equipment, etc.

3.2 Line maintenance procedures related to servicing/fuelling/de-icing. etc.

3.3 Line maintenance control of MEL, defects and repetitive defects.

3.4 Line procedure for pooled parts and loan parts.

3.5 Line procedure for return of defective parts removed from aircraft.

3.6 Reference to specific maintenance procedures such as:

- engine running procedures;
- aircraft pressure run procedures;
- aircraft towing procedures;
- aircraft taxiing procedures

Part 4 - Quality System Procedures

4.1 Quality audit of organization procedures.

4.2 Quality audit of aircraft.

4.3 Quality audit remedial action procedure.

4.4 Analyzing the effectiveness of the Maintenance program

4.5 Reliability program

4.6 The qualification and training procedures for personnel issuing certifications in respect of airworthiness after overhaul, etc., and for release to service ("certifying staff")

4.7 Records of certifying staff

4.8 The qualification and training procedures for quality audit personnel

4.9 The qualification and training procedures for mechanics

4.10 Exemption process control

4.11 Concession control or deviation from organization's procedure

4.12 Qualification procedure for specialized activities such as non-destructive testing (NDT), welding.

4.13 Control of manufacturer's working teams based at the premises of the organization, engaged in tasks which interface with activities included in the approval

4.14 Quality audit of sub-contractors (or acceptance of accreditation by third parties, e.g. use of NDT organizations approved by a State regulatory body other than the airworthiness authority).

Part 5 - Examples of standard documents used by the organization

Manuals should be easy to revise and should show the date of last revision on each page. The manuals must have a page control system showing the number of pages and including the latest revision. The page control system is usually identified as a list of effective pages.

F. The operator/applicant is responsible for ensuring that manuals present adequate guidance to meet all regulatory requirements. The operator/applicant must understand and accept this responsibility early in the certification process.

G. An (Airworthiness Inspector (AWI)) may, when necessary, formally request revision to any part of the maintenance manual when such revision is in the interest of safety, or when the manual does not meet regulatory requirements. An airworthiness inspector (AWI) also may formally request revision to any part of the maintenance manual when such revision is in the interest of safety, or when the manual does not meet the requirements of the applicable Authorized Engineering Source. This authority should be used only when the need for revisions is adequately substantiated by safety considerations or by the appropriate state regulatory requirements and when informal discussions with the operator fail to accomplish the necessary revision.

21.4 EVALUATE MANUAL CONTENTS

General

The following paragraphs expand the summary of manual contents as listed in paragraph 21.3 (d).

The manual should contain:

(a) Definitions. Any terms contained in the manual that are unique to the operator's operation must be defined.

(b) Manual revision and distribution procedures. The certificate holder's manual must describe the revision control procedures and how the distribution of manuals will be controlled.

(1) Manuals must be easy to revise and have the date of last revision on each page. The manuals must have a page control system that shows the number of pages and ensures that the latest revision is included. The page control system is usually identified as a list of effective.

(2) (Manuals must have a distribution system that ensures that all applicable staff have a copy, or have ready access to the manual and incorporate amendments into it when issued. Manuals issued in media other than paper must be supplied with appropriate reading equipment

(c) Copies of operations specifications (or similar document such as Scope of Approval) are normally included in the manual. The operator may decide, however, to insert pertinent excerpts from these documents.

(d) References to appropriate Civil Aviation Regulations are required to be in the manual

21.5 MANAGEMENT ORGANIZATION

The manual should contain;

(a) A chart or description of the certificate holder's organization. The organizational chart must describe, at a minimum, the management personnel and major functions. However, it is recommended that the chart cover the operator's entire organization.

(b) The duties responsibilities and authority of management and inspection personnel.

(c) A general description of the facilities at every approved location

(d) Scope of work authorized by the LCAA

(e) A list of Contract Organizations. This list should include organizations with whom the certificate holder has arranged to perform any of its maintenance, including a general description of the work and how quality is monitored.

21.6 MAINTENANCE PROCEDURES

The manual should contain:

(a) Procedures that should be followed while performing any maintenance of the certificate holder's aircraft, including airframes, aircraft engines, propellers, rotors, components, and emergency equipment These procedures should ensure that:

(1) All maintenance is performed in accordance with the method described in the certificate holder's manual

(2) Competent personnel, adequate facilities, and equipment are provided for accomplishing maintenance

(3) Each aircraft released to service is airworthy and properly maintained

(4) Those items of maintenance that must be inspected are designated. The designations should include at least those items which, if maintenance is not performed properly or if improper parts or materials are used, could result in a failure, malfunction, or defect endangering the safe operation of the aircraft.

(5) Methods of performing required inspections and the occupational title(s) of persons authorized to perform each required inspection are in the manual.

(6) Procedures are included for re inspecting work performed under previous inspection findings (rejected item procedures)

(7) Procedures, are included which state the standards, and limits for the acceptance or rejection of inspected items

(8) Instructions are included to prevent any person who performs work on any item from performing the duplicate or required inspection of that work

(9) Procedures are included to ensure that all required inspections are performed

(10) Procedures are included to ensure that any maintenance not completed, as a result of employee shift changes or similar work interruptions, are properly completed before the aircraft is released to service

(11) Instructions and procedures for all maintenance is included

(12) A list of required maintenance related forms and the requirements for preparation

21.7 RECORD KEEPING

(a) Time limitations or standards for determining time limitations for overhauls, inspections, and checks of airframes, engines, propellers, appliances, and emergency equipment are included.

(b) A suitable system, which may include a coded system, providing for preservation and retrieval of information in a manner acceptable to the Director and which provides the:

(1) A description of the work performed or reference to data acceptable to the Direct

(2) The name of the person performing the work if the work is performed by a person outside the organization of the certificate holder

(3) The name or other positive identification of the individual approving the work

(c) A Computerized record keeping system must have back-up and security procedures acceptable to the LCAA.

21.8 CONTROL & CALIBRATION OF PRECISION TOOLS

(a) Procedures, standards, and limits necessary for periodic inspection and calibration of precision tools, measuring devices, and test equipment shall be included in the manual. The manual shall include details of the following:

(1) Recording system

(2) Method of identifying calibrated items

(3) Method of identifying calibration due dates

(4) Calibration intervals

(5) Calibration standards

(6) The person responsible for carrying out the calibrations, and

(7) The responsibilities of all staff in ensuring that only calibrated tools are used during maintenance which requires the use of calibrated tools.

(b) Procedures for ordering accepting and control of specialized tooling required for the maintenance of aircraft and components.

21.9 FUELING

(a) Procedures for aircraft refueling, and defueling including:

(1) elimination of fuel contamination and checking procedures

(2) fire protection (including electrostatic protection)

(3) supervision and protection of passengers during refueling

21.10 TRAINING

(a) The manual should include training programs to ensure that each person who performs, supervises, or certifies maintenance is competent and is fully informed about procedures, techniques, and new equipment in use.

(b) Training programs should include:

(1) Program description

(2) Maintenance refresher training on current aircraft and equipment

(3) Frequency of training.

(4) New equipment training

(5) Inspection procedures & techniques for maintenance and inspection staff

21.11 MAINTENANCE LOG

(a) The manual should provide procedures for the reporting and correction of mechanical irregularities. in the maintenance log and elsewhere These procedures should address the following:

(1) The recording of defects and irregularities in the aircraft maintenance

(2) The method of ensuring that the aircraft maintenance log is readily accessible to each flight crew member

(3) The Minimum Equipment List (MEL). Procedures for actioning MEL items.

(4) Placarding those items declared to be MEL items.

(5) Deferred maintenance

21.12 MAINTENANCE RELEASE

(a) The manual must provide Maintenance release procedures, and procedures for making maintenance record entries in the aircraft log. The procedures shall include a certification that:

(1) Work was performed in accordance with the requirements of the manual

(2) All items required to be inspected were inspected

(3) No known condition exists that would make the airplane unairworthy

(4) So far as the work performed is concerned, the airplane is in condition for safe operation

NOTE: *Rather than restate the above requirements each time a maintenance release is executed, the operator/applicant may provide a statement in the manual that the signature of a properly authorized person constitutes that certification.*

(b) The manual shall also include:

(1) The qualifications and authorization of persons authorized to issue maintenance releases

(2) Definition of when a maintenance release is required

(3) The form and manner in which a maintenance release will be documented

(4) Provision of a copy to the pilot in command

21.13 APPROVED PARTS PROCEDURES

(a) The manual must provide procedures to ensure that approved parts and materials are used, including:

(1) Evaluation of suppliers

(2) Dispatch of components to outside repair agencies – ensuring required maintenance is described & carried out.

(3) Receiving inspection, including acceptable incoming documents and records control
(4) Shelf time control

(5) Preservation of parts

(6) Parts identification system

(7) Disposition of failed/scrap/surplus parts

(8) Parts robbing and swap

(9) Parts pooling/borrowing

21.14 TECHNICAL SERVICES

The manual must provide modification and repair procedures which shall ensure that:

(a) All Airworthiness directives are actioned in a timely manner,

(b) All manufacturers optional service bulletins and other service information is evaluated and appropriate action taken,

(c) All damage is repaired in accordance with approved data.

(d) Any modification is carried out in accordance with approved data.

21.15 TECHNICAL PUBLICATIONS

The manual must provide procedures which will ensure that all technical publications used for maintenance are up to date, controlled, and are available to applicable staff.

21.16 WEIGHT AND BALANCE CONTROL

Methods and procedures for maintaining the aircraft's weight and center of gravity within approved limits are included

21.17 OPERATOR'S CONTINUING ANALYSIS AND AUDITING PROGRAM

(a) The manual must provide the specifics of the operator's continuing analysis and surveillance program, including:

(1) Quality audit of organization procedures.

(2) Quality audit of aircraft.

(3) Quality audit remedial action procedure.

(4) The qualification and training procedures for personnel issuing certifications in respect of airworthiness after overhaul, etc., and for release to service ("certifying staff").

(5) Records of certifying staff.

(6) The qualification and training procedures for quality audit personnel.

(7) The qualification and training procedures for mechanics.

(8) Concession control for deviation from organization's procedures.

(9) Qualification procedure for specialized activities such as non-destructive testing (NDT), welding, etc.

(10) Control of manufacturer's working teams based at the premises of the organization, engaged in tasks which interface with activities included in the approval.

(11) Quality audit of sub-contractors (or acceptance of accreditation by third parties, e.g. use of NDT organizations approved by a State regulatory body other than the airworthiness authority).

(12) Mechanical performance and Reliability programs.

21.18 TEST AND FERRY FLIGHTS

(a) The manual shall contain:

(1) Test flight requirements and limitations are required to be in the manual. These include:

(i) Items requiring test flight

(ii) Procedures for performing test flight

(2) Ferry flight limitations and procedures

21.19 MANDATORY REPORTING

(a) The manual should provide the following reporting procedures:

(1) Reporting the occurrence or detection of each failure, malfunction or defect of mechanical reliability

(2) Reporting each interruption to a flight, unscheduled change of aircraft enroute, or unscheduled stop or diversion from a route caused by known or suspected mechanical

(3) Submitting required aircraft and engine utilization reports to the CAA

(4) Ensuring that all major alteration reports are submitted to the CAA

(5) Ensuring that reports of major repairs are prepared and retained by the operator (these may be in the form of engineering orders, if the operator/applicant is so structured)

21.20 LINE MAINTENANCE PROCEDURES

(a) The manual should also contain other procedures, including:

(1) Parking aircraft in high winds

(2) Short term storage

(3) Long term storage

(4) Seasonal operation

(5) Removing ice and snow from aircraft

(6) Towing

(7) Emergency procedures

(8) Runup/taxi personnel authorizations

(9) Aircraft ground runup

(10) Taxiing aircraft

(11) Ramp signals and procedures

(12) Jacking, lifting, and hoisting

(13) Use of landing gear down locks

(14) Use of external gust locks

(15) Aircraft cleaning, including materials used for cleaning and flame proofing materials after dry cleaning

(16) Engine change

(17) Propeller change

(18) Cylinder change

(19) Engine and propeller overspeed

(20) High oil consumption

(21) Oil leaks

(22) Engine and propeller troubleshooting

(23) Oxygen and nitrogen servicing and storage

21.21 CAT II OR III OPERATIONS & ETOPS

The manual should include additional maintenance for Category II or Category III operations and ETOPS, if applicable.

CHAPTER 22: AIRCRAFT FUELING

22.1 BACKGROUND

Improper fueling procedures may cause aircraft accidents. If operators of fueling facilities establish procedures for safe and proper fueling of aircraft and fueling personnel follow these procedures, many aircraft accidents or incidents will be prevented. Fueling personnel should be familiar with the fuel requirements for the models and types of aircraft they are servicing. This chapter contains a description of fuel contamination and other problems that may be encountered in fueling aircraft and recommended procedures for combating these problems.

22.2 GENERAL

(a) An operator must have procedures for handling and dispensing fuels. The following must be included as components of the operator's procedure manual:

(1) Dispensing equipment procedures

(2) Electrostatic protection procedures

(3) Contamination protection procedures

(4) Related record keeping procedures

(b) The operator's manuals must include procedures for vendors and contractors. A states aviation regulations may not establish standards for fueling facilities, but this does not relieve the operator of overall responsibility for conducting those operations within established industry standards.

22.3 FUELS

(a) AVIATION GASOLINE

The naming system for the grades of aviation gasoline is derived from the general term "AVGAS," a widely used abbreviation of the words "aviation gasoline", followed by the grade marking. The grades are identified by their performance numbers, as recognized by all military and commercial specifications, e.g., 80, 100LL, and 100.

(1) The naming system for AVGAS grades is printed on all containers in white letters and numbers on a red background.

(2) Storage containers are also marked with a circular band around the piping, the color of which matches the dye in the AVGAS flowing through the line. The dyes are red for AVGAS 80, blue for AVGAS 100LL, and green for AVGAS 100. A minimum 4-inch-wide band is recommended. If the pipeline is painted the color of the AVGAS, then no banding is needed.

(b) JET FUELS

The three classifications of aviation turbine fuels are universally referred to as "jet fuels".

(1) The naming system for the jet fuel is printed on all containers in white letters on a black background to distinguish it from aviation gasoline.

(2) Examples of jet fuel storage container markings include the following:

(i) Jet A fuel containers marked with a single 4-inch wide (minimum) black band around the piping

(ii) Jet A-1 fuel containers marked with two 4-inch wide (minimum) black bands

(iii) Jet B-1 fuel containers marked with three 4-inch wide (minimum) yellow bands

22.4 FUEL CONTAMINATION

(a) Water in the Fuel

(1) Water occurs in aviation fuels in three forms:

(i) Dissolved water occurs similar to the humidity in the atmosphere that converts to droplets and settles out as the fuel temperature decreases during flight.

(ii) Suspended water appears in the form of droplets that reflect light. High concentration of droplets will cause fuel to have a cloudy or hazy appearance.

(iii) Solid bodies of water may be caused by leakage of storage tanks, leaking filler neck seals, or the settling out of suspended water droplets.

(2) Accumulation of water: There is no way of preventing the accumulation of water formed through condensation in fuel tanks. The accumulation is certain, and the rate of accumulation will vary; so it is recommended that storage tanks, fuel truck tanks tank trucks and aircraft fuel tanks be checked DAILY for the presence of water. Any water discovered should be REMOVED immediately. In addition to the daily water check, fuel tanks should be CHECKED AFTER EACH DELIVERY as insurance against inadvertent water contamination.

(3) The minimum settling time: Adequate settling time is NECESSARY for accurate testing. The minimum settling time for aviation gas is 15 minutes per foot-depth of fuel and 60 minutes per foot-depth of turbine fuel.

(4) Water checks of storage tanks and fuel trucks may be made by attaching water detecting paste, or litmus paper, to the bottom of the tank dip stick.

(i) Push the dip stick to the bottom of the tank and hold for 30 seconds. When the stick is removed, the detecting paste or litmus paper will have changed color if water is present.

(ii) The source of excessive amounts of water must be determined and corrected before further use of fuel from the tank.

(b) RUST AND SCALE

Rust and scale dislodged from the inside of fuel storage tanks may enter the aircraft fuel tanks and clog systems. Turbine fuel tends to dislodge rust and scale and carry the particles in suspension. Because of this, fuel dispensing equipment filters should be serviced frequently. Aviation gasoline should not be stored in tanks or equipment that has been used for turbine fuel storage.

(c) MICRO-ORGANIC GROWTH

Micro-organic growth thrives in turbine fuel and appears as a soapy, slippery slime on the inside surfaces of fuel storage tanks. Microorganisms of bacteria and fungi multiply rapidly and may cause serious corrosion in aircraft fuel tanks, as well as clog fuel filters, screens, and control units. Therefore, turbine fuel storage tanks should be checked frequently for the presence of slime or micro-organic growth. If found, the tank should be cleaned thoroughly to assure removal of the micro-organic growth and prevent further contamination.

(d) DIRT, LINT, AND DUST

Dirt, lint, and dust may collect on fuel dispensing hose nozzles when proper storage receptacles are not used. Fuel hose nozzles should not be stored in such a manner that dirt or moisture will collect in them. Always check the nozzle for dirt and water before using it.

(e) CONTAMINATION WITH OTHER TYPES OR GRADES OF FUEL

Contamination with other types or grades of fuel can cause aircraft engine damage and possible failure in flight. Turbine fuels mixed with aviation gasoline reduce the antiknock and volatility of fuels required for reciprocating engines. Quantities of aviation gasoline mixed with turbine fuels will cause damaging lead deposits to collect in jet engines when used indiscriminately. Transportation or storage of turbine fuel in tanks previously used for storage or transportation of aviation gasoline is not recommended as contamination from rust and scale, or a possible change of fuel specification, may result.

(f) ADDITIVES

Additives: Certain turbine engine powered aircraft require the use of fuel containing anti-icing additives. Therefore, fuel personnel must know whether or not the fuels they dispense contain additives. When anti-icing additives are to be added to the fuel, the manufacturer's instructions (usually printed on the container) should be followed to assure proper mixture. Anti-icing additive content in excess of 0.15% by volume of fuel is not recommended as higher concentration can cause the aircraft fuel capacitance system to give erroneous indications. Concentrations of at least 0.05% additive by volume of fuel are effective in eliminating microbial growth.

22.5 FUEL DISPENSING EQUIPMENT

(a) Fuel servicing vehicles should be conspicuously and legibly marked to indicate the type and grade of fuel.

(1) Markings should be displayed on each side and on the rear of the vehicle in contrasting colors.

(2) Fuel hydrants and pit installations should be identified similarly, according to type of fuel and grade.

(3) Turbine fueling vehicles should be marked to show whether or not anti-icing additives are contained in the fuel being dispensed.

(4) Leaking or otherwise defective pumping equipment, plumbing, hoses, nozzles, and grounding cables of fuel dispensing vehicles and stationary facilities should be

repaired before further use. Fuel/nozzle/lever stop notches should be removed to avoid the possibility of an inadvertent blocking open of the valve.

(5) Fuel dispensing vehicles, and stationary facilities, should be equipped with appropriate fire extinguishers, fire blankets, static grounding cables, explosion proof flashlights, and ladders. Fire extinguishers should be located so they are accessible from either side of the vehicle and remote from probable fire hazard.

(6) Fueling vehicles should be positioned as distant from the aircraft as permitted by the length of the fuel dispensing hose. Mobile units should be parked parallel to or heading away from the aircraft wing leading edge, so it may be moved away quickly in the event of an emergency. When the fueling operation is completed, the fueling vehicle should be parked at least fifty feet from aircraft or buildings and positioned in a manner to permit removal from the area without delay.

22.6 FUELING PROCEDURES

22.6.1 GENERAL

(a) Fueling procedures: Fueling personnel should first check with the flight crew to determine the type and grade of fuel required, including additives for the aircraft. It is a good practice to have the pilot sign a demand, identifying the grade and quantity of fuel desired. In the absence of the flight crew, fueling personnel should check the placard located near the aircraft fuel tank filler port, or the aircraft owner's manual that is usually carried in the aircraft, to determine the type and grade of fuel required.

(b) Check to ensure that:

(1) No electrical or radio equipment in the aircraft is energized or being maintained while fuel is being dispensed into the aircraft, except those switches that may require energizing to operate fuel selector valves and quantity gauge systems.

(2) Qualified personnel should be stationed at the aircraft fuel control panel during pressure fueling operations.

(3) Fueling personnel should not carry objects in the breast pockets of their clothing when servicing aircraft or filling fuel service vehicles because loose objects may fall into fuel tanks.

(4) Matches or lighters should never be carried during fueling operations.

(5) Because of the high lead content, direct avgas fuel contact with skin or the wearing of fuel saturated clothing should be avoided. Skin irritation or blisters may result from direct contact with fuel.

(6) Immediate medical attention should be sought if fuel enters the eyes.

(7) In the event of fuel spillage, discontinue fueling operations until the spill can be removed, using proper safety precautions.

22.6.2 FUELING FROM MOBILE EQUIPMENT

(a) The following sequence should be followed by the fueling crew.

(1) Connect a grounding cable from the fueling vehicle to a satisfactory ground. Grounding posts usually consist of pipes or rods driven far enough into the ground to result in a zero potential.

(2) Connect a ground cable from ground to the aircraft (on landing gear axle or other unpainted surface). Do not attach ground cables to the propeller or radio antenna.

(3) Connect a grounding cable from the fueling vehicle to the aircraft. The fueling vehicle may be equipped with a "T" or "Y" cable permitting ground attachment first and grounding of the aircraft with the other end.

(4) Connect a grounding cable from the fuel nozzle to the aircraft before removing the aircraft tank cap. This bond is most essential and needs to be maintained throughout the fueling operation and until the fuel cap is replaced.

CAUTION: Conductive-type fuel hose does not provide a satisfactory method of bonding.

(5) The fuel dispensing equipment grounding cables should be removed in the reverse order of the sequence outlined above.

22.6.3 FUELING FROM HYDRANTS, PITS, AND CABINETS

(a) Connect the grounding cable from the dispenser to the aircraft.

(b) Connect the grounding cable from the hose nozzle to the aircraft before removing the fuel cap.

22.6.4 OVERWING FUELING

The fuel filler hose should be draped over the wing leading edge. Never lay the fuel filler hose over the wing trailing edge because aircraft structural damage may result. A simple rubber shower mat may be used to provide protection for wing leading edges during fuel operation. Step ladders or padded upright ladders may be used to provide easy access to high wing and large aircraft. Standing on wing surfaces should be avoided and never stand on wing struts. Hold the fuel nozzle firmly while it is inserted in the fuel tank filler neck and never block the nozzle lever in the open position. Be sure that fuel filler caps are replaced and securely latched when fueling is completed.

22.6.5 UNDERWING FUELING

Discharge possible static buildup in the fuel dispensing hose by touching the pressure nozzle to an unpainted part of the aircraft, such as a landing gear axle, before attaching to the aircraft filler receptacle. No static ground wire between the filler nozzle and the aircraft is necessary.

22.6.6 FUELING FROM DRUMS

(a) Refueling from drum storage or cans should be considered as an unsatisfactory operation and one to be avoided whenever possible. All containers of this type should be regarded with suspicion and the contents carefully inspected, identified, and checked for water and other contamination.

(b) Drums or cans should, if practicable, be protected from the sun and weather. All drums should be stored off the ground and on their sides, with the bungs below the liquid level, and in such a manner that they are visible and accessible. Drums stored vertically

can accumulate water around the bungs which can be sucked into the drum by thermal heating and cooling of the fuel. Additionally, fuel in the drums or cans should be used according to the fueling delivery date - oldest stock first. AVGAS has 6 months shelf life; therefore old fuel should be sampled and checked by a laboratory before use in an aircraft.

(c) Only sound clean drums with good interiors should be used. Where fuel storage in drums has occurred for long periods, the use of the fuel is questionable unless it has been tested for quality. Bungs should always be screwed tightly into empty drums because an open bunghole allows hazardous vapors to escape from the drum after the drum has been emptied.

(d) When fueling from drums, it is advisable to use a 5 micron filtered portable pumping unit, the best filtering equipment available locally or, as a last resort, a chamois skin filter and filter funnel.

(e) Remember refueling from drums or cans is considered to be unsatisfactory. Extraordinary precautions are necessary to eliminate the hazards of water and other contaminants.

22.6.7 WATER DRAIN

The aircraft fuel tank sumps should be drained before each fuel servicing to remove water that may have accumulated from condensation or entered the tank during fueling operations. Draining fuel sumps immediately after fueling serves little purpose because the agitation action of fuel entering the tank may suspend water and contaminants - which can remain suspended for many minutes and may not settle out until the aircraft is airborne.

22.7 PROCEDURES

(a) REVIEW PROCEDURES

(1) Review the Operator's Manual. Ensure that the manual indicates whether services will be performed by the operator or contracted out.

(i) Review the operator's manual to ensure that it defines the following:

- Lines of authority and responsibilities
- The operator's training program
- The vendor's training program, if applicable

(ii) Ensure that the manual contains procedures for the following:

- Inspection of incoming fuels
- Elimination of fuel contamination
- Use of dispensing equipment
- Refueling and defueling, by specific make and model of aircraft

(iii) Ensure that the manual includes procedures for record retention and ongoing inspections of the following:

- Fuel (millipore checks, etc.)
- Storage facilities and dispensing equipment
- Filters
- Safety equipment
- Training programs for servicing personnel
- Individual training records
- Vendors (in accordance with operator's program)

(iv) If the manual is acceptable at this point, continue on to the facilities inspection. If the manual is unacceptable, return it to the operator for corrections and/or revisions.

(2) Inspect the Facility

(i) Ensure that:

- Personnel training requirements are documented and current
- Training is conducted according to the manual curriculum
- Piping is marked and color coded to identify fuel type and grade
- Control/cutoff valves are clearly marked with instructions for emergency use, e.g., on/off

(ii) Ensure that the fuel farm/storage area provides for the following:

- Proper security (fenced and posted)
- Proper display of "Flammable" and "No Smoking" signs
- Markings to identify type/grade of fuel

(iii) Ensure that the equipment includes the following:

- A positive low point sump
- Adequate fire extinguishers

(iv) Ensure that fuel filters/filter separators contain, at a minimum, the following:

- An inlet strainer
- Inflow and outflow filter/separators sized to match maximum pump flow capacity
- Differential pressure check system
- Positive water defense system
- Sump drain with outlet located to facilitate capture of outflow

- Fuel sampling (millipore or equivalent) fittings downstream of all filters and filter/separators

(v) Ensure that hoses, nozzles and outflow connectors are:

- Specifically designed and tested for delivery of aviation fuels
- Controlled by spring loaded, nonbypassable automatic (deadman) fuel flow cutoff valves
- Equipped with dust cap or other feature that will minimize contaminant introduction into fuel/system
- Equipped with nonbypassable 100 mesh nozzle/connector screens
- Color coded to identify fuel type

(vi) Ensure that electrical equipment, switches, and wiring are of a type or design approved for use in hazardous locations (explosion proof, e.g., free of exposed conductors, contacts, switches, connectors, motors, etc).

(vii) Verify that grounding and bonding equipment ensures that piping, filters, tanks, and electrical components are electrically bonded together and interconnected to an adequate electrical ground. The system should have ground wires, bonding wires, and clamps adequate to facilitate prompt, definite electrical ground connection between fueler/pit/cabinet, grounding system, and aircraft being fueled.

(viii) Ensure that fuel tenders and fueling pits have the following:

- Appropriate markings displayed, e.g., “DANGER”, “FLAMMABLE”, “NO SMOKING”, fuel grade, standard hazardous material placard, filter due dates, and emergency fuel shutoff
- Appropriately placed fire extinguishers
- Air filter/spark arrestor and a leak-free exhaust system terminating in a standard baffled original equipment type muffler, if equipped with internal combustion engine

APPENDIX 22-A: JOB AID: AVF-001-Aviation Fuel Processing Plant Checklist

FILE REFERENCE: _____

Date of Evaluation		**Control #**	
Name of Operator		**AOC #**	
State of Operator		**Type of Aircraft**	
Org. Identifier		**Aircraft Reg #**	
Location			
Destination			
Action Taken			

KEY PERSONNEL MET:

	NAME	TITLE
6.		
7.		
8.		
9.		
10.		
11.		

PLEASE CHECK THE APPROPRIATE BOX FOR THE FOLLOWING; SATISFACTORY (S), NOT SATISFACTORY (NS) OR NOT APPLICABLE (N/A). INDICATE REGULATORY OR OTHER REFERENCE(S) FOR NOT SATISFACTORY (NS) ITEMS WHERE APPLICABLE. PROVIDE FURTHER DETAILS IN THE REMARKS SECTION IF REQUIRED.

		CHECKLIST ITEMS			
REFERENCE	**1**	**ORGANIZATION**	**S**	**NS**	**N/A**
	1.1	Is there a management Exposition manual developed?			
	1.2	Does the Organization have an approved, up-to-date Manual of Procedures?			
	1.3	Does the Manual of Procedures contain a current list of key management personnel and their positions?			
	1.4	Are the key management personnel qualified and experienced?			
	1.5	Does the manual contain a current chart showing lines of responsibility ie. Organogram?			
	1.6	Is there a procedure for the control, amendment and distribution of the Manual of Procedures?			
	1.7	Is there an established system for disseminating information?			

	1.8	Does the company have an Emergency Plan and emergency telephone listing?			
REFERENCE	**2**	**PRODUCTION (PROCESSING PLANT)**	**S**	**NS**	**N/A**
	2.1	Does the organization have a processing manual?			
	2.2	Are the procedures in the manual followed by the production personnel?			
	2.3	Is the manual controlled, amended and up to date?			
	2.4	Are the production personnel well trained and qualified?			
	2.5	Is there a record of their training and qualification?			
	2.6	Is the no. of personnel in a shift adequate?			
	2.7	Is there a log of shift handovers.			
	2.8	Are the personnel provided with protective equipment?			
	2.9	Are "NO SMOKING" signs visibly displayed at vantage points?			
	2.10	Are pipelines protected by armour layers?			
	2.11	Are pipelines marked to clearly identify various product lines?			
REFERENCE	**3**	**QUALITY CONTROL**	**S**	**NS**	**N/A**
	3.1	Is there an established laboratory for testing product quality?			
	3.2	Are personnel well trained and experienced?			
	3.3	Are personnel training records documented?			
	3.4	Is the laboratory well equipped to perform the necessary tests?			
	3.5	Are the following tests carried out on the final product: a. API Gravity determination b. Thermal Stability c. Viscosity d. Flash Point e. Electrical Conductivity f. Smoke Point			
	3.6	Is there a Quality Control Procedures Manual?			
	3.7	Are the procedures in the manual followed by the Personnel?			
	3.8	Are the Laboratory Equipment calibrated and is there record of the calibrations?			

REFERENCE	4	STORAGE	S	NS	N/A
	4.1	Are there storage tanks dedicated for each type of product?			
	4.2	Are products segregated from each other?			
	4.3	Are pipelines marked accordingly to identify different product lines?			
	4.4	How often are water checks carried out?			
	4.5	Is there periodic inspection of storage tanks for corrosion and leaks?			
	4.6	How often are pressure testing of storage tanks conducted?			
	4.7	Are there records of tests conducted?			
	4.8	Are gauges calibrated and results documented?			
	4.9	How often is product inventory carried out to check for any abnormal or unexpected product loss?			
	4.10	Are there tank over filling monitoring systems installed to prevent fuel spillage eg. Auto shutoff valves, float switches etc?			
REFERENCE	4	STORAGE (Conti…)	S	NS	N/A
	4.11	Are there leak detection systems installed?			
	4.12	How secured are the fuel storage tanks?			
	4.13	What is the firefighting capacity at the fuel tank sites eg. Fire extinguishers, sprinklers, flame arresters etc?			
REFERENCE	5	LOADINGBAY	S	NS	N/A
	5.1	Is there a Loading Procedures Manual developed?			
	5.2	Are loading personnel properly trained and experienced?			
	5.3	Do the loading personnel conduct loading in accordance with the procedures manual?			
	5.4	Are the various products segregated?			
	5.5	Are the products checked before and after delivery for quality?			
	5.6	Are fire precautions observed during loading?			
	5.7	Is the fire equipment onsite adequate?			
	5.8	Are delivery gauges calibrated and is there a record of the calibrations?			

	5.9	Is there a Spill Response Plan Procedure developed to contain and cleanup spills and reduce environmental hazards?			
	5.10	Are the loading personnel aware of the Spill Response Plan?			
	5.11	Is there enough Spill control equipment available eg. Sandbags, oil/water separators, containment booms, oil skimmers etc.?			
	5.12	How often are water filters changed?			
	5.13	Are water checks carried out before and after loading?			
REFERENCE	**6**	**MAINTENANCE**	**S**	**NS**	**N/A**
	6.1	Are workshops established for- (a) Mechanical equipment (b) Electrical equipment (c) Instruments			
	6.2	Are routine maintenance inspections conducted on regular basis for (a) Pipelines (b) Storage tanks (c) Loading equipment (d) Processing plant equipment and machinery			
	6.3	Is there a record of maintenance inspections conducted?			
	6.4	Are maintenance personnel well trained and qualified?			
	6.5	Is there a record of their training and qualification?			
	6.6	Are there adequate tools and equipment to perform required maintenance tasks?			
	6.7	Do maintenance personnel undergo recurrent training?			
	6.8	Is there a record of personnel recurrent training?			
REFERENCE	**7**	**SAFETY,HEALTHANDENVIRONMENTALISSUES**	**S**	**NS**	**N/A**
	7.1	Are personnel aware of safety and health hazard issues relating to their job functions?			
	7.2	Are "NOSMOKING" signs visibly displayed at most points?			
	7.3	Is there a policy on safety and health hazard?			
	7.4	Are personnel aware of the safety and health hazard policy?			
	7.5	Are personnel trained on the use of portable fire extinguishers?			
	7.6	Are First Aid boxes available at various sections and departments?			
	7.7	Are storage tanks provided with vents to control the release of fuel vapors?			

	7.8	Are there systems to control static and electrical charges eg. Bonding cables?			
	7.9	Are open flames/no smoking rule enforced within 50m radius of fueling activity eg. Fuel farm containment area, loading bay etc?			
	7.10	Is a procedure established for the disposal of used test samples?			
	7.11	Is there an established procedure for tank cleaning of residue (sludge)?			
	7.12	Are safety interlock systems installed on pipelines, fuel tankers and trucks?			
	7.13	How often is hydrostatic testing of hoses conducted and is there a record of tests conducted?			

Item Number	INSPECTOR(S)' REMARKS

INSPECTOR(S)			
NAME/ASI#	**SIGNATURE**	**ORG REP NAME**	
		ORG REP SIGNATURE	

CHAPTER 23: SHORT TERM ESCALATION & LIFE DEVELOPMENT PROGRAM PROCEDURES

23.1 BACKGROUND

This chapter provides guidance for approving short term escalation procedures and life development programs (long term) for aircraft, engines, and components based on procedures contained in the operator's Maintenance Manual.

23.2 GENERAL

Time limitations are maintenance intervals established by the provisions of an approved reliability program or by an operator's life development program. They are based on continuing analysis and surveillance of a fleet's operating performance. Since operators try to obtain the maximum safe operating life from a component yet also try to avoid delays due to units being operated to the point of failure, the time limitations must be of a conservative average.

Note: If service records indicate that any item consistently requires repair, adjustment, or other maintenance within the current time limitations due to damage, wear, or deterioration, the operator must correct the problem before applying for any increase.

An operator may therefore need to adjust these intervals for an individual component, engine, or aircraft.

(a) USE OF A SHORT TERM ESCALATION

(1) Under controlled conditions, an operator may use a short term escalation (overrun) for an individual component, engine, or aircraft without affecting safety. These procedures require close monitoring to ensure that they do not conceal unsound maintenance practices, maintenance program deficiencies, or poor management decisions.

(2) Short term escalations for operators without approved procedures in the company MM must be approved by the LCAA on a case by case basis.

(3) Operators with approved procedures do not require prior approval before using an escalation. The operator must, however, inform the LCAA of an escalation as soon as possible after the escalation is put into effect.

(4) A short term escalation should only be used after carefully analyzing the history of the aircraft and its components. A review of the proposed escalation should include:

(i) Previous inspections results.

(ii) Supplemental/additional inspections that may be needed to ensure continued airworthiness during the escalation.

(iii) Items not covered by the escalation. The escalation must not cause these items to exceed their maintenance intervals.

(5) Maximum short term escalation intervals may be a percentage of an existing interval for a particular inspection, or may be designated in hours of service, in cycles, or in other increments. Acceptable escalations could be 10% of the

currently approved period or a maximum of 500hrs/cycles. For items on calendar time 10% or 6 months maximum.

(b) EXTENSION OF SHORT TERM ESCALATION

For operators with an approved in-house approval procedure the 500-hour/cycle maximum time limit for an escalation is usually sufficient for an operator to position and/or repair the affected item. Occasionally, an operator cannot effectively accomplish the task within this time limit. After an in-depth review of this situation, an individual item may be extended beyond the 500-hour limit. In order to do this, an operator must seek approval from the Director. This extension remains in effect for a prescribed time limit unless the component or inspection is accomplished prior to the time limit.

23.3 PROCEDURES FOR APPROVAL OF IN-HOUSE SHORT TERM ESCALATION PROCEDURES

(a) The inspector must ensure that the procedures accomplish the following:

(1) List the operator's management personnel with escalation approval authority. These personnel must be senior management and preferably include the Quality Manager.

(2) Define the maximum limitations for a short term escalation.

(3) Contain criteria that define the type of data acceptable for justifying a short term escalation.

(4) Correspond with the overall maintenance program. The procedures must ensure that an escalation will not create an unsafe condition.

(5) Restrict the occurrence of repetitive short term escalations that indicate a need for a change in the maintenance program.

(6) Provide a method for recording all escalations, with provisions for submitting/reporting to the LCAA.

23.4 PROCEDURES FOR LONG TERM TBO INCREASES

(a) LONG TERM INCREASES IN THE APPROVED TBO

Long term increases in component, engine, or propeller overhaul intervals must be approved by the LCAA and are normally controlled by a Life Developing Program using the sampling method. In the Life Development Program engine O/H periods may be increased in 10% increments of the currently approved period, but not to exceed 500hrs between samples.

(b) PROGRAM APPROVAL

(1) If an operator wishes to increase the approved TBO he should request approval from the LCAA to initiate a Life Development Program. These approvals are given for specific items by part number. The request should include full details of the program advising the following details:

(2) The TBO period expected to be achieved,

(3) The sampling intervals proposed,

(4) The name of the overhaul agency to be used for this program (operators should remain with the same overhaul agency during this program,

(5) Evidence that the engine manufacturer supports such an escalation program.

The operator must also submit justification to support the requested increase. The justification must include a satisfactory strip report from the last two overhauls carried out at a manufacturers approved overhaul period. The strip reports must include a statement from the approved overhaul agency supporting an increase in the TBO period. The data must indicate that the increase will not adversely affect the airworthiness of the aircraft. Industry experience and manufacturer's recommendations for similar equipment can be used as supporting justification, but shall not be the sole source.

(c) SAMPLING PROGRAM

In the Life Development Program engine O/H periods may be increased in 10% increments of the currently approved period, but not to exceed 500hrs between samples. Movement from one sample period to the next should be based on satisfactory service experience and a teardown examination, by a manufacturer's approved overhaul facility, of at least two exhibit samples at each sample stage. The engines chosen for exhibit must have operated to within 5 percent of the currently approved time interval and must have accrued at least 70% of its operating time with the current operator. No engine may proceed to the next sample stage unless both previous samples were satisfactory and the O/H agency has recommended an increase to the next sample stage.

The Inspector must ensure that the part or engine sampled represents the total sample population and that it has not been given special treatment or been subjected to early inspections by the operator.

NOTE: *Under no circumstance may internal components with fatigue life (Group 'A'), established by the manufacturer exceed the manufacturers published periods. These items are excluded from the program.*

(d) PHYSICAL INSPECTION OF SAMPLES

Physical inspection of samples need not be conducted by a LCAA Airworthiness Inspector if the overhaul agency is approved by the manufacturer to recommend overhaul period increases and properly documents the work. However, the assigned Inspector must coordinate the inspection process with the certificate holder.

(e) ENGINE ACCESSORIES

Engine accessories such as FCU, fuel pumps etc. may not have time interval increases in line with the engine inspection/overhaul time. These items must undergo their own individual escalation program.

(f) MONITORING

Close monitoring of the operation may be required by the inspector to ensure the following:

(1) The authorization is not being abused

(2) The manual procedures are being followed

APPENDIX 23-A: JOB AID: AW-051-Evaluation of Short-Term Escalation

FILE REFERENCE: _____

Date of Evaluation		**Control #**	
Name of Operator		**AOC #**	
State of Operator		**Type of Aircraft**	
Org. Identifier		**Aircraft Reg #**	
Location			
Destination			
Action Taken			

KEY PERSONNEL MET:

	NAME	TITLE
1.		
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PLEASE CHECK THE APPROPRIATE BOX FOR THE FOLLOWING; SATISFACTORY (S), NOT SATISFACTORY (NS) OR NOT APPLICABLE (N/A). INDICATE REGULATORY OR OTHER REFERENCE(S) FOR NOT SATISFACTORY (NS) ITEMS WHERE APPLICABLE. PROVIDE FURTHER DETAILS IN THE REMARKS SECTION IF REQUIRED.

		CHECKLIST ITEMS			
REFERENCE	**1**	**ORGANIZATION**	**S**	**NS**	**N/A**
	1.1	Is there a management Exposition manual developed?			
	1.2	Does the Organization have an approved, up-to-date Manual of Procedures?			
	1.3	Does the Manual of Procedures contain a current list of key management personnel and their positions?			
	1.4	Are the key management personnel qualified and experienced?			
	1.5	Does the manual contain a current chart showing lines of responsibility ie. Organogram?			
	1.6	Is there a procedure for the control, amendment and distribution of the Manual of Procedures?			
	1.7	Is there an established system for disseminating			

		information?			
	1.8	Does the company have an Emergency Plan and emergency telephone listing?			
REFERENCE	**2**	**PRODUCTION (PROCESSING PLANT)**	**S**	**NS**	**N/A**
	2.1	Does the organization have a processing manual?			
	2.2	Are the procedures in the manual followed by the production personnel?			
	2.3	Is the manual controlled, amended and up to date?			
	2.4	Are the production personnel well trained and qualified?			
	2.5	Is there a record of their training and qualification?			
	2.6	Is the no. of personnel in a shift adequate?			
	2.7	Is there a log of shift handovers.			
	2.8	Are the personnel provided with protective equipment?			
	2.9	Are "NO SMOKING" signs visibly displayed at vantage points?			
	2.10	Are pipelines protected by armour layers?			
	2.11	Are pipelines marked to clearly identify various product lines?			
REFERENCE	**3**	**QUALITY CONTROL**	**S**	**NS**	**N/A**
	3.1	Is there an established laboratory for testing product quality?			
	3.2	Are personnel well trained and experienced?			
	3.3	Are personnel training records documented?			
	3.4	Is the laboratory well equipped to perform the necessary tests?			
	3.5	Are the following tests carried out on the final product? g. API Gravity determination h. Thermal Stability i. Viscosity j. Flash Point k. Electrical Conductivity l. Smoke Point			
	3.6	Is there a Quality Control Procedures Manual?			
	3.7	Are the procedures in the manual followed by the Personnel?			
	3.8	Are the Laboratory Equipment calibrated and is there record of the calibrations?			

REFERENCE	4	STORAGE	S	NS	N/A
	4.1	Are there storage tanks dedicated for each type of product?			
	4.2	Are products segregated from each other?			
	4.3	Are pipelines marked accordingly to identify different product lines?			
	4.4	How often are water checks carried out?			
	4.5	Is there periodic inspection of storage tanks for corrosion and leaks?			
	4.6	How often are pressure testing of storage tanks conducted?			
	4.7	Are there records of tests conducted?			
	4.8	Are gauges calibrated and results documented?			
	4.9	How often is product inventory carried out to check for any abnormal or unexpected product loss?			
	4.10	Are there tank over filling monitoring systems installed to prevent fuel spillage eg. Auto shutoff valves, float switches etc?			
REFERENCE	4	STORAGE (Conti…)	S	NS	N/A
	4.11	Are there leak detection systems installed?			
	4.12	How secured are the fuel storage tanks?			
	4.13	What is the firefighting capacity at the fuel tank sites eg. Fire extinguishers, sprinklers, flame arresters etc?			
REFERENCE	5	LOADING BAY	S	NS	N/A
	5.1	Is there a Loading Procedures Manual developed?			
	5.2	Are loading personnel properly trained and experienced?			
	5.3	Do the loading personnel conduct loading in accordance with the procedures manual?			
	5.4	Are the various products segregated?			
	5.5	Are the products checked before and after delivery for quality?			
	5.6	Are fire precautions observed during loading?			
	5.7	Is the fire equipment on site adequate?			
	5.8	Are delivery gauges calibrated and is there a record of the calibrations?			

	5.9	Is there a Spill Response Plan Procedure developed to contain and clean-up spills and reduce environmental hazards?			
	5.10	Are the loading personnel aware of the Spill Response Plan?			
	5.11	IsthereenoughSpillcontrolequipmentavailableeg.Sandbags,oil/waterseparators,containmentbooms,oilskimmersetc.?			
	5.12	How often are water filters changed?			
	5.13	Are water checks carried out before and after loading?			
REFERENCE	**6**	**MAINTENANCE**	**S**	**NS**	**N/A**
	6.1	Are workshops established for- (d) Mechanical equipment (e) Electrical equipment (f) Instruments			
	6.2	Are routine maintenance inspections conducted on regular basis for (e) Pipelines (f) Storage tanks (g) Loading equipment (h) Processing plant equipment and machinery			
	6.3	Is there a record of maintenance inspections conducted?			
	6.4	Are maintenance personnel well trained and qualified?			
	6.5	Is there a record of their training and qualification?			
	6.6	Are there adequate tools and equipment to perform required maintenance tasks?			
	6.7	Do maintenance personnel undergo recurrent training?			
	6.8	Is there a record of personnel recurrent training?			
REFERENCE	**7**	**SAFETY,HEALTHANDENVIRONMENTALISSUES**	**S**	**NS**	**N/A**
	7.1	Are personnel aware of safety and health hazard issues relating to their job functions?			
	7.2	Are" NO SMOKING" signs visibly displayed at most points?			
	7.3	Is there a policy on safety and health hazard?			
	7.4	Are personnel aware of the safety and health hazard policy?			
	7.5	Are personnel trained on the use of portable fire extinguishers?			
	7.6	Are First Aid boxes available at various sections and departments?			
	7.7	Are storage tanks provided with vents to control the release of fuel vapors?			

	7.8	Are there systems to control static and electrical charges eg. Bonding cables?			
	7.9	Are open flames/no smoking rule enforced with in 50m radius of fueling activity eg. Fuel farm containment area, loading bay etc?			
	7.10	Is a procedure established for the disposal of used test samples?			
	7.11	Is there an established procedure for tank cleaning of residue (sludge)?			
	7.12	Are safety interlock systems Installed on pipelines, fuel tankers and trucks?			
	7.13	How often is hydrostatic testing of hoses conducted and is there are cord of tests conducted?			

Item Number	INSPECTOR(S)' REMARKS

INSPECTOR(S)			
NAME/ASI#	**SIGNATURE**	**ORG REP NAME**	
		ORG REP SIGNATURE	

CHAPTER 24: STRUCTURAL INTEGRITY PROGRAMS (SIP) FOR AGING TRANSPORT CATEGORY AIRPLANES

24.1 BACKGROUND

This chapter provides background information and guidance for Airworthiness Inspectors in understanding and approving a structural inspection program for aging transport aircraft.

As airplanes age, the probability of both fatigue and corrosion damage occurring on primary structure increases. Maintenance requirements to detect such damage are very important. Corrosion accelerates fatigue damage, and increases the potential for multiple-site damage, which can significantly reduce residual strength below certification requirements. Therefore, more frequent structural inspections may be required to ensure early detection of fatigue and corrosion damage. In general, as airplanes become older, a more conservative approach should be taken with the SIP. Intervals should be more toward reduction in time between successive planned inspections then to increasing the time between inspections.

On April 28, 1988, a Boeing 737 airplane experienced an in-flight decompression and separation of approximately 18 feet of the fuselage skin and structure at the top of the airplane. A post-accident investigation revealed the fuselage had many fatigue cracks and corrosion, despite the operator's compliance with the maintenance program. The National Transportation Safety Board (NTSB) determined the probable cause of this accident was the failure of the airline's maintenance program to detect the presence of significant disbonding and fatigue damage, which ultimately led to failure of a fuselage lap joint and the separation of the fuselage upper lobe.

The NTSB made 21 safety recommendations as a result of its investigation of the accident. One of the safety recommendations, A-89-53, states the following: "Provide specific guidance and proper engineering support to Inspector's to evaluate modifications of airline maintenance programs and operations which propose segmenting major maintenance inspections."

24.2 GLOSSARY

SIGNIFICANT STRUCTURAL ITEM (SSI); an SSI is defined as a principal structural element that could fail and consequently reduce the structural integrity of the airplane.

REPAIR ASSESSMENT PROCESS: A Repair Assessment is a process by which an operator evaluates the impact structural repairs have on damage tolerance. It includes the repair examination, classification, and (if required) determination of inspection requirements.

DAMAGE TOLERANCE: Damage Tolerance is the ability of structure to sustain anticipated loads in the presence of damage, such as fatigue cracks, until it is detected through inspection or malfunction and repaired

24.3 GENERAL

(a) AGING AIRPLANE STRUCTURAL MAINTENANCE PROGRAMS

After the accident, a task force, including airline operators, manufacturers, and regulatory authorities, was established to address aircraft structure and other issues relating to aging airplanes. This task force dealt with issues affecting continuing airworthiness of aging

large transport category airplanes and identified five structural initiatives which would be the cornerstone of the aging airplane program. These initiatives are:

(1) structural modifications,

(2) corrosion prevention and control (CPCP),

(3) supplemental structural inspections, (SSIP)

(4) structural repair assessment requirements; and

(5) structural maintenance program general guidelines, as well as airplane manufacturer model specific guidelines.

One of the basic elements of a continuing airworthiness maintenance program is structural inspection and airframe overhaul. This element addresses the structural inspections identified in such documents as Maintenance Review Board (MRB) report, airplane manufacturers maintenance planning data documents, service bulletins, airworthiness directives (AD), and the airworthiness limitations section in the Instructions for Continued Airworthiness. In order for the structural inspection program (SIP) to be effective it must be continually reviewed as part of the operator's continuing analysis and surveillance system. A periodic structural assessment of each airplane model, based on service experience, should be accomplished by the operator in order to determine if the operators maintenance program is effective.

(b) STRUCTURAL INSPECTION INTERVALS

The maintenance program should include provisions to reduce the time between inspections as the airplanes age. This can be achieved by reducing the time between inspections or by transferring inspections to a lower level check. These actions are considered appropriate under the following circumstances:

(1) When findings from successive inspections, performed at the same frequency, reveal an increasing number of discrepancies.

(2) When discrepancies begin to occur in the operators fleet which require extensive repair or replacement of primary structural components.

(3) When findings following the implementation of the CPCP indicate the need for more frequent corrosion inspections.

(c) AIRPLANE DOWN-TIME (days out of service).

Aging airplane program requirements are expected to increase the amount of work required during heavy maintenance visits by up to 50 percent during implementation and by 10 to 15 percent during subsequent visits. Normally there will be a point in the operational life of the airplane when more down- time should be allocated to perform structural inspections. Continuous Analysis and Surveillance program (if the operator is required to have one) may be a useful tool to identify this point. Any of the following could be an indicator that additional down-time is needed. They are:

(1) Maintenance release schedules not being met.

(2) Maintenance actions deferred to a higher level or next check.

(3) A sudden increase in down-time to correct significant structural discrepancies resulting from non- routine findings.

If the maintenance program correlates with requirements for airplane age and utilization, the down-time to accomplish identical structural work packages for successive structural inspections should remain relatively constant. If the maintenance program is effective, the number of structural discrepancies in a given airplane zone should not change significantly between successive checks.

(d) AIRPLANE UTILIZATION.

Airplane utilization is an important factor to consider in the evaluation of the total maintenance program. The SIP is especially important as utilization rates change. The number of takeoffs and landings, taxi loads, inflight gust loads, and pressurization cycles have a direct impact on crack initiation and growth. For example, if a change in route structure decreases the average flying time between two points, there will be an increase in the number of flight cycles between checks. If inspection intervals are defined in flight hours, a reduction in flight hour utilization will extend the calendar time between inspections.

(e) LOW UTILIZATION AIRPLANE PROGRAMS.

Airplanes with utilization well below that intended by the airplane manufacturers original design estimate are subject to a higher degree of environmental damage on both the airframe and engines. Maintenance programs should recognize low utilization airplanes and be consistent with the airplane manufacturer's program. In most cases, airplane manufacturers have developed model specific low utilization programs. If a manufacturer's program does not exist, the operator should tailor its maintenance or inspection program and overhaul concepts on realistic calendar inspection intervals, with a calendar cap on "C" and "D" or equivalent checks.

(f) AIRPLANE STORAGE.

Airplanes removed from service and put in short or long term storage are required to have all scheduled AD's, CPCP inspections, and any other scheduled maintenance tasks accomplished prior to returning to service.

(g) MAINTENANCE FACILITIES FOR AGING AIRCRAFT.

The facility can have a significant influence on the quality of work performed and the effectiveness of the maintenance program. Aging airplane program requirements dictate increased access to areas of the airplane that may have had only limited or no access before. Certain primary structure may have to be removed from the airplane to facilitate inspection and repair. This may require the airplane be shored to prevent alignment problems and adverse loading conditions on the structure. Operators should assure adequate facilities are available to perform these types of complex aging aircraft inspection tasks.

(h) PHASING OR SEGMENTING STRUCTURAL INSPECTION WORK PACKAGES - BACKGROUND INFORMATION.

Phasing or segmenting is the subdivision of scheduled maintenance work packages, into combinations of smaller work packages, to be accomplished at lesser inspection intervals, such that the total work is completed within the required time-frame.

During the accident investigation of the Boeing 737 airplane, the NTSB identified three factors of concern in the airlines maintenance program. One of these was "the manner in

which a highly segmented SIP was implemented." The airline had adopted the practice of inspecting the airplane in small increments. The airline's "D" check inspection of the Boeing 737 airplane was covered in 52 independent work packages. Limited areas of the airplane were inspected during each work package and this practice precluded a comprehensive assessment of the overall structural condition of the airplane. The NTSB concluded that 52 block/independent work packages is an inappropriate way to assess the overall condition of an airplane.

Comprehensive aging airplane structural inspections can best be accomplished when the airplane is opened and inspected during a heavy maintenance check, like a "D" or equivalent outlined in the airplane manufacturers maintenance planning data documents. Some operators have found it efficient to use yearly block "C" checks with a phased or segmented ¼ "D" check inspection. In general, phased or segmented inspections that have been broken down into many smaller packages may dilute the intent of the airplane manufacturer's maintenance planning data and may not provide sufficient depth of inspection that will permit an effective assessment of the condition of aging large transport airplanes or any other large transport category airplane.

24.4 REGULATORY REQUIREMENTS

HISTORY

FAA Advisory Circular 91-56 was released in 1981 to recommend the supplemental structural inspection program (similar to FAR 25.571 damage tolerance requirements for the airplanes certified to amendment 45) as an alternative to service life limits on the older airplanes. This results in inspection programs of selected structural details that will detect the first crack in the fleet prior to reaching critical length.

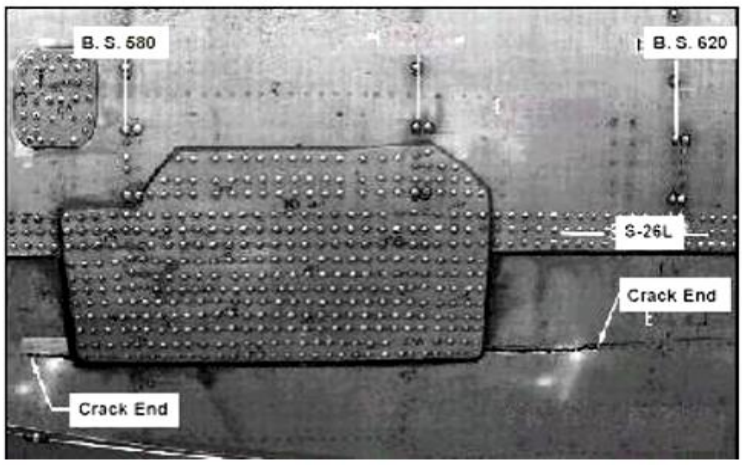
(a) CHANGE FROM CANDIDATE TO THRESHOLD FLEET

Switching from a candidate fleet system to a threshold based system is one of the major recent changes to the SSID made by the FAA. With this system, all airplanes exceeding the threshold become part of the SSID program.

(b) REPAIR ASSESSMENT PROGRAM

Another industry change has been to develop a repair assessment methodology which could be used to efficiently evaluate existing repairs. A survey form was created to record key repair design features needed to do a repair assessment. Airline personnel can use the form to document the configuration of each observed repair as well as classify repairs into one of three categories. Simplified methods to determine the damage tolerance characteristics of repairs will enable an operator to perform a repair assessment without manufacturer assistance. This methodology is contained in each Repair Assessment Guidelines document, which were recently approved by the FAA and are considered acceptable for incorporation directly in an operator's maintenance program.

EXAMPLE



This photograph illustrates the concern of the Repair Assessment Program. The repair doubler was installed per the SRM when the airplane was in service. During fatigue testing of the fuselage after it was removed from service, a crack initiated beneath this doubler and was not detected until it was 44 inches long. The crack was hidden from visible inspection externally by the doubler and internally by a stringer.

Even though the repair was structurally satisfactory (prior to the crack initiation), this program would require supplemental inspections after exceeding an inspection threshold.

(c) ACTION

The FAA will make it mandatory to carry out a repair assessment of the fuselage pressure boundary structure. This new rule will require the incorporation of repair assessment guidelines into the CAA approved maintenance programs of each operator. The Repair Assessment Guidelines document will normally be incorporated into the maintenance program typically (B737 classic) at 60,000 cycles. The purpose of the assessment guidelines is to establish damage tolerance based supplemental inspections to detect damage, which may develop in repaired areas, before that damage degrades the load-carrying capability of the structure below certification levels. The manufacturer produced Repair Assessment Guidelines document provides the information necessary to evaluate the existing repairs on the airplanes. This evaluation will determine the repair category.

(1) Category A - Permanent repair: Baseline Zonal Inspections are adequate to maintain the structures damage tolerance.

(2) Category B - Permanent repair: Supplemental inspections are required to maintain the structures damage tolerance.

(3) Category C - Time limited repair: Supplemental inspections are required to maintain the structures damage tolerance until it is replaced with a permanent repair.

(4) Not structurally satisfactory - This repair must be replaced prior to further flight. If a repair is determined to be Category B or C, the document will provide the data necessary to determine the inspection requirements. This includes the replacement requirements for Category C repairs.

24.5 CONCLUSIONS

Safe operation up to and beyond the design life of an aircraft is achieved by an effective maintenance program. Structural maintenance tasks can be expected to increase due to fatigue related cracking as airplanes stay in service beyond their design life. To offset this situation, maintenance initiatives have been developed to ensure that the continued airworthiness of airplanes is achieved for operation up to and beyond the design life. Scheduled maintenance checks contained in MPDs are used to address environmental and accidental damage that can occur at any time as random events. Inspection requirements to detect fatigue damage are contained in Supplemental Structural Inspection Documents. The Aging Airplane Program initiatives begin at various stages in an airplane's service life. The Service Bulletin Modification program was developed to reduce reliance on continuing inspections as a means to ensure airworthiness. The CPCP was established to make mandatory corrosion inspections which had previously been only recommendations in the basic maintenance programs. The Repair Assessment program will require operators to assess fuselage pressure boundary structure repairs from a Damage Tolerance perspective.

The Widespread Fatigue Damage program is developing new inspection requirements to address fatigue cracking in similarly stressed and configured structural details.

24.6 PROCEDURES

(a) Inspectors must verify that the operator's CAA- approved maintenance or inspection program conforms to the following:

(1) The CAA-approved maintenance or inspection program is consistent with the airplane manufacturer's maintenance planning data (MPD), supplemental structural inspection program (SSIP), corrosion prevention control program (CPCP), and repair assessment guidelines, all with reference to scope and detail of the work to be performed. If phased or segmented maintenance or inspections are being accomplished, the program must be reviewed to determine an equivalency in scope and detail to the manufacturers maintenance planning data.

(2) Low utilization airplane maintenance or inspection program is consistent with airplane manufacturer maintenance planning data for low utilization airplanes, if one exists, or the program is consistent with realistic calendar inspection intervals with a calendar cap on "C" and "D" checks or equivalent.

(3) Assess the effectiveness of the operator's CAA-approved maintenance and inspection program and ensure modifications are implemented in a timely fashion.

CHAPTER 25: AIR OPERATOR CERTIFICATION

25.1 THE CERTIFICATION PROCESS

(a) The purpose of the certification process is to provide a means by which prospective air operators or service providers are authorized to conduct business in a manner which complies with Liberia Civil Aviation Act of 2019, all applicable regulations and directives. The process is designed to preclude the certification of applicants who are unwilling or unable to comply with the regulations or to conform to safe operating practices.

(b) The applicant will not be certificated until the LCAA is assured that the applicant is capable of complying with the regulations.

(c) The certification process is a series of steps outlined in five phases:

(1) **Phase 1: Pre-Application Phase.** This phase provides the applicant with guidance for initial contact with the LCAA and provides for planning and coordination between the DG and the Flight Safety Standards Department in configuring the Certification Project Team(CPT). It includes completion of the Prospective Organization Pre-Assessment Statement (POPS). During this phase, the applicant will receive an initial orientation briefing, including an overview of the system safety based certification process, and training. This phase includes a determination of continuance by all parties and a review of all applicant submissions by the CPT and ends when all phase 1 requirements have been met.

(2) **Phase 2: Formal Application Phase.** To begin the formal application phase, the team will receive the application and attachments. During this phase, a formal application meeting is tentatively scheduled after the LCAA receives all submissions required in the Pre-application Phase. The Certification Project Team (CPT) reviews the applicant's submissions for completeness and accuracy before confirming the formal application meeting date. During the formal application meeting, the applicant's management personnel must demonstrate knowledge of their system design.

(3) **Phase 3: Document Evaluation/Compliance Phase.** In this phase, the application receives a thorough review for approval or disapproval, and the manual and related attachments undergo review to ensure conformity to the applicable regulations and safe operating practices.

Note: Phase 3 ends when all programs have been accepted or approved, and all requirements have been met.

(4) **Phase 4: Demonstration and Inspection Phase**. In this phase, the certification team ensures that the applicant's proposed procedures are effective and that facilities and equipment meet regulatory requirements. The CPM must decide if demonstrations are necessary.

(5) **Phase 5: Certification Phase.** Once the applicant meets the regulatory requirements of part 9, the certification team will issue the AOC certificate and operations specifications (OpSpecs).

(d) The complexity of the certification process is based on the inspector's assessment of the applicant's proposed operation. For simple certifications, some steps can be condensed or eliminated.

(e) Some applicants may lack a basic understanding of what is required for certification. Other applicants may propose a complex operation, but be well prepared and knowledgeable. Because of the variety in proposed operations and differences in applicant knowledge, the process must be thorough enough and flexible enough to apply to all possibilities.

(f) Each of the above phases is briefly introduced and each will be dealt with in greater detail in the succeeding chapters of this Inspector handbook.

25.2 PRE-APPLICATION PHASE

(a) A prospective operator who intends to apply for an AOC shall enter into preliminary discussions with the LCAA and will be provided with complete information concerning the type of operations which may be authorized, the data to be provided by the applicant and the procedures which will be followed in the processing of the application. It is essential that the applicant has, in this pre-application phase, a clear understanding of the form, content and documents required for the formal application. A standard information package has been developed to provide information to applicants and is available for download from LCAA website at www.lcaa.gov.lr.

(b) The LCAA will advise the prospective operator on the approximate period of time that will be required to conduct the certification process, subsequent to the receipt of a complete and properly executed application. This advice is of particular importance in the case of new operators so that such applicants may avoid undue financial outlays during the certification period.

(c) In those cases where an applicant's organization is in the formative stage, and the applicant has little or no operating experience, the applicant shall be advised that it may not be possible to judge the organization's operating competency until a sufficient period of operational proving, including proving flight operations, have been carried out and that the overall period required to reach a final decision on the application may be protracted and considerable financial outlays unavoidable.

(d) The importance of a thorough and careful preliminary assessment of the application cannot be overemphasized. The more thoroughly the applicant's competence is established at this stage, the less likelihood there will be of having serious problems in the document evaluation and the demonstration and inspection phases preceding certification or during the course of subsequent operations. Analysis of the application will indicate either that it is acceptable on a preliminary basis or that it is unacceptable.

(e) If the application is acceptable to the LCAA on the basis of the preliminary assessment, the applicant should be encouraged to proceed with preparations for the commencement of operations on the basis that an AOC will be issued subject to satisfactory completion of the remainder of the certification procedure.

(f) The pre-application phase will also include a parallel assessment of the financial, economic and legal status of the applicant and the proposed operation. The financial viability of the operation may be the most critical factor in reaching a decision on whether or not an AOC should be awarded. The determination of the financial resources of the applicant is usually based on an audit of the operator's assets and liabilities and a thorough evaluation of all financial information and other pertinent data such as proposed arrangements for the purchase or lease of aircraft and major equipment.

(g) The LCAA is also the entity responsible for carrying out the financial, economic and legal assessment of the applicant and the proposed operation. An application for such assessment should be addressed to the LCAA Air Transport &Economic Regulation Department.

25.2.1 TERMINATING THE PRE-APPLICATION PHASE

(a) The Pre-Application Phase ends when the certification team is satisfied that the applicant is prepared to proceed with formal application. If the applicant is not ready, the team should advise the applicant of the problems and work with the applicant to arrive at solutions or terminate the certification process.

(b) The Pre-Application Phase Job aid (CL: AC-FSS001A) included in Appendix A to this chapter shall be completed prior to proceeding with the formal application phase.

25.2.2 PROCEDURES/ JOB PERFORMANCE SUBTASKS:

(a) There are three distinct activities, which are conducted during this phase:

(1) Respond to initial inquiry;

(2) Review the POPS

(3) Conduct the pre-application meeting

25.2.3 TASK OUTCOMES

(a) File an ISATS report.

(b) *Task Completion.* completion of this task will result in the following:

(1) Acceptance of the POPS;

(2) Termination of the pre-application phase.

(c) *Document Task.* File all supporting paperwork in the operator/applicant's office file such as update the aircraft database.

25.3 FORMAL APPLICATION

(a) An applicant's presentation of an application package and the LCAA office's review of it is considered the Formal Application Phase.

(b) ***Receipt of Formal Application Package.*** On receipt of the formal application package, the applicant will be informed that the LCAA needs a specific period of time to review it. Discussions of its acceptability should be avoided at this time. The applicant should be advised that further discussion will not be productive until the certification team has reviewed the formal application. The applicant should be advised that the certification team will contact him/her within 10 working days concerning the application package's acceptability and to arrange for a formal application meeting.

(c) ***Application Package Initial Review.*** Upon receipt of a formal application package, the certification team must initially review it and make a determination of its acceptability. The package generally consists of:

(1) Letter of formal application

(2) Application form

(3) Complete manuals and documents, if applicable

(4) Curricula or personnel training programs, if applicable

(5) A schedule of events

(d) ***Formal Application Meeting***. If the certification team determines the need for a formal application meeting, all members of the certification team must be present. During the meeting the certification team and the applicant review the application package and resolve any discrepancies.

(1) If mutual agreements cannot be reached on any discrepancies, the team should terminate the meeting and inform the applicant that the application package is not acceptable. The application package must then be returned to the applicant with a letter explaining the reasons for the rejection.

(2) When agreement has been reached on corrective action for deficiencies, the team should then encourage the applicant to present questions concerning the certification.

(3) Before the conclusion of the formal application meeting, the team must make certain the applicant clearly understands the following:

(i) The applicant will be notified in writing in the event the application is rejected. This notification should be made within 5days after the formal application meeting. A telephone call concerning the application rejection shall be made to the applicant as soon as the determination is made; indicating that written notification will follow.

(ii) If the application is acceptable, the certification process continues with an in-depth examination of the application and associated documents during the document compliance phase. In some cases, telephone confirmation to the applicant is sufficient; however, written confirmation is recommended. A letter accepting an application is necessary because the 90-day time limit begins upon receipt of the application in an acceptable form.

(iii) Acceptance of the application does not constitute acceptance or approval of any attached documents. Attachments will be reviewed, and the applicant will be expected to take corrective action, if required. Acceptance or approval of each attachment should be indicated separately.

(e) ***Application Rejection.*** Rejection of an application is a sensitive issue since the applicant may have already expended funds and resources. It is important for the team to document thoroughly the reasons for the rejection. The reasons should clearly indicate that to proceed with the certification process would not be productive unless the applicant is willing to make the team's suggested corrections. Reasons for rejection might include lack of agreement on appropriate courses of action or evidence that the applicant does not understand regulatory requirements and the certification process. In the event of rejection, the application and documents submitted are returned to the applicant with a letter of rejection.

25.3.1 TERMINATING THE FORMAL APPLICATION PHASE

(a) If the certification team accepts the application package, the Formal Application Phase of the certification process ends, and the Document Compliance Phase begins.

(b) The certification project Manager (CPM) should not proceed to the next phase until all requirements of the previous phase are met.

(c) Job Aid CL:AC-FSS002AAOC Formal Application Phase Checklist described in Appendix B to this chapter shall be utilized and completed to confirm the acceptability of the formal package.

25.3.2 PROCEDURES/ JOB PERFORMANCE SUBTASKS

(a) Receive the Formal Application package. Ensure submission and completeness of all documents.

(b) Conduct initial review of the formal application.

(1) Review schedule of events.

(2) Review company general operations manual/policies and procedures manuals.

(3) Review training curriculum.

(4) Review management qualifications/resumes.

(5) Review documents of purchase, contracts, & leases.

(6) Review compliance statement.

(c) Determine if the initial formal application package is acceptable.

(d) Conduct a Formal Application Meeting. Answer any open questions concerning the package before proceeding to the next phase. Do this in the most effective way possible (e.g., meetings or correspondence).

(e) Conclude formal application meeting.

(1) Specify corrections or additional items needed.

(2) Do not proceed to Phase III until Phase II is satisfactory.

(f) Evaluate the Formal Application Package. Based on the initial survey of the application package, make a decision whether or not to continue with the certification process.

(g) Termination of the formal application phase

(h) Proceed to document compliance phase of certification process

25.3.3 TASK OUTCOMES

(a) File an ISATS report.

(b) *Task Completion.* Successful completion of this task will result in the following:

(1) Issuance of the Acceptance Letter of Formal Application (sample letter provided in Annex B)

(c) *Document Task.* File all supporting paperwork in the operator/applicant's office file such as update the aircraft database.

25.4 DOCUMENT COMPLIANCE PHASE (OPS, AW)

25.4.1 BACKGROUND

(a) After the formal application has been accepted, the LCAA certification team will commence a thorough evaluation of all the documents and manuals that are required by the regulations to be submitted to them. The LCAA should endeavor to complete these evaluations in accordance with the schedule of events prepared by the applicant and agreed at the formal application meeting. If a document or manual is incomplete or deficient, or if non-compliance with regulations or safe operating practices is detected, the document or manual shall be returned to the applicant for corrective action with a detailed list of deficiencies.

(b) Documents or manuals that are satisfactory will be approved or accepted, as required by the regulations. Approval shall be indicated by a signed document. Acceptance of material that does not require formal approval may be confirmed by letter.

(c) The complexity of the information that needs to be addressed in the applicant's documents and manuals depends upon the complexity of the proposed operation.

25.4.2 DOCUMENTS AND MANUALS TO BE EVALUATED

(a) The following documents and manuals shall be provided by the applicant:

(1) Draft operations specifications;

(2) Statement of compliance;

(3) Management personnel resumes providing qualifications and aviation experience;

(4) Aircraft flight manuals;

(5) Operations manual (individual manuals and items listed below form part of the operations manual.

(6) Aircraft operating manual;

(7) Minimum equipment list (MEL);

(8) Configuration deviation list (CDL);

(9) Aircraft performance manual;

(10) Mass and balance control manual;

(11) Aircraft loading and handling manual or ground handling manual;

(12) Training manuals for flight crew, cabin crew, operations personnel and ground personnel;

(13) Route guide;

(14) Dangerous goods manual;

(15) Passenger briefing cards;

(16) Aircraft search procedure checklist;

(17) Operational control procedures, dispatch, flight following, etc.;

(18) SMS manual, including a description of the flight safety document system;

(19) Security programme manual;

(20) Maintenance Control manual (MCM);

(21) Maintenance programme for each aircraft type;

(22) Plan for demonstration flights, as applicable.

(b) All manuals are to be provided with procedures for the development, control and distribution of each manual, the means to keep the manual up-to-date and the means for the publication and distribution of amendments.

(c) Manuals will require appropriate revision and amendment when new requirements, operations or equipment are introduced.

25.4.3 EVALUATION OF THE DOCUMENTS

(a) ***Draft operations specifications.*** Operations specifications form part of the AOC. LCAA standard operations specifications will have been given to the applicant at the pre-application meeting and a list of desired operations specifications identified by the applicant to form the draft operations specifications. This draft will have been edited by the applicant and LCAA certification team to add necessary authorizations, conditions and limitations to produce operations specifications appropriate to the applicant's

intended operation. Information and detailed conditions (such as training, qualifications, equipment requirements and procedures under which each special authorization may be utilized) shall be available in the operations manual. Subsequent amendments to the specifications can be initiated later by the operator or the LCAA, as required by changing circumstances.

(b) Schedule of Events

(1) The Schedule of Events is prepared by the applicant.

(2) The Schedule of Events is a list of events and activities that must be concluded, and aircraft and/or facilities that must be available to the applicant, and the dates on which any inspection items will be ready for inspection by the Civil Aviation Authority of Liberia. The list should include, but is not limited to, the following items.

(i) Dates when crew members will begin:

(A) Basic indoctrination training; and

(B) Aircraft systems training; and

(C) Simulator training; and

(D) Aircraft flight training; and

(E) Flight attendant training

(ii) Dates when Authority staff commence training, if applicable

(iii) Dates when maintenance personnel training will begin

(iv) Dates when maintenance facilities will be ready for Civil Aviation Authority of Liberia inspection

(v) Dates when each of the required manuals will be available for assessment

(vi) Dates when aircraft will be ready for inspection

(vii) Date of emergency evacuation and ditching demonstrations

(viii) Date when terminal facilities will be ready for inspection

(ix) Date when proving flights will begin

(x) Date when proposed operations will begin

(xi) Date of proposed assessment of head of training and checking and other approved persons.

(3) The Schedule of Events will enable the project teams to plan workloads so as to achieve certification by the required date. Each team should examine the Schedule of Events to determine manpower requirements. Where resources are inadequate, it will be necessary to re-negotiate the schedule with the applicant. Flight Operations Inspectors should examine the schedule to check for possible conflicts (for example, a proving flight scheduled before the Flight Operations Inspector has completed his or her type-specialist training, or before the destination terminal facilities are ready), and negotiate changes immediately with the applicant.

(4) Once the Civil Aviation Authority of Liberia has accepted the Schedule of Events at the formal application meeting, every effort should be made to keep to the schedule, provided safety aspects are not compromised. The Project Manager must ensure that adequate team members are available to meet the schedule.

(5) Since all required manuals must be reviewed and accepted or approved, the Schedule of Events must allow sufficient time to accomplish these tasks prior to the beginning of proving tests. The timing of other events, such as training, aircraft conformity checks, emergency evacuation demonstrations, should also be assessed to determine the reasonableness of the schedule. It may be necessary to advise the applicant that the proposed schedule is unrealistic and that additional time will be required to accomplish the required reviews and inspections. This will normally be done at the formal application meeting.

(6) The applicant must be advised that any deficiencies found during the review of the manuals and other documents will require their return for re-drafting. Such action could cause delays in the certification process and this may ultimately affect the Schedule of Events. Failure by the applicant to meet proposed dates on the Schedule of Events and/or unsatisfactory inspections and demonstrations could also result in delays in the certification process. The applicant should be cautioned against premature advertising of the commencement date of operations. Under the Civil Aviation Act, the Civil Aviation Authority of Liberia must not issue an AOC unless they are satisfied that the requirements of the Act have been met.

(7) The time required to train Inspectors must be considered when accepting the Schedule of Events. Should the Civil Aviation Authority of Liberia not have staff qualified on the specific type of aircraft, then the training of at least one Flight Operations Inspector and two Airworthiness Inspectors will be required. The review of Operations Manuals and Operator's Maintenance Manuals cannot be completed until Civil Aviation Authority of Liberia Inspection personnel are qualified. Surveillance of crew training, which is required before proving flights commence, will also require qualified Civil Aviation Authority of Liberia personnel.

(8) The applicant should also be advised that non-compliance can be resolved by the granting of exemptions only where legislation allows for such exemptions. Applicants may seek short term exemptions, without demonstrating 'equivalent safety', in order to commence operations at the planned date, with a proposal that compliance will be achieved at a later date. Such exemptions cannot be granted, since the Act requires the Civil Aviation Authority of Liberia to be satisfied, prior to issuing the certificate, that the applicant has, at the commencement of operations, complied with, or has the capability to comply with, all of the provisions of the Act, and the Rules that relate to safety.

(c) ***Compliance Statement***

(1) The certification team will evaluate the compliance statement, the purpose of which is to ensure that the applicant has met all regulatory requirements applicable to the proposed operation. The statement also indicates to the certification team where the regulatory requirements have been addressed in the applicant's manuals, programmes and procedures.

(2) A properly prepared compliance statement is of benefit to the applicant both directly and indirectly. It provides a system for both the applicant and the Civil Aviation Authority of Liberia to ensure that their obligations under the Act are completely discharged.

(3) The Compliance Statement should be in the form of a list of provisions of the Act, and Rules and those sections of AOC Manual that will be applicable to the proposed operation. The listing should be in sufficient detail to make reference to applicable provisions of the Act or Rules. Next to each item the applicant must provide a brief narrative description of the means of compliance or a reference to a specific section of a manual or other document which shows the manner of compliance.

(4) If the method of compliance has not been fully developed, the applicant should provide a brief statement indicating his or her intent. It is expected that an adequately prepared applicant will have considered in detail how he or she proposes to comply with all regulatory requirements, and consequently there should be few, if any, areas in which the applicant is unable to put forward precise information.

(5) The Compliance Statement should be reviewed to confirm that the applicant has a clear understanding of the legislative requirements applicable to the proposed operation. The manner in which the applicant describes compliance with the specific legislation should be reviewed for adequacy, and any deficiencies discussed with the applicant. Where it is possible and reasonable to specify a particular means of complying with legislation, the applicant is expected to do so by including this in the Operations Manual, or other document, and provide a reference in the Compliance Statement.

(6) In some cases it will be sufficient for the applicant to state "The Board is aware of this limitation" or "The Company acknowledges this requirement" or similar words according to the particular case. An example of such a case may be the Rules which require the nationality mark and registration marks of the aircraft to be permanently affixed and kept clean and visible at all times.

(7) The final compliance statement needs to be completed by the air operator and accepted by LCAA prior to the commencement of the flight operations inspections.

(d) ***Management personnel resumes providing qualifications and aviation experience***. The list shall include the management positions, the names of the individuals involved and their qualifications and relevant management experience and their licenses, ratings and aviation experience.

(e) **Aircraft Flight Manuals**. Flight manuals are required to be provided specific to individual aircraft and are subject to the control of the State of Registry. Arrangements for the administration control and amendment of copies of the flight manuals shall be examined together with the means for providing aircraft performance and limitations information to the flight crew. The Flight Manual shall be the one approved by the CAA for the subject aircraft during the Type Certificate acceptance process.

(f) **Operations manual**. The operations manual is the means by which the applicant intends to control all aspects of the intended operation. Its structure consists of four parts: a general section; aircraft operating information; areas, routes and aerodromes; and training. The arrangements for the administration and control of the operations manual shall have already been evaluated during the cursory review in the formal application phase of the certification process.

(g) Manuals or other items which may be included in the operations manual and which require evaluation are given in (g) to (t). While references below are made to a separate manual, air operators may at their discretion include the information in the Operations Manual, if practicable.

(1) **SMS manual**. An SMS manual is required and documents all aspects of the SMS, including: the statement of safety policy and objectives, which clearly describes the safety accountabilities and emergency response planning; the safety risk management, which includes hazard identification processes and risk assessment and mitigation processes; the safety assurance, including safety performance monitoring with an investigation capability; and safety promotion and training. Detailed procedures for the conducting of the SMS manual review are contained in Chapter 37 of this Inspector Handbook.

(2) **Aircraft operating information/manual (AOM).** Aircraft operating manuals for each type of aircraft to be operated are required by Part9. These manuals are required to contain normal, abnormal and emergency procedures, details of the aircraft systems and the checklists to be used.

(3) **Minimum equipment list (MEL).** An MEL is required for each type and model of aircraft to be operated, which provides for the operation of the aircraft, subject to specified conditions, with particular equipment inoperative. This list prepared by the applicant in conformity with, or more restrictive than, the master minimum equipment list (MMEL) approved by the State of Design for the aircraft type, is tailored to the applicant's aircraft and installed equipment.

(4) **CDL.** A CDL for each aircraft type and model may be established by the organization responsible for the type design and approved by the State of Design to provide for the commencement of a flight without specified external parts.

(5) **Aircraft performance manual**. These manuals are required for each type and model of aircraft to be operated.

(6) **Mass and balance control manual**. The manual provides for a system to obtain, maintain and distribute to operational personnel information on the mass and balance of each aircraft operated and the means to keep this information up to date. Detailed procedures for the review and approval of a mass and balance control manual are contained in this Inspector Handbook.

(7) **Ground handling manual**. This manual contains procedures and limitations for servicing, fueling, loading and unloading, pre-flight preparation and post-flight securing, applicable to the aircraft type and model.

(8) **Training manuals for flight crew, cabin crew, operations personnel, ground personnel and maintenance personnel**. Training manuals are required for all

operational, maintenance and ground personnel. These shall cover all aspects of initial and recurrent training and conversion and upgrading training.

(9) **Route guide**. This is required to ensure that the flight crew and personnel responsible for operational control have the necessary information for communications, navigation aids, aerodromes/heliports, instrument procedures for departure, en route and arrival during the conduct of the particular operation.

(10) **Dangerous goods manual**. All applicants will require information/manual containing procedures for the handling of dangerous goods, emergency response to dangerous goods incidents and the training of personnel. The details required will depend upon the intended status of the applicant with respect to the transport of dangerous goods. If a declaration has been made that dangerous goods will be carried as cargo, the applicant will require comprehensive material on the control, loading and carriage of dangerous goods and on response to dangerous goods incidents and emergencies. If it is not intended to transport dangerous goods as cargo, the applicant will still need to cover dangerous items that form part of the normal aircraft equipment, dangerous items that are permitted to be carried by passengers and dangerous items that may be carried in the form of company material. Information on the procedures for the review and approval of the dangerous goods manual are contained in this Inspector Handbook.

(11) **Passenger briefing cards**. Passenger briefing cards need to be provided to supplement oral briefings and be particular to the type and model of aircraft and the specific emergency equipment in use. The passenger briefing card shall be reviewed to ensure it meets the requirements of Part 8.

(12) **Aircraft search procedure checklist**. The checklist needs to be carried on board and describes the procedures to be followed in searching for a bomb in case of suspected sabotage and for inspecting aircraft for concealed weapons, explosives or other dangerous devices when a well-founded suspicion exists that the aircraft may be the object of an act of unlawful interference. The checklist shall be supported by guidance on the appropriate course of action to be taken should a bomb or suspicious object be found and information on the least-risk bomb location specific to the aircraft. The aircraft search procedures checklist shall be reviewed to ensure it meets the requirements of LCAR Part9.

(13) **Operational control procedures, dispatch, flight following, etc.** The operations manual is required to contain the details of the applicant's operational control procedures and procedures for dispatch and flight following. It shall cover procedures for use in emergency situations and all communication procedures.

(14) **Flight time and duty periods limitations**. The operations manual shall contain procedures for limiting the flight time and flight duty periods and providing adequate rest periods for flight and cabin crew members. These procedures are included in the operations manual and will be in accordance with the LCARs.

(h) Security programme manual. This manual shall describe the operator security programme, which shall meet the requirements of the national civil aviation security programme of Liberia. The manual shall include the security procedures applicable to the type of operations. Procedures for the review of the security manual are not contained in this Inspector Handbook as this review will be completed by the LCAA Aviation Security Department.

(i) **MCM**. This manual sets out the applicant's intentions and procedures with regard to maintaining the airworthiness of the aircraft used, during their operational life. This applies whether or not the applicant for an AOC also intends to apply for approval as an AMO or intends to contract out maintenance to an AMO

(j) **Maintenance programme, including maintenance schedule.** A maintenance programme is required for individual aircraft, taking into account the requirements of the type design authority

*Note: The maintenance programme will require the approval of the State of Registry, if the aircraft is not registered in **Liberia.** The maintenance programme of each individual aircraft is approved by CAA if **Liberia** is the State of Registry or accepted by LCAA when the aircraft is registered in another State.*

(k) **Plan for demonstration flights**. Where demonstration flights are required, a plan for these demonstration flights shall be prepared so that the applicant can demonstrate the ability to operate and maintain aircraft and conduct the type of operation specified. The determination as to whether or not demonstration flights will be required, and if such flights are required, their number and type, will depend on the CAA's assessment of the capabilities of the operational systems established by the applicant. The following factors will be considered when determining the demonstration flight requirement:

(1) To what extent is the new aircraft substantially different from an aircraft previously flown by the applicant's flight crew (such as changing from turboprop to turbojet, unpressurized to pressurized, or narrow body to wide body);

(2) To what extent is the applicant's route structure affected by the request (for example, inauguration of international routes and use of special areas of operation);

(3) What is the experience level of personnel involved in the operation (for example, flight and cabin crewmembers' previous experience in the operation of this type of aircraft);

(4) How does the applicant propose to conduct the proving flights (for example, a few long-range versus several short-range flights); and

(5) What level of management experience exists in the company with this type or similar type or make of aircraft.

25.4.4 COMPLETING THE DOCUMENT COMPLIANCE PHASE

(a) When required documents are approved or accepted, the Document Compliance Phase is completed. The certification process continues in the Demonstration and Inspection Phase. The Document Compliance Phase and the Demonstration and Inspection Phase may overlap.

(b) Documentation Evaluation Checklist shall be utilized to confirm the acceptability of the documents provided by the applicant. Many of the items contained in this job aid are to be completed utilizing the more detailed job aids as contained in this inspector handbook.

25.4.5 PROCEDURES/ JOB PERFORMANCE SUBTASKS

(a) Conduct a detailed review of applicant's submissions.

(b) Open work tracking record.

(c) Review the following documents:

(1) Review company operations manual (OM)/policies and procedures manual

(2) Review training curriculum.

(3) Review management qualifications/resumes.

(4) Review weight and balance procedures.

(5) Review CAA approved airplane/rotorcraft flight manual (AFM/RFM).

(6) Review Company Flight Manual.

(7) Review Minimum Equipment List (MEL).

(8) Review cockpit checklist.

(9) Review passenger briefing card.

(10) Review environmental assessments, if applicable.

(11) Review airport runway analysis.

(12) Review deviation request.

(13) Review dangerous good manual

(14) Security Program.

(15) Review cabin attendant manual.

(16) Review dispatch/flight-following/flight-locating procedures.

(17) Review proving/validation test plan.

(18) Review emergency evacuation demonstration plan.

(19) Review compliance statement.

(20) Review compliance with applicable bulletins.

(21) Review exit row seating program.

(22) Review Category II and Category III program.

(d) Termination of the documents compliance phase.

(1) Terminate the applicant file.

(2) Close work tracking record.

(e) Proceed to demonstration and inspection phase.

25.4.6 TASK OUTCOMES

(a) *Task Completion.* Successful completion of this task will result in the following:

(1) Initial approval or acceptance of submitted manuals, documents and plans, as applicable.

(2) Recording of OJT in ITS, if applicable

(b) *Document Task.* File all supporting paperwork in the operator/applicant's office file such as update the aircraft database.

25.5 DEMONSTRATION AND INSPECTION PHASE (AW)

25.5.1 BACKGROUND

(a) As part of the requirements, the applicant (operator) is required to demonstrate that an organization with the necessary qualified staff, equipment and facilities is set up and responsible for ensuring that the aircraft remain in an airworthy condition for the duration of their operational life. This is also referred to as managing the continuing airworthiness of the aircraft.

(b) In the case of an applicant seeking authority to operate leased aircraft registered in a different State, suitable arrangements must be made between the CAA and the State of Registry regarding responsibility for the continuing airworthiness of the aircraft. (See Chapter 18 for details on the leasing of aircraft).

25.5.2 AIRWORTHINESS INSPECTIONS

(a) Airworthiness inspections and required demonstrations will normally be conducted in the following sequence:

(1) Organizational Structure/Management Evaluation

(2) Maintenance Management

(3) Records Inspection

(4) Line Station Facility Inspection

(5) Main Base Facility Inspection

(6) Training Program Inspection

(7) Operator's Maintenance Manual Review

(8) Proving Flights including Line Stations

(b) Detailed information regarding the conduct of these inspections and demonstrations is contained in the sections which follow.

(c) **CL:AC-FSS005AAOC** Demonstration and Inspection Phase Checklist shall be utilized and completed to confirm the acceptability of the operational aspects during the demonstration and inspection phase.

25.5.2.1 Organizational Structure and Management Evaluation

(a) The applicant's organizational structure, managerial style, direction and philosophy must be further evaluated to ensure that necessary and proper control is exercised over the proposed operation and the personnel involved. The preliminary assessment of this area which was conducted in accordance with the preceding chapter mainly ensured that these organizational elements were clearly spelled out in the operator's manuals and instructions. During the airworthiness inspection portion of the approval process, the inspector will have the opportunity to verify that these written policies are fully understood and implemented throughout the organization.

(b) Through discussions with key management personnel and observations, the inspectors must determine whether clear lines of Civil Aviation Authority of Liberia and specific duties and responsibilities of subordinate elements and individuals are established. These duties and responsibilities must be clearly outlined in the applicant's operations and maintenance manuals and other Company documents, and it should also be determined that acceptable procedures are established, and followed, for conveying such Company procedures and operating instructions to keep affected personnel currently informed. The authorities, tasks, responsibilities and relationships of each key position must be clearly understood and followed by individuals occupying these positions.

(c) The applicant's staffing must be investigated to determine whether an adequate number of personnel are employed at the executive and other levels to perform necessary functions. The number and nature of personnel will vary with the size and complexity of the organizations. Through a sampling questioning process, the Civil Aviation Authority of Liberia inspector must make a finding that management personnel are qualified, experienced and competent to perform their assigned duties.

(d) At all levels applicant personnel must be thoroughly integrated into the operation and be made fully aware of the channels of communication to be used in the course of their work and of the limits of their Civil Aviation Authority of Liberia and responsibility.

25.5.2.2 Maintenance Management

(a) Personnel responsible for the inspection and maintenance organizations should possess the qualifications required by Director General. If an operator/applicant elects to contract out all maintenance, the positions defined above are still required. The positions that are required include the following:

(1) The Director of Maintenance (or equivalent), responsible for administering the operator/applicant's maintenance program;

(2) The Chief Inspector/Quality Manager (may not be required for some small aircraft operations) responsible for administering the operator/applicant's inspection program.

(b) Consolidated position

(1) Depending upon the needs of the maintenance organization, management positions may be consolidated with other positions. When management positions are consolidated, the individual serving in the consolidated position must meet the qualifications of both positions.

(2) Before allowing an individual to serve as Director of Maintenance or Chief Inspector, consideration must be given to other duties performed by that person. For example, if that person also plans to serve as a flight crew member, the Airworthiness Inspector (AWI) must ensure those duties will not interfere with the responsibilities as Director of Maintenance or Chief Inspector.

(c) Separation of Maintenance QC & QA Functions

(1) A Chief Inspector/Quality manager is required for large aircraft operators but may not be required for light aircraft operator/applicants. Large aircraft operators should have a maintenance organization that ensures separation of Production and Quality Departments within the organization.

(2) For light aircraft operators/applicants, a Director of Maintenance (or equivalent) is necessary to ensure separation of inspection and maintenance functions. The Director of Maintenance serves as administrative controller with overall responsibility for separating inspections and maintenance functions.

(d) Part Time and Full Time Positions

(1) Although large aircraft operator/applicants should have full time management personnel, light aircraft operators may use part time personnel. Both full time and part time maintenance management personnel must have the necessary pre-requisite qualifications to fulfill the responsibilities of the position.

(2) The AWI should determine if the light aircraft operator/applicant will use part time management personnel. Each person employed on a part time basis must be readily available to fulfill all responsibilities of the position consistent with the maintenance organization's operations.

(e) Deviations

(1) The Director General may authorize a deviation of management personnel. A request for deviation should be processed as follows:

(i) The operator/applicant's request should be submitted to the Director General and should contain the following information:

(A) The type and number of aircraft operated and the maintenance program(s) utilized by the certificate holder

(B) A resume of the individual for whom the deviation is requested, including:

- Dates of experience
- Types of aircraft
- Specific areas of experience

- Aeronautical experience
- Types of management positions previously held
- AMT license number
- The dates the certificate and each rating were issued

(ii) The senior AWI must review the information:

(A) The individual involved should be interviewed to verify aeronautical experience and qualifications.

(B) The person's AMT certificate should be verified through central records to verify the dates of original issuance and added ratings.

(C) The results of the data review, interview, and the AWI's recommendation or denial will be included in the submission to the director.

NOTE: *Deviations may be granted from the minimum experience requirements. It is essential, however, that appropriate certificates and ratings be held.*

25.5.2.3 Records Inspections

(a) Review the applicant's Operator's Maintenance Manual

(1) Ensure that the necessary procedures exist in the applicant's manual to ensure a suitable system for creating, preserving and retrieving required records.

(2) Ensure that all records will contain the following information, as applicable:

(i) Description of the work performed (or reference to data acceptable to the Director General)

(ii) Name of the person(s) performing the work when the personnel are not employed by the applicant's organization

(iii) Name or other positive identification of the individual approving the work

(b) Review the applicant's Manual's Procedures. Review the applicant's record keeping procedures to ensure that the requirements are met for the following:

(1) Airworthiness Release Records. Ensure the following:

(i) Airworthiness release records will be retained for one year after the work is performed or until the work is repeated or superseded.

(ii) The applicant's manual identifies the person(s) authorized to sign an airworthiness release.

(2) Flight Maintenance Records. Ensure that procedures provide for the following entries:

(i) Flight discrepancies to be entered at the end of each flight

(ii) Corrective actions and sign-off, per manual procedures

(iii) Minimum Equipment List (MEL) deferment per the manual procedures

(3) Total Time in Service Records

(i) Evaluate the method of recording total time in service of airframes. This record must show the current time in service in hours.

(ii) Ensure that procedures are in place to retain the records until the aircraft is sold and that the records will then be transferred with the aircraft.

(4) Life-Limited Parts Status

(i) Ensure that the applicant has procedures for tracking the current status of life-limited parts for each airframe, engine, propeller, rotor, and appliance, to include the following information:

(A) Total operating hours (including calendar time)/cycles accumulated

(B) Life limit (total service life)

(C) Remaining time/cycles

(D) Modifications

(ii) Ensure that procedures are in place to retain the records until the aircraft is sold and are then transferred with the aircraft.

(5) Time since Last Overhaul Records. Ensure that the manual includes a method/procedure for updating this document from the overhaul records and ensuring that this document accompanies the aircraft upon sale.

(6) Overhaul Records

(i) Ensure that the manual describes how the applicant will document the last complete overhaul of each airframe, engine, propeller, rotor and appliance. The overhaul record should include the following information:

(A) Disassembly data

(B) Dimensional check data

(C) Replacement parts list

(D) Repair data

(E) Reassembly/test data

(F) Reference to data including overhaul specifications

(ii) Ensure that these records will be retained until the work is superseded by work of equivalent scope and detail.

(7) Current Aircraft Inspection Status

(i) Evaluate the method the applicant will use to record the time in service since the last inspection.

(ii) Determine if procedures ensure that these records are retained until the aircraft is sold and are then transferred with the aircraft.

(8) Airworthiness Directive (AD) Compliance. Evaluate how the applicant will comply with the record keeping requirements of the ADs. The procedures must generate a record that contains the following data:

(i) Current status. Ensure that the current status data will include the following:

(A) A list of all ADs applicable to the aircraft

(B) The date and time of compliance

(C) The time and/or date of next required action (if a recurring AD)

(ii) Method of compliance. Ensure that this data will include either a record of the work performed or a reference to the applicable section of the AD.

NOTE: *This data must be retained until the aircraft is sold and transferred with the aircraft.*

(9) Major Modification Records

(i) Evaluate the manual procedures to ensure that the applicant prepares and maintains a list of current major alterations to each airframe, engine, propeller, rotor, and appliance.

(ii) Ensure that the list includes the following information:

(A) The date of the alteration

(B) A brief description of the alteration

(10) Major Repair Records. Evaluate the manual procedures to ensure that the applicant prepares and maintains a report of all major repairs to each airframe, engine, propeller, rotor, and component.

25.5.2.4 Line Station Facility Inspections

(a) Each aerodrome which the operator intends to use must be inspected prior to the first revenue flight to that aerodrome, in order to ensure that the operator has the organization, facilities, and staffing to handle his aircraft at that destination.

(b) Station facility inspections may be accomplished during proving flights. However, if no proving flight is scheduled to a proposed operator destination, the Civil Aviation Authority of Liberia and the operator must make arrangements to travel to and inspect that facility by another means.

25.5.2.5 Main Base Facility Inspection

(a) Review the application for accuracy and from it determine ratings and location applied for. Also determine if any maintenance functions will be contracted out.

(b) Evaluate Housing and Facilities. Inspect the following:

(1) Housing and shop areas to ensure the following:

(i) Adequate housing includes sufficient work space for maintenance functions to be accomplished

(ii) If requesting an airframe rating, that housing includes:

(A) Suitable permanent housing for at least one of the heaviest aircraft within the weight class of the rating being sought

(B) If climatic conditions allow, a permanent work dock that meets the requirements of the regulations

(iii) Proper storage and protection of:

(A) Materials

(B) Parts

(C) Supplies

(iv) Proper identification and protection of parts and subassemblies during:

(A) Disassembly

(B) Cleaning

(C) Inspection

(D) Repair

(E) Modification

(F) Assembly

(G) Segregation of the following:

- Incompatible work areas, e.g., metal shop, battery charging area, or painting area next to an assembly area
- parts cleaning areas

(v) Proper ventilation, lighting, and temperature and humidity for the type and complexity of work being accomplished.

(2) Technical documents to ensure that documents:

(i) Are in compliance with LCAR

(ii) Are appropriate for the maintenance to be performed

(iii) Are current, accurate, and complete and in the maintenance organizations possession

(iv) Are easily accessible to personnel

(v) Include a method to ensure revisions are made

(3) Equipment, tools, and test equipment, per rating sought, to ensure:

(i) Required types and quantities are available and under the control of the organization

(ii) All required items are serviceable and within calibration criteria, to include traceability to one of the following:

(A) The Standards contained in LCAR

(B) Standard established by the item's manufacturer

(C) If foreign manufactured, the standards of the country where manufactured, if approved by the Director General

(D) A record keeping system of calibration results

NOTE: *If the maintenance org. utilizes an engine test cell, it must be correlated to the manufacturer's specifications.*

(iii) Review Personnel list. Ensure that:

(A) Personnel directly in charge of maintenance functions are appropriately licensed or approved by the Director General

(B) The maintenance organization/applicant has sufficient number of supervisory and inspection personnel that lists at least one appropriately licensed mechanic in a supervisory position.

(C) The maintenance organization/applicant's staff list includes inspectors authorized to make final airworthiness determinations.

NOTE: *In component repair shops, technical supervisory personnel may be licensed mechanics or otherwise approved mechanics, if appropriately experienced.*

25.5.2.6 Training Program Inspection

(a) Effective training is the basis for a successful maintenance/inspection program. Although many procedures for maintaining and inspecting aircraft may be similar, the equipment, procedures, and task documentation used may all be unique to the operator/applicant's specific programs.

(b) The states rules should require that maintenance/inspections be performed in accordance with the operator/applicant's manual.

(c) Maintenance/inspection training programs are the most efficient manner to inform personnel of the requirements of the operator/applicant's program.

(d) The training program could be described in detail in the Operator's Maintenance Manual or in a Training Manual, as part of the Operator's Maintenance Manual but issued as a separate volume. The choice will generally depend upon the extent of the

operation and the number and types of aircraft in the operator's fleet. Most applicants find it convenient to set forth their training programs in a Training Manual to facilitate easy applications and updating. Depending on the scope and complexity of the proposed operation the required training programs may be carried out under the direct control of the applicant or conducted by other training facilities under contract to the applicant or a combination thereof. In this case, the applicant will be required to provide a comprehensive description of the contract training for approval by the Civil Aviation Authority of Liberia. In any event the Airworthiness Inspector will carry out a thorough analysis of all phases of the applicant's training programs. This analysis should permit a determination as to whether the training methods, syllabus, training aids/devices, training standards, related facilities and record keeping are adequate. The qualifications of personnel should be established as well as evaluation of their effectiveness.

(e) For purposes of initial approval of training programs for issuance of an AOC, the Civil Aviation Authority of Liberia may require the applicant to formalize in detail only those training courses which must be accomplished prior to the first revenue flight of the airline. Other courses may be fully developed after the commencement of regular operations and before heavy maintenance is required.

25.5.2.7 Operator's Maintenance Control Manual (MCM)

(a) LCAR Part 9 requires the applicant to prepare an acceptable MCM for the use and guidance of maintenance organization personnel. The operator needs to ensure that the MCM is revised as necessary to keep the information contained therein up-to-date. Copies of all revisions will be furnished promptly to all organizations or persons to whom the manual has been issued. Accordingly, one of the first steps in the maintenance inspection is a thorough analysis of the MCM, the correction of any discrepancies and the tentative acceptance by the LCAA inspector. During the course of the maintenance control inspection, the CPC, assisted by qualified CAA airworthiness inspectors, shall determine that the provisions of the MCM are in place.

(b) The details in and number of volumes of the MCM will vary depending upon the type, complexity and number of aircraft involved.

(c) Detailed inspection procedures are outlined in this Inspector Handbook.

25.5.2.8 Emergency Evacuation Demonstration

In order to demonstrate that the airplane seating configuration, location and operation of emergency exits, and crew training and procedures will permit a successful evacuation of passengers in an emergency situation, the applicant will have to perform an emergency evacuation demonstration, prior to issuance of an AOC, for each aircraft type which he intends to operate. Procedures to be followed for these demonstrations may be found in Chapter 44 of this handbook.

25.5.2.9 Proving Flights

(a) As a final demonstration that he has the proper organization, facilities, equipment, and training to successfully carry out revenue flights, the applicant will be required to perform a series of proving flights in accordance with the guidance contained in chapter 43, of this handbook.

25.5.3 PROCEDURES/ JOB PERFORMANCE SUBTASKS

(a) Open work tracking record.

(b) Continue certification process for the demonstration and inspection phase.

(c) Observe and monitor events.

(1) Training programs (classroom simulator and aircraft).

(2) Airman testing and certification using appropriate CAR Pilot Flight Check Forms.

(3) Record keeping procedures.

(4) Flight control.

(5) Minimum equipment list/configuration deviation list.

(6) Aircraft proving and validation tests

(d) Conclude demonstration and inspection phase.

(1) Termination of the demonstration and inspection phase.

(2) Close work tracking record.

(e) Proceed to the certification phase.

25.5.4 TASK OUTCOMES

(a) Task Completion. Successful completion of this task will result in the following:

(1) Notification of the applicant.

(2) Recording of OJT in ITS if applicable.

(b) Document Task. File all supporting paperwork in the operator/applicant's office file such as update the aircraft database.

25.6 CERTIFICATION PHASE (OPS, AW)

25.6.1 FINAL PREPARATION FOR THE ISSUANCE OF AN AOC

(a) The LCAA CPC will have notified the applicant in writing of all discrepancies that need to be resolved before an AOC and its associated operations specifications can be issued.

(b) The CPC reviews the final operations specifications and makes any changes necessary.

(c) The CPC and the LCAA certification team shall ensure that all the requirements for certification have been met and also have determined that the applicant is fully capable of fulfilling all the responsibilities incumbent in the conduct of the proposed operations and of complying with the applicable laws and regulations, and the provisions of the AOC and operations specifications.

(d) Further, an AOC will not be issued until the LCAA Air Transport and Economic Regulation Department presented a favorable report, and until LCAA is satisfied that the

operator has the financial resources to conduct its planned operations, including resources for the disruptions that can be reasonably expected in daily operations.

(e) The CPC will provide a report with appropriate recommendations on the issuance or denial of an AOC to the Manager of Flight Safety Standard for further submission to the Board of Directors. The report shall include the following information.

(1) In the case of a recommendation on issuance of the AOC:

(i) Confirmation that the air operator has been certificated in accordance with the policy and procedures as contained in this Inspector Manual;

(ii) Listing of the applicable job aids/checklists that have been completed to confirm that the air operator is in compliance with LCAR and related guidance material;

(iii) Confirmation that LCAA is satisfied that the operator has the financial resources to conduct its planned operations;

(2) In the case of a recommendation on denial of an AOC:

(i) Listing of the applicable job aids/checklists that have been successfully completed to date;

(ii) Details of certification requirements which the air operator has failed to achieve; and

(iii) Signature of the CPC and the name and title of each team member who assisted in the certification project.

25.6.2 ISSUANCE OF AN AOC AND THE ASSOCIATED OPERATIONS SPECIFICATIONS

25.6.2.1 General

(a) Properly conducted and documented, the assessment and inspection program outlined in the foregoing chapters will enable the Civil Aviation Authority of Liberia to determine if the applicant has fulfilled all technical safety and regulatory requirements for the issuance of an AOC. The program will have provided specific information related to:

(1) the scope of the applicant's proposed operation;

(2) the adequacy of the organization and resources;

(3) the adequacy and effectiveness of company policies, directives, operating instructions and procedures prescribed by the applicant to be followed by the personnel in the conduct of the operation; and

(4) the applicant's willingness and ability to implement the State's operating regulations and rules applicable to the proposed operation.

(b) It will also reveal any deficiencies related to the operation and provide opportunities during the assessment and inspection phases for the applicant to remedy any such deficiencies to the satisfaction of the Director General.

25.6.2.2 Determination On the Application

(a) Following the completion of the assessment and inspection program, the Airworthiness Inspectors will be in a position to recommend to the Director General that the applicant is either:

(1) properly equipped and capable in all respects of conducting the proposed operation safely, efficiently and reliably in accordance with the AOC's operations specifications or limitations; or

(2) is not, or is not yet (pending correction of specified deficiencies), capable of conducting the proposed operation in an acceptable manner.

(b) In those cases, where the application is successful, the Director General will issue an Air Operator Certificate in accordance with the LCAR Part 9. Operations specifications and limitations which will be applicable to the certificate will also be issue to the operator as described in below.

(c) Should the applicant be considered not yet capable of conducting the proposed operation in the required manner, an AOC will not be issued and the applicant will be so advised by letter, indicating the reasons for the lack of approval.

25.6.2.3 Issuance of The Air Operator Certificate

(a) Provided that the Director General is satisfied with the reports of the Civil Aviation Authority of Liberia inspectors and has determined that there is no economic or legal bar to the proposed operation, it should proceed with the issuance of an AOC and the associated operations specifications.

(b) In accordance with the LCAR Part 9, the AOC will contain or make reference to the following information:

(1) operator's identification (name, location);

(2) date of issue and period of validity;

(3) description of the types of operations authorized;

(4) the type(s) of aircraft authorized for use; and

(5) authorized areas of operation and routes.

(c) When the AOC is issued the operator should be provided at the same time with officially authenticated copies of the approved operations specifications. The operator should also be advised as to the procedure to prepare and process future requests for amendments of operations specifications.

(d) Once the operator has received the AOC and the approved operations specifications, the operator may inaugurate the flight operations authorized. Thereafter, the operator is responsible for conducting all operations in full compliance with these authorizations and the applicable provisions of the applicable regulations. From that moment, the Director General will establish a continued audit on the operator to ensure that the required standards of operation are maintained.

25.6.2.4 Issuance of Operations Specifications

(a) Operations specifications (or an equivalent document) and limitations applicable to an AOC will be issued in conjunction with the issue of the certificate. These operating specifications and limitations hereinafter referred to as operations specifications are utilized to supplement the general provisions of the basic certificate and to list authorizations and limitations not specifically covered by Liberia Civil Aviation Authority regulations. The combined issuance of the AOC and the operations specifications constitute Civil Aviation Authority of Liberia approval of the operation.

(b) Operations Specifications are issued along with the AOC and amended as necessary to reflect the current fleet and operating environment of the airline. Amendments to the Operating Specifications serve as variances to the AOC.

(c) The combined issuance of the AOC and the operations specifications constitute Civil Aviation Authority of Liberia approval of the operation.

(d) The operator must make the content of his Operations Specifications available to all company personnel. To that end, they should be included in appropriate sections of his Operations and Maintenance manuals.

(e) For purposes of standardization and administrative convenience, operations specifications may be divided into separate parts as follows:

Part A - General Provisions

Part B - En-route authorizations and limitations

Part C - Aerodrome authorizations and limitations

Part D - Maintenance

Part E - Mass and balance

Part F - Interchange of equipment operations

Part G - Aircraft leasing operations

25.6.2.5 Content of Operations Specifications

Operations Specifications are broken down into several parts as follows:

Part A - Describes general operating conditions and lists the make and model of the aircraft which the operator is approved to operate along with the maximum seating capacity if those aircraft. This part also contains any other general authorizations or limitations not covered in other parts.

Part A is normally a joint operations and Airworthiness responsibility

Part B - Describes en-route authorizations and limitations including a description of the types of route segments which may be used, adherence to instrument flight rules, and operations at aerodromes without control towers

Part B is the responsibility of the Operations Section of the AAAA and is not included in this manual.
Airworthiness inspectors have no input to Part B.

Part C -Describes aerodrome authorizations and limitations including the types of approach procedures which the operator is approved to conduct, standard takeoff minima, and minima for circling and straight in approaches. This part also lists all aerodromes to which the carrier is approved to operate.

Part C is the responsibility of the Operations Section of the AAAA and is not included in this manual.
Airworthiness inspectors have no input to Part C.

Part D-Aircraft Maintenance (paragraphs D71 through D95).

(a) Required paragraphs D71, D72, and D85 contain maintenance and inspection program requirements and must be issued to each certificate holder, as required.

(b) Special authorizations and limitations paragraphs D75 through D84, D86, D87, D88, D89, and D95 provide special authorizations and limitations which may be approved for a particular certificate holder.

Operations inspectors have no input to Part D. Airworthiness Inspectors are primarily responsible for preparing and approving the paragraphs in Part D.

Part E - Weight and Balance. Paragraph E96 shall be issued to certificate holders using approved weight and balance control procedures.

Airworthiness inspectors are primarily responsible for preparing and approving Part E. Part E must be carefully coordinated with Operations inspectors.

Part F - This part is optional. It specifies the authorized interchange of aircraft between the operator and other operators; the type of equipment is specified; the crews to be utilized; the routes and aerodromes to be used; the operations manual and aircraft operating manual to be utilized (i.e., which operator's manual); and applicable aerodrome (or heliport) operating minima. and will contain specific information on any authorized wet-lease arrangements which the operator has entered into.

Completion and issuance of Part F is the responsibility of the Operations organization

Part G - This part is also optional. It specifies the parties to the agreement and the duration thereof; the type of lease (i.e., wet or dry); in the case where two operators are involved, the operator responsible for operational control; the routes, area of operation and aerodromes (or heliports) involved; the type and registration numbers of the aircraft involved; the party responsible for maintenance; and reference to States' approval letter/order of the lease.

Completion and issuance of Part G is the responsibility of the Operations organization

25.6.2.6 Specific Procedures for The Issuance Of Operations Specifications

The text of standard Maintenance Specifications, Part D and E is at the end of this chapter. Parts F and G will be issued if appropriate to the operation. The following is a brief description of the considerations which must go into preparing each part.

Part A. Paragraphs 1 through 3 of Part A are standard and will not be modified. The make, model, and maximum passenger seating capacity will be entered under paragraph 4, based upon the number of seats for which the operator has

performed successful ditching and emergency evacuation demonstrations for each type.

Part B. Paragraph 1 is standard. The names and locations of any aerodromes where the operator is authorized to use a flight information service unit in lieu of operator air/ground communications are listed at the end of the standard text in paragraph 2.

Part C. Paragraph 1 is standard. The types of approaches which the operator is approved to conduct, based the equipment installed in each airplane type and model of airplane and upon the types of approaches for which crew members train as part of the operator's approved training program, must be listed in paragraph 2a. Standard paragraphs 2b through 2e describe takeoff minima and minima for circling, non-precision, and precision approaches. All of the aerodromes to which the airline is approved to operate (regular, alternate, and refueling), must be listed in paragraph 3. Airports which the operator is specifically prohibited to operate under any circumstances except in an emergency may also be listed in paragraph 3.

Part D.

(a) Paragraph D71 - ADDITIONAL MAINTENANCE REQUIREMENTS

This paragraph applies to all certificate holders maintaining light aircraft, including aircraft subject to an Approved Aircraft Inspection Program (AAIP). It identifies the manufacturer's maintenance program and/or the approved operator developed maintenance program.

NOTE: Supporting documents, i.e. Service Bulletins, may be listed in Paragraph D71.

(b) Paragraph D72 - AIRCRAFT MAINTENANCE GENERAL REQUIREMENTS
This paragraph applies to aircraft subject to Continuous Airworthiness maintenance Program. It contains the conditions that must be met for a certificate holder to operate its aircraft under the terms of its operations specifications.

(c) Paragraph D73 -APPROVED AIRCRAFT INSPECTION PROGRAM
This paragraph identifies aircraft subject to an Approved Aircraft Inspection Program.

(d) Paragraph D74 - RELIABILITY PROGRAM AUTHORIZATION: ENTIRE AIRCRAFT.
This paragraph authorizes the use of a maintenance reliability program that contains standards for determining maintenance intervals and processes. This program controls the inspection, check, and overhaul times for the entire aircraft and is the sole control as far as operations specifications are concerned. Each make/model/series of aircraft controlled by reliability and its approved reliability document shall be identified on this operations specifications. The level of detail in specifying the series of aircraft should match the detail of the operator's program.

NOTE: *The Airworthiness Inspectors do not control the time limitations but will control the procedures of the program.*

(1) The time limitations for overhaul, inspections, and checks shall be contained in one of the following:

(i) Certificate holder's manual

(ii) Maintenance specification document

(iii) Any other document approved by the Director

(2) These time limitations must not exceed the manufacturer's retirement times, Type Certificate limitations, or Airworthiness Directive limitations.

NOTE: *Operators authorized Paragraph D74 must not be issued Paragraph D88.*

(e) Paragraph D75 - RELIABILITY PROGRAM AUTHORIZATION: AIRFRAME, POWERPLANT, SYSTEMS, OR SELECTED ITEMS (Partial Reliability Program)

This paragraph authorizes the use of a maintenance reliability program containing the standards for determining maintenance intervals and processes. The program controls the inspection, check, and overhaul time for airframe, powerplant, systems, or individually selected items within a system (e.g., hydraulic System, pumps, valves, actuators, etc.) and must be identified on the operation specifications.

(1) Airframe, powerplant, systems, or items controlled by reliability shall be identified in the Maintenance Time Limitations Section by an asterisk or other identifier, and note.

(2) If preferred, a certificate holder may reference in its maintenance Time Limitations Section a document approved by the Director. The referenced document shall contain at least that information required by the Maintenance Time Limitations Section.

(f) Paragraph D76 - SHORT TERM ESCALATION AUTHORIZATION

This paragraph authorizes a certificate holder to use short-term escalation procedures with aircraft, powerplants, systems, or appliances/components. not authorized short-term escalation through a reliability program.

(g) Paragraph D77 - MAINTENANCE CONTRACTUAL ARRANGEMENT AUTHORIZATION FOR ANENTIRE AIRCRAFT

This paragraph authorizes a certificate holder to use a contractor's approved maintenance program for the maintenance program for the maintenance of its entire aircraft, including participation in the contractor's reliability program.

(h) Paragraph D78 - MAINTENANCE CONTRACTUAL ARRANGEMENT AUTHORIZATION FORSPECIFIC MAINTENANCE

This paragraph authorizes a certificate holder to arrange with one or more contractors for specific maintenance functions using the contractor's approved maintenance program.

(i) Paragraph D79 -RELIABILITY PROGRAM CONTRACTUAL ARRANGEMENT AUTHORIZATION

This paragraph authorizes a certificate holder to participate in another certificate holder's (contractor's)approved reliability program for its aircraft or engines. The

certificate holder's aircraft or engines may be included in the contractor's fleet for the purpose of this program.

NOTE: *Operators authorized for Paragraph D79 will be automatically issued Paragraph D88.*

(j) Paragraph D80 - LEASED AIRCRAFT MAINTENANCE PROGRAM AUTHORIZATION: LOCALLYREGISTERED AIRCRAFT

This authorization allows a certificate holder (lessee) to use a lessor's approved maintenance program for the leased aircraft.

(1) Paragraph D80 applies only to leases of aircraft that are intended to be returned to the lessor at a time specified in the lease agreement. This arrangement allows the lessor to retain compatibility of the aircraft with other aircraft remaining in its possession.

(2) This paragraph is designed for entities of one or more lessors and aircraft.

(k) Paragraph D81 - PARTS POOL AGREEMENT AUTHORIZATION

Under the provisions of (Quote national regulation), this paragraph may be approved for a certificate holder desiring to enter into a parts pooling agreement with foreign air carriers or agencies whose employees do not hold national maintenance licenses/authorities.

(l) Paragraph D82 - PRORATED TIME AUTHORIZATION.

This paragraph authorizes a certificate holder to use aircraft for which inspection and overhaul times have been established using the proration process.

(1) Paragraph D82 is essential for proper time accountability and transfer of the time if the aircraft is sold to another certificate holder.

(m) Paragraph D83 - PARTS BORROWING AUTHORIZATION.

This paragraph authorizes a certificate holder, nominal and reasonable relief from its approved overhaul time limits when borrowing parts from another certificate holder.

(n) Paragraph D84 - SPECIAL FLIGHT PERMIT WITH CONTINUOUS AUTHORIZATION TOCONDUCT FERRY FLIGHTS.

This paragraph authorizes a certificate holder, whose aircraft are maintained under a Continuous Airworthiness Maintenance Program, to issue a special flight permit with continuing authorization to conduct ferry flights. This permit can only be issued under the guidelines as set forth in LCAR Part 5, section 5.4.6.

(o) Paragraph D85 - AIRCRAFT LISTING.

Certificate holders with aircraft under a Continuous Airworthiness Maintenance Program, including domestic, international, commuter, and charter operations are required to list all such aircraft. See D85Aircraft Listing.

(1) The aircraft may be listed in Paragraph D85 or in a current listing attached to the operations specifications. The aircraft listing shall include at least the following information:

(i) Type of aircraft by make, model, and series (Douglas DC8-73, Douglas DC10-30, Boeing 737-200, etc.)

(ii) Registration number

(iii) Serial number

(2) Identify any aircraft used under an interchange agreement with an asterisk (*) or other identifier, with a note to reference Operations Specification.

(3) Identify commuter aircraft with a double asterisk or other identifier and a note identifying aircraft inspected in accordance with a maintenance program.

(4) The statement 'This list supersedes any previous lists', or a similarly worded statement, must be included in the document.

(p) Paragraph D86 - MAINTENANCE PROGRAM AUTHORIZATION FOR TWO ENGINE AIRPLANESUSED IN EXTENDED RANGE OPERATION.

This paragraph authorizes a certificate holder to use certain approved aircraft for use in extended range operations. Principal Airworthiness Inspectors must be familiar with operations data and shall coordinate with Principal Operations Inspectors before approving paragraph D86.

(q) Paragraph D87 - MAINTENANCE PROGRAM AUTHORIZATION FOR LEASED FOREIGNREGISTERED AIRCRAFT OPERATED BY (insert country name) AIR CARRIERS.

This paragraph authorizes a certificate holder to maintain leased, foreign registered aircraft by adopting the foreign air carrier's maintenance program as its own.

(1) Inspectors shall fully evaluate each certificate holder's proposed foreign maintenance program to be used for its leased, foreign registered aircraft before approving this paragraph.

(2) Each revision to an adopted foreign air carrier's maintenance program shall be approved on an individual basis by amending paragraph D87 to reflect the new revision number and date.

NOTE: *Identification of the maintenance cannot be the manufacturer's program.*

(r) Paragraph D88 - MAINTENANCE TIME/LIMITATIONS.

This paragraph authorizes a certificate holder requiring a maintenance time limitations section, because of partial reliability program, to use a separate approved document or approved section in the certificate holder's manual. The manual must contain that same information as required by Appendix A, of this chapter. This option is provided by paragraph Ops spec D72(c).

(1) The referenced document or manual chapter must be approved by the Director and must have procedures for effecting revisions and revision control acceptable to the Principal Airworthiness Inspector.

(2) Each change to an item not controlled by a reliability program must be (insert name of authority) approved.

(3) For a change to the time limitations, the certificate holder must provide the actual data change to be included in either the operations specifications or a referenced list. (refer to Appendix B)

(4) The signature block (line 2) provides a limited section where the operator can justify the change to the time limitations. This supporting information reference must tie in all of the data supporting the change to the operations specifications by referencing the (insert name of authority) approved document.

(s) Paragraph D89 - MAINTENANCE TIME LIMITATIONS (operators without a reliability program).

This paragraph authorizes a certificate holder requiring a maintenance time limitations section to use a separate approved document(s) attached to Paragraph 89. See Ops spec D89 Maintenance Time Limitations.

(1) The referenced document(s) must be approved by the Director and must have procedures for affecting revisions and revision control acceptable to the Principal Airworthiness Inspector. See D89 Maintenance Time Limitations.

(2) This paragraph is to be issued only if the operator is not authorized any type of a reliability program.

(3) For a change to the time limitations, the certificate holder must provide the actual data change to be included in either the operations specifications or a referenced list. (refer to Appendix B)

(4) There is a limited section where the operator can justify the change to the time limitations. This supporting information reference must tie in all of the data supporting the change to the operations specifications by referencing the (insert name of authority) approved document.

(t) Paragraph D95 - MINIMUM EQUIPMENT LIST AUTHORIZATION.

This paragraph authorizes a certificate holder conducting approved operations to use an approved Minimum Equipment List (MEL)

(1) Paragraph D95 sets forth the conditions that must be met by the certificate holder to be able to operate its aircraft under the terms of the MEL.

(2) This paragraph may be issued for all aircraft authorized for use in the Ops Spec or for selected aircraft within an operators fleet. See D95 Minimum Equipment List Authorization.

Part E. PARAGRAPH E96 - WEIGHT AND BALANCE.

This paragraph authorizes a certificate holder to use its approved weight and balance control procedures. Additionally, all commuter operators using airplanes having a maximum passenger seating configuration of 30 seats or less must be authorized for the method of controlling weight and balance by using Part E, paragraph E96. Further guidance and information on approving weight and balance control procedures is found in Part 2 chapter 9.

NOTE: This paragraph is not intended for use by a light reciprocating powered aircraft of nine or less passenger seats.

Part F. -To be completed in the event that the operator enters into an equipment interchange agreement (sharing of airplanes of certain route segments) with another airline. The text in this part is standard, but the blanks must be completed in order to describe the nature of the agreement and restrictions surrounding it. See Operations Inspector manual Part 2 Chapter 5 for more information on interchange agreements.

Part G. - To be completed in the event that the operator enters into a wet lease agreement with another airline. See Volume 2 Chapter 6 for more information on leases.
The standard provisions contained in the above Parts as shown at the end of this chapter must be issued to all new operators along with the AOC. For existing operators, operations specifications must be developed and issued no later than *(insert date*). When additional provisions are necessary in order to apply further conditions to any operator, these may be developed by the AAAA and added to the appropriate Part at any time.

The AAAA official who prepares each page of the Operations Specifications must sign for the AAAA at the bottom of the page. An authorized representative of the operator, usually the Director of Flight Operations or his immediate subordinate, must sign in receipt for each page in a space provided at the bottom.

25.6.3 AMENDMENTS TO OPERATIONS SPECIFICATIONS

(a) Any subsequent changes to the operation specified or to the equipment approved for use may necessitate amendments to the operations specifications. It is appropriate that an AOC will itself be a very basic document and that all aspects of the operation that might be the subject of certification changes would be dealt with in the associated operations specifications which would evolve with the operation.

(b) The process for the amendment of operations specifications will be similar to the original certification process, with the exception that in many cases it will be far less complex, dependent upon the subject of the change that necessitates the amendment. Where changes involve new types of operation, new geographical areas or new aircraft, the appropriate level of complexity will have to be applied to the process.

(c) Amendments to Operations Specifications may be initiated by either the AAAA or the operator. If the AAAA initiates an amendment, it will prepare the amended page(s) and deliver them to the operator with a cover letter which describes the justification for the change.

(d) If the operator desires to amend the Operations Specifications (typically when adding or deleting routes, airports, or airplanes) he will do so by providing a letter to the BBBB which describes the exact nature of the change requested and provides justification for the operations specifications amendments, including appropriate documentation if necessary. For example, a request for a change to Part G should include a copy of the lease agreement. Upon receipt of the request letter, the AAAA will analyze the narrative

justification and attached documents. If the change is approved, applicable pages to the Operations Specifications will be revised, signed, and delivered to the operator under a cover letter. The operator's signature must be obtained on the bottom of the revised pages upon delivery.

25.6.4 RENEWAL OF AN AOC

(a) The continued validity of an AOC is dependent upon an operator maintaining the requirements for an adequate organization, method of control and supervision of flight operations, training programme as well as ground handling and maintenance arrangements consistent with the nature and extent of the operations specified in the AOC and the associated operations specifications, under the supervision of LCAA.

(b) LCAA will conduct continuing surveillance of the operator to continuously determine that the AOC remains valid.

(c) The operator needs to apply for renewal of the AOC at least 60 days prior to the expiration date and the request for renewal shall include any desired changes to the basic information that was submitted prior to the original certification and during the ongoing operations. Such renewal does not involve a complete recertification procedure and thus will not be an onerous or prolonged process, because of the continuing surveillance exercised by LCAA.

25.6.5 PROCEDURES/ JOB PERFORMANCE SUBTASKS

(a) Continue certification phase.

(1) Open work tracking record.

(b) Perform preparation of the certificate.

(c) Prepare operations specifications.

(d) Issue certificate and operations specifications.

(e) Prepare certification report and operator’s office file.

(f) Close work tracking record.

25.6.6 TASK OUTCOMES

(a) Task Completion. Successful completion of this task will result in the following:

(1) Submission of a certification report;

(2) Preparation of AOC and Operations Specifications for signature;

(3) Entering of operator’s and aircraft information in the ISATS database;

(4) Recording of OJT in ITS if applicable.

(b) Document Task. File all supporting paperwork in the operator/applicant’s office file.

CHAPTER 26: EXEMPTIONS

26.1 EXEMPTION PROCEDURE

26.1.1 GENERAL

An application for exemption is a request from an Operator to be exempted from the requirements of Directives and other instructions or circulars. The Director, Safety Regulation maintains a record of all exemptions issued by the Authority, and issues exemption information via letters.

26.1.2 RECEIPT OF APPLICATION FOR EXEMPTION

(a) LCARs Part 1 permits an Operator to apply to the Authority for an exemption from any provisions of the Regulations. Any application for exemption from any provision should be forwarded to the Director-General for consideration. The application should contain the requirements as specified in LCARs Part 1 Subparts 1.4.3 and 1.4.4.

(b) The assigned inspector(s) shall communicate to the applicant within two (2) working days upon receipt of the application, the duration for the evaluation process.

26.1.3 PROCESSING OF APPLICATION FOR EXEMPTIONS

(a) Upon receipt, the Director-General will forward the application to the Director, Directorate of Flight Safety Standards through the Deputy Director General- technical. the Director of Flight Safety Standards shall forward the application to the Assistant Director of Airworthiness who shall review the request and ensure that all necessary information has been provided. The Assistant Director, Airworthiness shall forward to the applicant a letter acknowledging that his application has been received and request further documentation, if required.

(b) The application is forwarded for comprehensive technical review and evaluation.

(c) Airworthiness assigned inspector(s) shall coordinate the involvement of all relevant offices in the process as early as possible. In this regard, the assigned Inspector(s) shall also refer the application internally and externally to offices where the professional advice of the directorate would be required.

(d) The assigned inspector(s) shall conduct a technical assessment of the request and evaluate the arguments and evidence put forward by the party making the request in accordance with the aviation safety and public interest test.

(e) Beginning with the aviation safety test, the assigned inspector(s) shall determine whether an equivalent level of safety shall be maintained by the introduction of stated conditions and procedures. If the result is yes, the inspector(s) shall then determine whether granting the exemption is in the public interest. While each request for an exemption must stand on its own merit, due diligence must be made to each application for exemption for administrative purposes (namely, to see if similar exemptions have been granted before). In an exemption action, maintaining an equivalent or greater level of safety is of primary concern. The analysis should focus on the applicant's justification that safety would not be adversely affected.

(f) The inspector(s) shall document the findings of the assessment, providing the justification to grant or deny the exemption.

(g) The assigned inspector(s) shall forward to the Assistant Director, Airworthiness and Director of Flight Safety Standards, Safety Regulation for review, together with the supporting file, the following documents:

(1) Exemption Request Form;

(2) Assessment Paper; and

(3) Draft Grant or denial of Exemption Document.

(h) The Director shall review the submission and forward it to the Deputy DG for technical who shall again forward for DG's approval.

(i) The grant or denial of the exemption shall be issued to the applicant within ten (10) working days after completion of the review by the assigned Inspector(s).

26.1.4 GRANT OR DENIAL OF EXEMPTION

(a) Decision to Grant. The applicant is issued the document granting the exemption if it is concluded that the applicant's arguments support a grant of exemption. The conditions and procedures under which the exemption is granted shall be outlined in the Exemption document.

(b) A decision to deny the exemption is based on the determination that the exemption would not be in the public interest, would adversely affect safety, or, if applied, would not provide a level of safety intended by the Directive. Under such circumstances, the reasons will be cited in the denial of the exemption document.

(c) Partial Grant of an Exemption. If the Authority determines that part of the applicant's request meets the criteria for granting the application, it may issue a partial grant of exemption. The guidelines above for grant of exemption and denial of exemption documents should be followed citing reasons. The document must fully discuss those parts of the request that are being denied and those that are being granted.

(d) The Authority shall publish a report of its decision to grant the application for exemption. The report shall specify the duration of the exemption and any conditions or limitations of the exemption. The means of publication shall be the LCAA website.

26.1.5 REQUEST FOR AN EXTENSION OF THE TERMINATION DATE OF AN EXEMPTION

(a) Upon receipt of a request from an applicant to extend the termination date of an exemption, the Authority shall prepare a letter of agreement or denial. The following information is to be included:

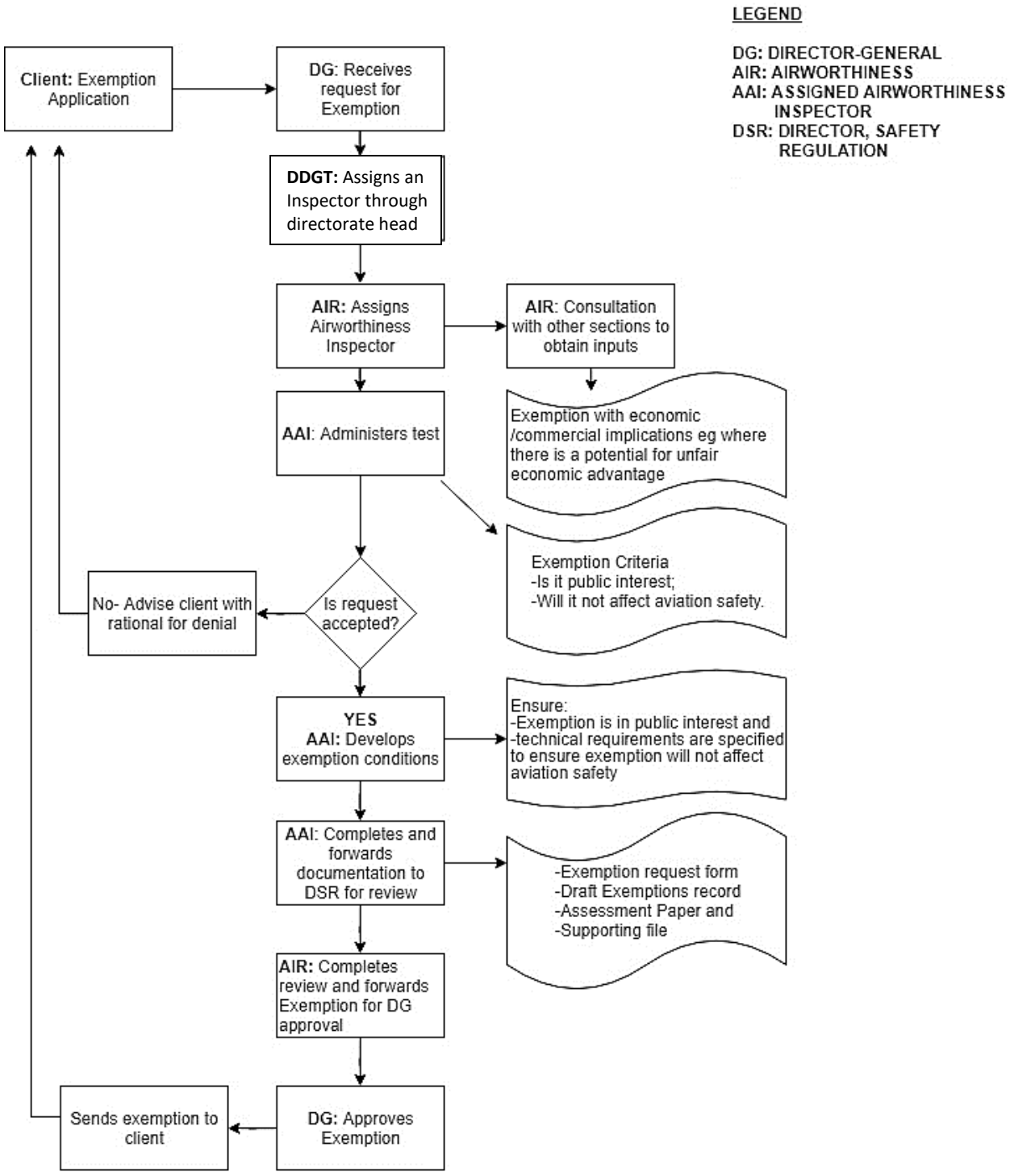
(1) The applicable Directive;

(2) Grant or denial statement; and

(3) Exemption number (after signed).

(b) A copy of the extension or denial shall be filed on in the Operator's file prior to the original exemption termination date.

26.2 EXEMPTION PROCESS FLOWCHART



CHAPTER 27: APPROVED MAINTENANCE ORGANIZATIONS

27.1 BACKGROUND

(a) Annex I, Chapter 4 contains the requirements for licensing of aircraft maintenance engineers (technician mechanics) including the related certification privileges. The chapter also makes provision for certification privileges to be vested in organizations approved by the national regulatory authorities of contracting states who are required to ensure that the associated certification standards will be no lower than those that would be achieved by the use of individually licensed personnel.

(b) Taken together, Annex 6 Part I chapters 8 and 11 effectively place an obligation on operators to have systems of maintenance management and inspection, but provide no specific guidance on the preferred method of certifying the aircraft as fit for release to service after maintenance, i.e. by individually licensed personnel, or through certification privileges vested in an approved organization.

27.2 OVERVIEW OF THE CRITERIA ON WHICH APPROVAL OF MAINTENANCE ORGANIZATIONS IS BASED

(a) Grant of approval

(1) It is strongly recommended that approval be granted only to a whole organization headed by its Chief Executive Officer (CEO), who should be responsible to the airworthiness authority for ensuring that the terms and conditions of the approval are complied with. This approach provides a guarantee to the airworthiness authority that responsibility for corrective action for any deficiencies identified by the airworthiness authority is vested at the highest level in the organization's management structure, thus ensuring that the necessary executive authority (including finance, where applicable) will be available. This might not be the case, for example, if the approval is vested only in the inspection department of an organization.

(2) To support the CEO there should be a group of key personnel, nominated to the airworthiness authority, who are appropriately qualified and experienced to manage the various aspects of the activities included in the approval.

(b) Systems of inspection and quality management

(1) To satisfy the obligation of states under Annex 6, Part I, aircraft cannot be released to service following scheduled or unscheduled maintenance unless certifications are made by appropriately licensed/approved personnel that the tasks have been completed in accordance with the requirements of the State of Registry.

(2) There are three generally accepted methods of meeting the requirement detailed in (1).

(i) use of licensed personnel; the individual either completes the task, or is responsible for its completion, and issues the necessary certification;

(ii) the task is completed by staff of a production department; a separate inspection department is responsible for the necessary certification; and

(iii) the staff of the production department are responsible for completion of the task to approved quality control standards and are qualified to issue the necessary certification; a separate quality assurance department completes sample audits to determine that the approved procedures are being adhered to and the final product is satisfactory.

It is not uncommon to find various combinations of (i), (ii) and (iii) in organizations

(3) Of the three methods, some experts consider that (iii) is the optimum for the present generation of large transport aircraft. Before considering this topic further, it is necessary, for the purposes of this chapter, to provide definitions of quality, quality control and quality assurance:

(i) *quality* of a product or service is the degree to which it meets the requirements of the customer, including the relevant airworthiness requirements;

(ii) *quality control* is a management system for programming and coordinating the on-going quality and improvement efforts of the various groups in an organization to permit the completion of aircraft maintenance in accordance with the requirements of the airworthiness authority and any specific requirements of the organization or customer; and

(iii) *quality assurance* is the over-all authority for the supervision of quality standards, enabling these standards set by the system of quality control to be enforced.

(4) In practical terms, it is very difficult to manage quality control in circumstances where completion of a task and determination of compliance with the associated quality requirements is the responsibility of separate persons (as in **(b)**. (2) (ii)). The highest standard of quality of aircraft maintenance is very much dependent on the competence of the personnel who complete the tasks; it is not something that can be inspected-in'. Thus responsibility for quality control management is best vested in a competent production work force who complete the tasks and are qualified to accept responsibility for certification of them, in accordance with prescribed procedures.

(5) No system of quality management is complete without an element of quality assurance. This provides, through an independent audit system, the necessary feedback to the management of the approved organization to ensure that:

(i) through product sampling, the requirements of the customer, including those related to airworthiness, are being satisfied;

(ii) the procedures of the organization are being complied with and that they remain appropriate for the undertakings of the organization; and

(iii) the organization remains in compliance with the requirements and conditions of the approval granted by the airworthiness authority.

(6) Further guidance material on quality management is provided in 18.3.

(c) The purpose of the maintenance manual

(1) Operators are required to provide a maintenance manual, as outlined in this chapter. Interpreted literally, the requirement applies only to an operator; States are encouraged to apply the principle of this requirement to any approved maintenance organization, whether an integral part of an operator or not.

(2) The purpose of the manual for an approved maintenance organization is threefold:

(i) to provide to the personnel the necessary information to enable them to fulfil their various roles in complying with the terms and conditions of the approval and the relevant airworthiness requirements;

(ii) to provide airworthiness management for the maintenance activities undertaken by the organization; and

(iii) to substantiate to the airworthiness authority how the activities included in the approval - and the relevant airworthiness requirements will be satisfied.

(3) It is recommended that the airworthiness authority should consider the provision of this manual as an integral part of the approval of the organization; subsequent amendments to the manual should also be approved by the airworthiness authority, either directly or by a delegation process.

(4) In the case of large organizations, it may be more appropriate for the manual to be divided into two or more volumes. The first volume would contain the essential requirements for management of the approval and compliance with the appropriate airworthiness requirements, including the control of the contents of the other volumes. It is then usual for the airworthiness authority to limit its direct approval to the contents of the first volume.

(5) Further guidance on maintenance manuals is provided in part 2, chapter 19.

(d) Human resources

(a) The organization should employ sufficient personnel to plan, perform, supervise and inspect the activities included in the approval. Organizations engaged in aircraft maintenance for commercial reasons are under constant pressure to achieve maximum work throughout. It is important to determine that such organizations have the necessary human resources to match the anticipated workload without any reduction in the standards accepted by the airworthiness authority in the granting of the approval.

(b) There are no Standards or Recommended Practices which relate to personnel employed in aircraft maintenance other than those which relate to certifying staff. Nevertheless, it is important to realize that aircraft maintenance is an integrated activity, involving technical records, planning, supervision, quality control and/or quality assurance personnel, mechanics and specialist technicians, e.g. nondestructive test personnel. Procedures should exist to ensure that these persons are assessed for competence in relation to their particular role within the organization.

(e) Training policy

(1) Air transport is an industry which, more than most has to adapt to technology which is in a constant state of development. Training provided to personnel engaged in aircraft maintenance needs to mirror this state of change; consideration needs to be given to requirements for refresher/continuation training as well as initial training in the approval of organizations.

(2) The only relevant Standards are in Annex 6, Part I, 8.3 (aeroplanes) and Part III, 6.3 (helicopters) which require that: "An operator shall ensure that all maintenance personnel are instructed regarding the maintenance methods to be employed, in particular when new or unfamiliar equipment is introduced into service."

(3) It is strongly recommended that policies for initial and refresher training are considered in the assessment for approval by the airworthiness authority. Consideration should be given to the needs of mechanics, quality-control and/or quality-assurance personnel, supervisors, planners and technical records personnel as well as those persons certifying aircraft as fit for release into service.

(4) It is important to note that training should not be limited to providing knowledge of the products which are maintained by the organization. There is a need to ensure all personnel are given training on the company procedures associated with the approval. Where the organization utilizes specialized techniques, e.g. nondestructive inspection or novel methods of repair, appropriate training should be provided.

(f) Qualification of certifying personnel

(1) As explained in 1.1, ICAO requirements for the licensing of personnel engaged in aircraft maintenance and the acceptability of approved maintenance organizations are provided in Annex I. In relation to approved maintenance organizations, there are no Standards or Recommended Practices on the qualification of certifying personnel employed by the organization. Airworthiness authorities should give particular attention to this point in their national requirements for approval of maintenance organizations; for airworthiness authorities that issue aircraft maintenance engineer (technician mechanic) licenses, possession of an appropriate license demonstrates a level of knowledge and experience which may be appropriate as a basic qualification for certifying personnel.

(2) For airworthiness authorities who do not issue licenses, it is important to ensure that proper procedures and training exist for qualification of the persons who will be making certifications in respect of the release of aircraft to service.

(3) All certifying personnel should be familiar with the relevant company systems and procedures, as well as having appropriate knowledge of the aircraft component being maintained. It is important that compliance with this requirement is determined before a certifying authorization is granted.

(g) Facility requirements

(1) Facilities, including access equipment, should be available appropriate to the planned work, including, in particular, protection from adverse weather conditions. Specialized workshops should be segregated to ensure that environmental or work area contaminations are unlikely to occur. Aircraft maintenance is documentary

intensive; adequate office facilities should be available for personnel engaged in the management of quality, planning and technical records.

(2) Storage facilities should be provided for parts, equipment, tools and material. Storage conditions should be such that unauthorized access to serviceable parts is prevented and that there is complete segregation of serviceable and unserviceable parts.

(h) Equipment, tools, material, airworthiness and maintenance data

(1) Equipment, tools, material, airworthiness and maintenance data should be available for completion of the scope of activities included in the approval granted by the airworthiness authority. For maintenance organizations who are not themselves aircraft operators, it is not uncommon for an organization to expect some specialized equipment, tools and data in respect of a particular variant of an aircraft type to be provided by the operator. An airworthiness authority which accepts an arrangement of this nature should ensure that the activity is controlled by proper contractual arrangement between the maintenance organization and the operator.

(2) Much of the tooling and equipment associated with aircraft maintenance is subject to periodic calibration. The calibration procedures should be acceptable to the airworthiness authority and the actual standards themselves traceable to international standards acceptable to the State concerned.

(i) Contract and sub-contract

It is accepted practice for operators to contract their maintenance requirements to approved maintenance organizations. Similarly, it is accepted practice to permit approved organizations to sub-contract work to organizations which are either not approved by the airworthiness authority or not approved by the airworthiness authority for the activities under consideration. In the acceptance of this practice, consideration should be given to the following points:

(i) the approved organization must be approved for the work which is to be sub-contracted and have the capability to assess the competence of the subcontractor;

(ii) the approved organization must retain responsibility for quality control and release of sub-contracted activities, including the appropriate airworthiness requirements; and

(iii) the existence of the necessary procedures for the control of sub-contracted activities, together with terms of reference for the personnel responsible for their management.

27.3 QUALITY MANAGEMENT

(a) General

(1) In recognition of the key importance of this activity in continuing airworthiness, it is essential for the manager of the quality department to have direct access to the CEO on quality issues.

(2) The maintenance organization's systems for quality control and assurance should take into account all of the facilities and procedures utilized to ensure continuing airworthiness where activities take place affecting the airworthiness of the aircraft and product quality for subjects not directly related to airworthiness.

(3) Quality control should therefore be effective throughout the maintenance of aircraft and quality auditing should ensure that control is being properly applied and achieving satisfactory results.

(4) The organization's quality control policies and systems should be described in the maintenance manual, together with the quality assurance audit program in respect of product, facility and procedures.

(b) Procedures and personnel qualifications

(1) Staff assigned to quality control and assurance duties should be:

(i) sufficiently experienced in the company systems and procedures and technically knowledgeable of the aircraft being maintained so as to enable them to perform their duties satisfactorily;

(ii) experienced in the techniques of quality control and assurance or receive suitable training before taking up their duties; and

(iii) given clearly defined terms of reference and responsibility within the organization and reporting lines to senior management.

Note.- This is particularly important where quality personnel are also expected to perform other duties in the organization, e.g. to issue maintenance releases after the completion of base maintenance.

(2) The department responsible for quality control and assurance should arrange for independent quality audit checks to be carried out in accordance with the audit program. Emphasis should be placed on the company systems employed to achieve and ensure airworthiness, their suitability and effectiveness. The scope of quality checks within the organization should be based on the guidelines given in Chapter 17 of this Inspectors handbook.

(3) All quality checks should be recorded and assessed and any criticisms forwarded to the person responsible for the particular facility or procedure for corrective action to be taken. There should be a feedback system for confirming to the quality assurance staff that corrective action has been taken and to ensure that persons concerned with any audit deficiency are kept aware of both the adverse report and the outcome.

27.4 ORGANIZATION'S MANUAL

(a) The organization's manual should provide clear guidance to personnel on how the activities included in the airworthiness authority approval are managed, their personal responsibilities and how compliance with the appropriate continuing airworthiness requirements is achieved. It should also include a statement of the organization's policies and objectives. If this manual is used also to comply with the maintenance manual requirements of Annex 6, Part I, 11.3, the aeroplane maintenance program should be included.

(b) Consideration should be given to the following topics:

(1) need for a statement signed by the CEO confirming that the manual defines the organization's procedures and associated personnel responsibilities and will be complied with at all times;

(2) details of key personnel specifically nominated to the airworthiness authority:

(i) a senior person, or group of persons, whose functions will include responsibility for the co-ordination of all appropriate departments so as to ensure compliance with the relevant airworthiness requirements. It is recommended that this person or group should be directly responsible to the CEO;

(ii) heads of departments and such other senior and specialist staff as are appropriate to the activities encompassed by the approval; and

(iii) personnel approved to authorize signatories for the maintenance releases specified in Annex 6, Part I, 8.7;

(3) the terms of reference of the persons nominated in accordance with (2), as applicable to the activities covered by the approval. The specific subjects on which these persons are authorized to deal direct with the airworthiness authority should be defined within the terms of reference;

(4) an organization chart showing the associated chains of responsibility of the persons nominated in accordance with (2);

(5) the scope of the facilities for the maintenance of aircraft, together with information on the availability of equipment essential for, and/or peculiar to, the type(s) for which approval is sought;

(6) details of the systems and procedures for the control of matters, including quality control, directly affecting continuing airworthiness. Guidance on systems and procedures which need to be considered is provided in Chapter of this handbook;

(7) details of training programs appropriate to the approval, together with details of the training facilities which will be used; and

(8) liaison and/or contractual arrangements with other organizations which provide services associated with the approval.

CHAPTER 28: PROCEDURE FOR REPORTING UNAPPROVED PARTS TO TYPE CERTIFICATE HOLDERS AND REGULARITY AUTHORITY

28.1 BACKGROUND

The use of unapproved parts in aircraft causes the aircraft unairworthy and leads to automatic suspension of Certificate of Airworthiness. It is the responsibility of air operator, aircraft maintenance technician that no unapproved parts are installed in aircraft. In addition, it is the responsibility of LCAA too that no unapproved parts are installed in any aircraft. The incident of installation of unapproved parts should be reported to aircraft type certificate holder and regulatory authority.

28.2 PROCEDURE

(a) Verify the incident of installation of unapproved parts installed in aircraft by inspection.

(b) Suspend the flight and take appropriate action against air operator, aircraft maintenance technician involved and other related personnel as per Enforcement Manual.

(c) Seize the unapproved part.

(d) Take photograph of unapproved part and relevant document.

(e) Collect release note or any other documents if any.

(f) Prepare a brief report relating all events of occurrence.

(g) Report aircraft Type Certificate holder organization with report in (f) above, detailed data, picture, as email attachment.

(h) Report the state of design in the same way as in (g) above.

(i) Wait for the response from Type Certificate holder and state of design.

(j) While reporting in progress the aircraft may be released after restoring it to airworthiness condition.

(k) Take further steps, as deemed necessary, after getting reply from TC holders, state of design.

(l) Complete enforcement action against the AOC holder and AMT concerned.

CHAPTER 29: EVALUATE AND APPROVE A MINIMUM EQUIPMENT LIST (MEL) AND CONFIGURATION DEVIATION LIST (CDL)

29.1 MINIMUM EQUIPMENT LISTS

29.1.1 BACKGROUND

(a) ICAO Annex 6, Part I, Chapter 11 requires that the Operations Manual provide information which will enable the pilot-in-command to determine whether the flight may be continued should any instrument, equipment or system become inoperative. This requirement is generally best met by the establishment of an approved Minimum Equipment List (MEL) which specifies for a given model of aircraft the minimum operable equipment required, taking into account operating rules for the existing environmental conditions, for the continuance of flight.

(b) Normally modern aircraft are designed with duplicate systems with redundancy for higher degree of safety. Therefore, failure of minor parts, components, equipment, system does not always render the aircraft unsafe for flight. With this concept in mind, the state of design approves the Master MEL so that flight can be continued with inoperative item under prescribed conditions.

(c) MEL procedures were developed to allow the continued operation of an aircraft with specific items of equipment inoperative under certain circumstances. For particular situations, an acceptable level of safety can be maintained with specific items of equipment inoperative for a limited period of time, until repairs can be made. The MEL document describes the limitations that apply when an operator wishes to conduct operations when certain items of equipment are inoperative.

(d) Civil Aviation Regulations permit the authorization of an MEL if the CAA finds that compliance with all the aircraft equipment requirements is not necessary in the interest of safety for a particular operation. Through the use of appropriate conditions or limitations, the MEL provides for improved scheduled reliability and aircraft utilization with an equivalent level of safety. This process is possible because of the installation of additional and redundant instruments, equipment and/or systems in present transport aircraft. Without an approved MEL, inoperative equipment would ground the aeroplane until repair or replacement of the non-functioning equipment. An MEL is approved for a specific make and model of aircraft and is part of the approved operator’s Operations Manual.

(e) The operations inspector is the primary CAA official responsible for the overall process of administering, evaluating, and approving an operator's MEL in coordination with the airworthiness inspector. Both need to work with the operator involved to ensure that the approved MEL complies with all applicable requirements.

29.1.2 MEL POLICY

(a) Operators are required to produce their own MEL to be approved by the LCAA for incorporation in their manuals for the use and guidance of flight and ground operations personnel.

(b) The MEL will be tailored to the individual operator's routes and procedures within the constraints imposed by the Master Minimum Equipment List (MMEL).

(c) The current MMEL for a given aircraft may normally be obtained from the manufacturer of the aircraft or the civil aviation organization of the aircraft certificating State and used as the source reference for completion of the MEL.

25.1.2.1 MASTER MEL

(a) The MMEL does not include obviously required items such as wings, empennage, flaps, powerplants, etc.

(b) Nor does the list include items which do not affect the airworthiness of the aircraft such as galley equipment, entertainment systems, etc.

Any instrument, equipment, component or system function not included in the MMEL cannot deferred and must be operative and functional at the time of departure.

(c) It must be stressed and understood by all persons developing and using the MMEL that all items that are related to the airworthiness of the aircraft and are not included on the list are automatically required to be operative.

25.1.2.2 KEEPING THE MEL CURRENT

(a) It is the owner/operator's responsibility to keep their approved MEL current.

(b) They must arrange to receive all changes to the manufacturers Master MEL and Dispatch Deviation Guide.

With the exception of an LCAA mandatory revision, the operator must submit a revision to their MEL within 45 days of the release of a MMEL revision.

(c) They must then revise and submit revisions to the approved MEL in a timely manner.

25.1.2.3 CONFORMANCE WITH FORMAT

(a) The tailored MEL should be in the same format as the Master—

(1) Keeping the same numbering system.

(2) Where an item is not applicable marking that item N/A

(3) Show date and revision number of MMEL being followed.

(4) Use the MMEL Preamble and Definitions.

(5) Give specific reference to LCAR requirements.

(6) Give specific reference to incorporated Service Bulletins.

(7) Show actual number of installed equipment.

(8) Include procedures to meet repair intervals and/or obtain a time extension.

(9) Whenever there is an (O) or (M) in the Master, have the proper operations or maintenance procedure included.

(10) Attach copy of Configuration Deviation List (CDL) from the Aircraft's Approved Flight Manual to the back of the MEL.

25.1.2.4 NEVER "LESS" RESTRICTIVE

(a) The owner or operator can make minor changes from the Master as long as the changes make the item more restrictive.

No revision to the MEL that makes an item **less restrictive** will be approved.

(b) To preclude problems with "less restrictive" the MMEL and manufacturer's Dispatch Deviation Guide should be consulted at all times.

29.1.3 ITEMS LISTED ON THE MEL

(a) There are three categories of items that may be contained in the operator's MEL:

(1) MMEL items;

(2) Passenger convenience items;

(3) Administrative control items.

29.1.3.1 MMEL Items

(a) The MEL will list all of the items for which the operator seeks relief and that are appropriate for its operation. The operator, by not listing at its discretion certain items in its MEL, may be more restrictive than permitted by the MMEL.

29.1.3.2 Passenger Convenience Items

(a) The passenger convenience items, as contained in the operator's approved MEL, are those related to passenger convenience, comfort, or entertainment, such as, but not limited to, galley equipment, movie equipment, in-flight phones, ashtrays, stereo equipment, and overhead reading lamps. It is incumbent on the operator and the OI to develop procedures to ensure that those inoperative passenger convenience items are not used. Passenger convenience items do not have fixed repair intervals. Items addressed elsewhere in the MMEL shall not be authorized relief as a passenger convenience item. "M" and "O" procedures may be required and should be developed by the operator, approved by the OI, and included in the air operator's appropriate document.

29.1.3.3 Administrative Control Items

(a) An operator may use an MEL as a comprehensive document to control items for administrative purposes. In such cases, the operator's MEL may include items not listed in the MMEL. However, relief may not be granted for these items unless conditions and limitations are contained in approved documents other than the MMEL or meet the regulatory requirements of the CARs. Examples of items considered to be administrative control items would be cockpit procedure cards.

29.1.4 TIMELY REPAIR OF ITEMS THAT ARE INOPERATIVE

(a) ***Operator's responsibility.*** The MEL is intended to permit the operation of an aircraft with certain inoperative items for a limited period of time until repairs can be

accomplished. The operator is responsible for establishing a controlled and effective repair program.

(b) ***Repair Interval.*** Operators must make repairs within the time period specified by the MEL. Although the MEL might permit multiple days of operation with certain inoperative equipment, operators must repair the affected item as soon as possible.

(c) ***Day of Discovery.*** The day of discovery is the calendar day an equipment malfunction was recorded in the aeroplane technical log or record. This day is excluded from the calendar days or flight days specified in the MMEL for the repair of an inoperative item of equipment. This provision is applicable to all MMEL items, such as categories "A," "B," "C," and "D." The operator and the OI must establish a reference time in which the calendar day or flight day begins and ends 24 hours later. This reference time is established to ensure compliance with timely repair of equipment and items.

(d) ***MMEL Definitions***. More than one set of MMEL definitions exist due to years of evolving changes during which not all MMELs have been updated to the latest revision of the definitions. However, only the most up-to-date set of definitions may be used with a specific MMEL. Only certain portions of the latest definitions may be appropriate for a specific air operator's MEL.

(e) ***Continuing Authorizations.*** The CAA may occasionally authorize an operator to use a continuing authorization to approve extensions to the maximum repair interval for category "B" and "C" items, when the CAA is satisfied that the operator has an effective quality system and MEL management program in place, provided the CAA is notified within 24 hours of the operator's exercise of extension authority. In such case the certificate holder is not authorized to extend the maximum repair time for category "A" and "D" items, as specified in the approved MEL. Misuse of the continuing authorization may result in suspension or cancellation of the MEL continuing authorization.

29.1.5 RECORDKEEPING

When an item of equipment becomes inoperative, the operator must report it by making an entry in the aircraft technical log.

29.1.6 MULTIPLE ITEMS THAT ARE INOPERATIVE

Individual MEL requirements are designed to provide coverage for single failures enroute. When operating with multiple inoperative items, the operator should consider the interrelationships between those items and the effect on aircraft operation and crew workload, including consideration of a single additional failure occurring enroute.

29.1.7 FLEET APPROVAL

An operator who has a single MEL for multiple aircraft may reflect equipment in its MEL that is not installed on all aircraft in its fleet. In this case, the item's title in the operator's MEL needs to be referenced by specific aeroplane identification (usually registration number).

29.1.8 ACCESS TO MEL

Part 8 requires that the MEL is carried aboard the aircraft or that the flightcrew have direct access to the MEL information prior to flight. Other means of direct access require CAA approval.

29.1.9 CONFLICT WITH OTHER APPROVED DOCUMENT

The MEL may not deviate from requirements of the flight manual limitations section, emergency procedures or other applicable airworthiness requirements, including airworthiness directives. The operator's MEL may be more restrictive than the MMEL, but under no circumstances may the operator's MEL be less restrictive.

29.1.10 ACCEPTABLE SOURCES OF MMELS. SOURCE MMELS POLICY

The CAA generally accepts MMELs approved by the regulatory authority of the State of Design unless special circumstances dictate the acceptance of a Type Certificate issued by another State where the applicable MMEL is the one approved by the State issuing the CAA accepted Type certificate (see Note). Operators are to incorporate source MMEL amendments as soon as they are available. The amendment to an operator MEL is to be submitted to the CAA for approval prior to usage.

Note: All references to the State of Design in this guidance presume that the LCAA has accepted a Type certificate from the State of Design.

29.1.11 MEL APPROVAL PROCESS

29.1.11.1 General

(a) This section contains specific direction, guidance, and procedures to be used by operations and airworthiness inspectors when evaluating and approving MELs. It also guides an operator in the development of an MEL by explaining the approval process.

(b) The operator's MEL is developed by the operator from the appropriate approved Master Minimum Equipment List (MMEL) for the aircraft concerned.

(c) LCAA will not grant interim approval while the MEL is undergoing the review process, nor will approval be given to use a MMEL as an MEL.

(d) The LCAA approval process for an MEL follows the general process for approval or acceptance. This section contains an expansion of the approval process for the MEL.

29.1.11.2 MEL Acceptability

(a) The general criteria for MEL acceptability are as follows:

(1) ***Equally or More Restrictive.*** The operator's MEL must not be less restrictive than the MMEL, the CARs, the Operations Specifications (OpSpecs), the approved flight manual limitations, certification maintenance procedures or airworthiness directives (AD) requirements.

(2) ***Appropriate.*** The MEL must be appropriate to the individual aircraft make and model.

(3) ***Specific.*** The operator's operations ("O") and maintenance ("M") procedures must be specific to the aircraft and the operations conducted.

(4) ***Applicability.*** An MEL shall be applicable to the LCAR under which the operator is certificated.

29.1.11.3 Initial Phase of MEL Approval

(a) In this phase of the MEL approval process, the operator shall consult with the operations inspector (OI) regarding requirements for either developing an MEL or for revising an existing MEL. The OI shall consult and seek the participation of the airworthiness inspector (AI) during the entire approval process.

(b) ***Operator Familiarization.*** In phase one of the MEL approval process, the OI should determine the scope of the task, based on the operator's experience with MELs. OIs should adapt the discussion to fit the operator's needs and experience, and should provide advice and guidance to the operator as necessary. OIs must ensure that the operator clearly understands that MEL document preparation is solely the operator's responsibility.

(c) ***Required Document Submittal.*** OIs should advise the operator that, for an MEL to be approved, the following documents must be submitted:

(1) The proposed MEL or MEL changes, in duplicate;

(2) Necessary "O" and "M" procedures, which may be based on the aircraft manufacturer's recommended procedures, Supplemental Type Certificate (STC) modifier's procedures, or equivalent operator procedures;

(3) A description of the MEL management program and its procedures as required by the contents of the Operations Manual and the Maintenance Control Manual, unless these are already in place;

(4) Any required guidance material developed by the operator, such as training material, guidance, and deferral procedures for both maintenance and operations personnel.

NOTE: Several manufacturers have produced manuals of recommended procedures for operating with inoperative equipment. The Boeing Dispatch Deviation Guide (DDG) is an example of these manuals. When manufacturer's recommended procedures exist, operators may use them or may develop alternate procedures. When contract services are used to develop the operator's MEL along with acceptable "O" and "M" procedures, the principal inspectors should review the "O" and "M" procedures in light of the type of operations being conducted and should ensure the acceptability of the procedures. The principal inspectors should ensure that the developed MEL procedures can be adequately implemented by the operator.

(d) ***Required Operator Guidance Materials.*** Operators must obtain a current copy of the MMEL for a specific aircraft in either hard copy or electronic format from the State that issued the type certificate accepted by the LCAA for the specific aircraft. Additional guidance may be obtained from the LCAA.

(e) ***Document Form.*** The operator may submit MEL draft documents to the LCAA either on hard copy (printed on paper) or on computer disk, as mutually agreed upon between the operator and the OI. The operator and the OI should discuss the techniques that will be used for revising and editing the proposed document. It is important that the operator understand that when the process is complete, the final proposed MEL must be submitted on paper unless otherwise approved by the LCAA.

(f) ***MEL Format.*** The MMEL format has been standardized to facilitate the development, revision, and approval of both master and operator documents. While the master document contains eight total sections, six of these sections are considered basic for MEL

development and shall be included in each operator's MEL. Refer to section 5.4.4.6 for a detailed list of the required MMEL sections and whether or not it should be included in the operator's MEL.

(g) ***Generic Single Engine MMELs.*** A generic MMEL for single engine aircraft may be developed and published by the LCAA from the country of manufacturer or other approved aircraft evaluation group. In particular, the FAA and EASA have published a generic MMEL applicable to all single engine aeroplanes and helicopters for which a specific MMEL has not been issued. In such case, operators should contact the CAA for guidance on the development of an MEL based on the generic MMEL accepted by the CAA. When an operator is approved to use this generic MMEL, and a specific MMEL for the individual aircraft type is subsequently issued, the operator's MEL must be revised within the specified time frame to conform to the specific MMEL.

29.1.11.4 Final Phase of MEL Approval Process

(a) The final phase begins when the operator formally submits the proposed MEL or MEL changes to the OI. The OI should initially review the operator's submittal to verify that it is complete, contains the required elements, as listed in this subsection, and is detailed enough to permit a thorough evaluation of the MEL.

(b) **Unacceptable Submittal.** If the OI finds the proposed MEL package to be incomplete or unacceptable at this time or at any other juncture in the approval process, the OI should contact the operator. A sample letter is provided in Attachment B. If a mutually acceptable correction cannot be immediately agreed upon, the entire package must be immediately returned to the operator, or its representative, along with an explanation of the problems found within the documents.

(c) **Acceptable Submittal.** If the OI finds the proposed MEL package to be complete and to contain the required information in an acceptable format, the detailed analysis begins. During this analysis, the OI should co-ordinate with the AI to perform a detailed examination of the proposed MEL document and other supporting documents and procedures. If the operator does not currently have an MEL program but is seeking authorization for such a program, its MEL management program must also be reviewed for acceptability. Inspectors should examine the technical content and quality of the proposed MEL document and other supporting documents and procedures as follows:

(1) **Timely Review.** OIs should promptly address all deficiencies and notify the operator of any discrepancies or outstanding issues. The OI and the operator may informally co-ordinate by telephone or other means to clarify minor discrepancies or misunderstandings.

(2) **Reference Material.** Inspectors should use the MMEL and this guidance as the primary reference document when reviewing and approving the MEL. In addition, inspectors should use the following references:

(i) Related Civil Aviation Regulations;

(ii) Approved Flight Manual;
(iii) Operator's OpSpecs;

(iv) Operator's manuals;

(v) MMEL policy letters (as required).

(3) **Document Deficiencies**

(4) **Change in Schedule.** If certain MMEL items must be addressed within a specific time frame, the OI should notify the operator of this requirement as soon as possible. If the operator is unable to meet these schedule requirements, the OI should negotiate a new schedule with the operator.

(5) **MEL Evaluation.** Inspectors should compare the operator's MEL changes against the corresponding items in the current MMEL for the specific aircraft type. In addition, inspectors should verify that the operator's MEL contains the following required items:

(i) **Cover Page (Optional if covered otherwise).** The MEL cover page contains the operator's name and the make and model of the aircraft to which the MEL applies.

(ii) **Table of Contents (Required).** The table of contents contains a list of all of the pages in the MEL by title and the corresponding page identification (usually a page number).

(iii) **Log of Revisions (Required).** The log contains the revision identification (usually a number) and date of the revision. It may also contain a list of the revised pages, a block for the initials of the person posting the change, and additional enhancements for use by the operator.

(iv) **Preamble (Required).** The standard MMEL preamble section must be reproduced word for word in each MEL, without modification, except for reference to the applicable regulations.

(v) **Definitions (Required).** The standard MMEL definitions section must be reproduced word for word in each MEL, without modification.

(vi) **Control Page (Required).** The control page is used as a method for keeping track of the status of the MEL and includes a record of the revision status or the date of each page of the operator's MEL. It may also be used as a means of conveying CAA approval of the MEL. The control page is also referred to as the "List of Effective Pages."

(6) **Minimum Contents.** At a minimum, the control page must contain the following:

(i) The operator's name;

(ii) A listing of all of the pages in the MEL (including the date of each page and its page number or revision number);

(iii) The MMEL revision number on which the MEL is based (normally latest number revision)

(iv) A signature block containing space for signature of the POI (only if this page is used as a means of conveying CAA approval of the MEL);

(v) Optional Contents. The operator may include additional information on the control page to provide flexibility and additional approval functions;

(vi) Highlights of Change Page (Optional). This page contains a synopsis of the changes made by the operator in each revision.

(7) **Additional Items.** The operator may include additional information sections in excess of the six required sections:

(i) **Individual Air Transport Association of America (ATA) System Page Evaluation.** These pages contain a list of individual items of equipment in the aircraft together with provisions for the operation of the aircraft when the items are inoperative. The reviewing inspector should examine the individual ATA system pages, ensuring that the MEL is at least as restrictive as the MMEL and that operator's procedures are adequate and appropriate. The inspector should also examine the material contained on these pages for conflict with the CARs, with the approved flight manual emergency procedures and limitations, and with the operator's OpSpecs. The following elements are included:

(A) **The ATA Numbering System.** Operators shall use the standard ATA numbering system, similar to the manner used in the MMEL, for numbering individual pages in this section. An example of this numbering system would be the communications page; the first page would be 23-1; the second page would be 23-2.

(B) **Individual Items of Equipment.** The MMEL contains listed items of installed equipment that may be inoperative.

(ii) **All MMEL Items will be listed on the Operator's MEL.** All equipment not listed in the MEL must be operative.

(iii) **MMEL Items Listed on the Operator's MEL.** Each piece of equipment that is installed on the aircraft and that is contained in the MMEL, for which the operator seeks relief and that is appropriate for its operation, should be listed on the appropriate page of the operator's MEL within the associated ATA system. The operator may be more restrictive than permitted by the MMEL. Each item title on the operator's MEL will generally be entered exactly as it is shown on the MMEL. Exceptions include the following:

(A) When the MMEL uses a generic term to address equipment that serves a similar function when various operators use different names for that equipment; or

(B) When the MMEL lists functions rather than individual pieces of equipment within that category such as "Navigation Equipment" or "Communications Equipment." In such cases, the MEL must contain a list of the individual equipment items or systems within that category that are actually installed on the aircraft, such as "VHF Communications Transceivers." When items of this type consist of several components of a system, the item may be listed as a complete system, such as "VOR Navigation System," consisting of a VOR navigation receiver and its associated indicator. The inspector should ensure that the operator has not listed inappropriate items or items that are listed individually elsewhere in the MMEL. However, the CAA is authorised to approve generic MMEL relief for

navigation or communication equipment that is appropriate such as ILS, VOR, VHF, HF and GPS.

(iv) **Items Listed on the MMEL but not installed on the Operator's Aircraft.** The OI will only accept an item of equipment being listed on the MMEL but not installed on the operator's aircraft by listing the item as shown on the MMEL, and indicating the Number Installed as zero. In this case, the "Number Required for Dispatch" would also be zero, and the remark "Not Installed" will be noted under "Remarks and Exceptions"; repair category designators should be omitted.

(v) **Triple Asterisk Symbol (***).** The triple asterisk symbol is used in an MMEL to indicate that an item is not installed on some models of the aircraft. Operators shall not produce or use this symbol in the MEL.

(vi) **Repair Category.** Each item of equipment listed in the operator's MEL, except for Administrative Control Items and Passenger Convenience Items, must include the repair category designator for that item as shown on the MMEL. These designators, categorised as "A," "B," "C," or "D," indicate the maximum time that an item may remain inoperative before repair is made. The actual repair categories corresponding to these letters are provided in the "Notes and Definitions" section of the MMEL. The operator may choose to adopt a more restrictive repair category than the one shown on the MMEL, but may not relax the requirement. Components or subsystems of items categorised in the MMEL, such as items of communications or navigation equipment that are not listed individually in the MMEL, must retain the repair category shown on the MMEL when listed as separate items on the MEL.

(vii) **Passenger Convenience Items.** Passenger convenience items relate to the convenience, comfort, and entertainment of passengers and must never affect the airworthiness of the aircraft. These items do not carry a specific repair category; however, the operator should make repairs to convenience items within a reasonable time frame. Normally, the operator lists these items individually in ATA chapters 25 and 38. Passenger convenience items may be included elsewhere in the MEL if clearly identified as passenger convenience items. OIs should review the proposed MEL to decide which passenger convenience items are components of an item appearing in the MMEL. When listing passenger convenience items on the MEL, the operator must list each item for which the operator wishes relief. Passenger convenience items also apply to cargo aeroplanes, as appropriate.

(viii) **Administrative Control Items.** "Administrative control item" means an item listed by the operator in the MEL for tracking and informational purposes. It may be added to an operator's MEL by approval of the OI, provided no relief is granted, or provided conditions and limitations are contained in an approved document (such as Structural Repair Manual or airworthiness directive). Examples of items that could be considered administrative control items are cockpit procedure cards, medical kits, and life vests. These items should appear in the appropriate ATA chapter and would not have a repair category. When the operator chooses this course of action, the OI must examine each proposed administrative control item on the operator's proposed MEL to ensure that the following conditions are met:

(A) No item is included as an administrative control item if it is included elsewhere in the MMEL;

(B) Administrative items are not included as a subsystem of items listed in the MMEL;

(C) Administrative items are not granted relief in the MEL unless the release conditions or limitations are contained in another approved document;

(ix) **Number of Items Installed.** The MEL will normally contain the actual number of items of particular equipment installed on the aircraft. This number may be either greater or less than the number shown on the MMEL. The MMEL shows the number of items installed as the number of those items normally installed on a particular aircraft type. Individual aircraft operated by an operator may have a different number of items. Frequently the MMEL shows a dash in the "Number Installed" column. This dash indicates that variable quantities of these items are usually installed on the aircraft. If the operator has an MEL for a single aircraft or identical aircraft, the actual number of these items on the particular aircraft must be listed in the MEL. If the operator has an MEL for multiple aircraft, and the equipment is not installed on all aircraft or there is a variable quantity between aircraft, the operator's MEL will reference specific aircraft identifications (by registration number) the "Number Installed" on each aircraft or the "Number Installed" column may contain a dash.

(x) **Number of Items Required for Dispatch**. Normally, the number of items required for dispatch is determined by the State of aircraft design, and may be modified in the MEL in only two cases:

(A) When the item is not installed on the aircraft, in which case a zero will be shown as the number required for dispatch;

(B) When the item is shown in the MMEL as being a variable number required for dispatch.

NOTE: In this case, the reviewing inspector should ascertain that the operator has made a determination as to the number required for dispatch. There can be several factors that establish this number. In some cases, it is determined by a reference to specific requirements listed in the "Remarks or Exceptions" column of the MMEL. An example would be cabin lights. In this case, the MMEL may show a variable number installed while the "Remarks or Exceptions" column might state that 50 percent of those items be operable. The number required for dispatch would therefore be 50 percent of the number of lights determined to be actually installed on the individual aircraft. Another case where the MMEL may show a variable number required for dispatch is when the "Remarks or Exceptions" column of the MMEL contains the statement, "As Required by regulation." In this case, the number is the minimum quantity of these items that must be installed for operations under the least restrictive regulation under which the operator conducts operations.

(xi) "**Remarks or Exceptions.** "Certain items demand specific relief developed by the operator as authorised through OpSpecs, area of operation and CARs. "As required by regulation" is not a relief statement. The operator must develop or address the specific requirement of the CARs.

(xii) **Other Items.** Other items in which relief has been specifically written to reflect actions or restrictions to the operation may be changed only when MMEL is changed. Generally, they contain "O" and "M" procedures in which the operator develops its company procedures to comply with the MEL.

(xiii) **Evaluation of Associated Documentation.** The inspector should evaluate the supporting documentation submitted by the operator to ensure that it is complete and appropriate:

(A) **The Operator's Manuals**. Inspectors should evaluate the operator's Operations Manual and Maintenance Control Manual to ensure that they contain adequate guidance for the operator's personnel in conducting operations using the MEL. Generally, if the operator does not presently have an MEL program, the applicable portions of its manuals and other guidance material should be submitted at the time the MEL is submitted for initial review. When evaluating the operator's manuals, inspectors should ensure procedures for documenting inoperative equipment (in the aircraft technical log) and any required maintenance procedures are clear. At a minimum, provisions for recording the following items shall be developed:

- An identification of the item of equipment involved;
- A description of the nature of the malfunction;
- An identification of the person making the entry;
- The MEL item number for the equipment involved;

(B) **Crew Notification**. The operator shall establish procedures for advising the pilot in command (PIC) of inoperative items and required procedures such as affixing placards, alternate operating procedures, and instructions for the isolation of malfunctions. The PIC and the operator are both responsible for ensuring that flights are not dispatched or released until all of the requirements of the "O" procedures and "M" procedures have been met.

(C) **Flight Restrictions.** The operator shall establish procedures to ensure that dispatch or other operational control personnel, as well as the flightcrew, are notified of any flight restrictions required when operating with an item of equipment that is inoperative. These restrictions may involve maximum altitudes, limitations for the use of ground facilities, weight limitations, or a number of other factors.

(D) **Training Program Material.** Inspectors should ensure that the operator's flight and ground personnel training programs contain adequate instruction for MEL use.

(E) **MEL Management Program.** The OI should co-ordinate closely with both the MI and the operator on the MEL management program. Operators must develop an MEL management program as a comprehensive means of controlling the repair of items listed in the approved MEL. Operators must include a description of the program

in their maintenance manual, maintenance control manual, or other documents. The MEL management plan must include the following:

- A method for tracking the date and time of deferral and repair;
- The procedures for controlling extensions to maximum repair categories;
- A plan for co-ordinating parts, maintenance, personnel, and aircraft at a specific time and place for repair;
- A review of items deferred due to unavailability of parts;
- The specific duties and responsibilities of the managers of the MEL management program, listed by job title.

29.1.11.5 Terms and Conditions of Relief

(a) This section contains the terms and conditions of relief granted to an operator for operating the aircraft with items of installed equipment that are inoperative. The operator must state the terms and conditions under which operations may be conducted with inoperative items for the operator's particular organization and aircraft. The reviewing inspector must address the following elements of this section:

(1) **Standard Phraseology.** When reviewing the MEL, inspectors should ensure that the operator generally uses the phraseology used in the MMEL to ensure clarity and standardization. In some cases modified phraseology is appropriate for the operator's specific installation.

(2) **"As Required by Regulations."** The general term, "As Required by Regulations," applies to ATA chapters 23 (Communications), 31 (Instruments), 33 (Lights), and 34 (Navigation Equipment). When this term appears in the "Remarks or Exceptions" section of an MMEL, the operator's MEL must contain the specific conditions that apply. The operator must research the applicable regulations in detail to develop the appropriate provisions that apply to that operator's particular operations. An example of a typical distance measuring equipment (DME) remark could read, "Not required for flights below FL 240."

NOTE: The operator's MEL must clearly establish the actual requirement for its operation when the MMEL stipulates "As required by regulation." It is not acceptable for the MEL to simply refer to the regulation.

(3) **"O" AND "M" Procedures:**

(A) "O" and "M" procedures must contain descriptions of the individual steps necessary to accomplish each process. For example, if the MMEL contains an "M" symbol with a provision that a valve must be closed, the operator must include the appropriate procedures to close the valve as part of the operator's manual or MEL. The reviewing inspector must ensure that the procedure addresses the following:

- How the procedure is accomplished;
- The order of accomplishing the elements of the procedure;

- The actions necessary to complete the procedure.

(B) For example, if the MMEL contains an "M" symbol with a provision that a valve must be closed, the operator must include detailed steps and actions for closing and testing the valve and installing the placard. The actual written procedures may be contained within the "Remarks or Exceptions" section of the MEL, in separate documents, or attached as an appendix. Inspectors should consult the Guidelines for "O" and "M" Procedures of the MMEL when evaluating these procedures. The section about the Guidelines for "O" and "M" Procedures does not have to be contained within the operator's MEL. If the "O" and "M" procedures are not contained within the MEL, the MEL should include a reference to the location of the procedures.

NOTE: While inspectors should ensure that the procedures are detailed and explicit, it is not necessary that the operator repeat obvious requirements of the MEL item, of the regulation, or of other established standards.

(C) **"O" Procedures.** The "(O)" symbol indicates a requirement for a specific operations procedure that must be accomplished in planning for and/or operating with the listed item inoperative. Normally, these procedures are accomplished by the flightcrew; however, other personnel may be qualified and authorized to perform certain functions. The satisfactory accomplishment of all procedures, regardless of who performs them, is the responsibility of the operator. Appropriate procedures are required to be published as a part of the operator's manual or MEL.

(D) **"M" Procedures.** The "(M)" symbol indicates a requirement for a specific maintenance procedure, which must be accomplished prior to operation with the listed item inoperative. Normally these procedures are accomplished by maintenance personnel; however, other personnel may be qualified and authorized to perform certain functions. Maintenance personnel should accomplish procedures requiring specialized knowledge or skill, or requiring the use of tools or test equipment. The satisfactory accomplishment of all maintenance procedures, regardless of who performs them, is the responsibility of the operator. Appropriate procedures are required to be published as part of the operator's manual or MEL.

(E) **Provisos.** The "Remarks and Exceptions" section of the MMEL generally contains provisos that include specific conditions under which an item of equipment may be inoperative. These provisos must be carried over either verbatim into the operator's MEL or by using equivalent terminology. Provisos are distinct from "O" and "M" procedures. A procedure is an action that must be performed. A proviso is a condition that must exist. For a proviso that operations must be conducted under VFR, an operation under an IFR flight plan is not permitted, regardless of the weather conditions. When reference is made to visual meteorological conditions (VMC), operations may be conducted under an IFR flight plan, but only in VMC.

29.1.11.6 Demonstration Phase

A demonstration phase is normally not required for an MEL approval. When an operator is developing an MEL in conjunction with original certification for initial issuance of an operating certificate, or when instituting service with a new aircraft type, a demonstration of the operator's ability to use an MEL may be conducted during any required aircraft demonstration flight.

29.1.11.7 OI Approval of the Operator's MEL

(a) The AI must ensure that prior to authorizing the use of the approved MEL for an operator that the MEL management program is approved. Once the FOI and AI are satisfied that all requirements of this chapter have been met and the MEL is in full compliance with all applicable requirements the FOI sends the letter of approval to the operator and stamps and signs the list of effective pages. A sample letter is provided in Appendix to this chapter.

29.1.12 MEL USE IN SERVICE

29.1.12.1 General

(a) This section contains specific direction, guidance, and procedures for operations and airworthiness inspectors on the revision, administration, and policy application for administering MELs that have been approved for use by operators operating under the provisions of the LCARs.

29.1.12.2 Revision Procedures

(a) ***Revisions to an MEL.*** Either the operator or the CAA may initiate revisions to an operator's MEL. Operator initiated revisions may be equal to or more restrictive than the Master Minimum Equipment List (MMEL). It is not necessary for an operator to submit an entire MEL when requesting the approval of a revision. The minimum submission would consist of only the affected pages; the approval by the operations inspector (OI) may only consist of specific items. These items are approved within a controlled process, and the operator will produce the final MEL document. If the revision results in individual pages either being added or deleted, a revised table of contents page is also required. The issuance of an airworthiness directive (AD) will not be the basis for change to an operator's MEL. Instead, ADs will be referred to the CAA which will coordinate with the appropriate Civil Aviation Authority or the State of Design for guidance.

NOTE: When operations ("O") or maintenance ("M") procedures are required per the MMEL, it is the operator's responsibility to develop appropriate procedures or to use manufacturer developed procedures in order to meet the requirements for inclusion of the item on the MEL. The OI is not authorised to grant MEL relief unless the operator provides acceptable "O" and "M" procedures.

(b) ***MEL Revision Initiated by an Operator***. An operator initiated MEL revision will normally fit into one of the following three categories:

(1) Items Not Requiring an MMEL Change. Operators may propose changes to an MEL that are equal to, or more restrictive than, the MMEL. These revisions are approved by the OI using the same procedures, as those required for an original MEL approval;

(2) Items Requiring an MMEL Change. Operators may request changes to an MEL that are less restrictive than the MMEL. However, the MEL cannot be revised until the MMEL has been revised to permit the proposed MEL change. The most common instance of a revision request of this type occurs when an operator installs additional equipment on an aircraft and provisions for that equipment are not included on the current MMEL;

(3) Major Aircraft Modifications. Major aircraft modifications, such as a supplemental type certificate (STC), a major alteration or a type certificate (TC) amendment, may invalidate the MEL for that aircraft. Operators should follow the established procedures for the approval of major modifications to avoid any conflicts with the MMEL. Since the CAA requires prior approval of major modifications by the State of Design, any impact on the MMEL would have been considered by the State of Design, who, in such cases, would have processed any required MMEL revisions.

29.1.12.3 MEL Revisions Initiated by The CAA

(a) When the CAA of the State of Design revises an MMEL, operators, manufacturers and the CAA receive notification by printed or electronic means. Such revisions are to be considered as initiated by CAA. Operators must track such revisions and amend the MEL accordingly, as described below:

(1) ***Non mandatory Revision.*** MMEL revisions that only provide additional relief are reflected by a lower case letter suffix following the MMEL numeric revision number; for example, MMEL Revision No. 8 would become Non mandatory Revision No. 8a. Any MMEL changes that are less restrictive than the operator's MEL may be ignored by the operator. An example of a non-mandatory revision is when the MMEL has been revised to provide for optional equipment normally not installed on all aircraft of a particular type, such as logo lights. Operators that operate aircraft with logo lights may choose to revise the MELs, while operators operating without logo lights would not;

(2) ***Global Change***. A global change is another type of non-mandatory revision. A global change generally applies to items of equipment that are required to be installed by a new regulatory requirement, such as a cockpit voice recorder (CVR), or a traffic alert and collision avoidance system (TCAS). Items affected by policy decisions of the CAA of the state of design are also global changes. The global change does not replace the normal MMEL revision process. When a standard revision to an MMEL is issued, it will include all global changes issued to date. However, since the process for revising the MMEL can be lengthy, and the operator's MEL must be based on the MMEL, a global change will allow an operator to revise its MEL prior to the change in the MMEL. The OI has the authority to approve the operator's MEL revision on the basis that the global change is an approved addendum to the existing MMEL. Availability of global changes may be determined by visiting the website of the State of Design CAA;

(3) ***Mandatory Revisions.*** Mandatory changes, which are more restrictive and may remove relief from the current MMEL, are reflected by the next successive change to the basic MMEL revision number itself. For example, the next mandatory revision following the non-mandatory revisions 6a, 6b, or 6c would be revision 7. Any MMEL changes that are more restrictive than the operator's MEL will be implemented by the operator as soon as possible. In some cases, when relief is removed from the MMEL, there will be a specific date for compliance or guidance for an acceptable date to be negotiated between the OI and the operator. In all cases, the following guidelines apply: where a MMEL revision does not affect a procedure, the time of MEL amendment is 60 days, where it does affect a procedure, amendment time is 90 days;

(4) ***OI Initiated Revision.*** The OI may initiate an MEL revision that is not based on a revision to the MMEL. The OI should make such a request to the operator in

writing, stating specific reasons why the revision is necessary. An OI initiated revision may be made upon the discovery that an operator has modified an aircraft or that faulty maintenance or operations procedures exist. The OI should work closely with the operator and make every effort to resolve the matter in a mutually agreeable manner. The operator should be given a reasonable time period to make the required changes depending on whether safety of flight is affected. In the event that the operator declines to make the required change, the OI may consult with the AI to rescind the authority for the MEL. to initiate an amendment of the operator's.

29.1.13 MODIFICATIONS WITHIN A FLEET

If an operator has been granted approval to use the MEL for a fleet, and the operator installs a new piece of equipment in one or more aircraft, the operator may continue to operate that aircraft under the provisions of the currently approved MEL. The operator may not defer repair of the new item until an appropriate revision to the MEL has been approved.

29.1.14 TRACKING OF REVISION STATUS

OIs shall maintain a copy of the current MEL for each assigned operator's aircraft type. The OI should refer to the MMEL and the operator's MEL to track the revision status of the MEL.

29.1.15 AVAILABILITY OF MEL FOR FLIGHT CREWMEMBERS

(a) Flight crewmembers must have direct access to the MEL at all times prior to flight. Although not required, the easiest method of compliance with this requirement is for the operator to carry the MEL aboard each aircraft. The operator may choose to use some system of access to the MEL other than the MEL document. For example, the flight crew may obtain access to the MEL through the ARINC Communications Addressing and Reporting System (ACARS). The critical element in approving an alternate form of access is whether or not the flight crew has a direct means of access to the appropriate information in the MEL, specifically "O" and "M" procedures. Direct access should not be construed to mean access through telephone or radio conversations with maintenance or other personnel. If the operator chooses to provide the flight crew with access to the MEL by other than printed means, the method must be approved in the operator's MEL program.

29.1.16 METHOD OF AUTHORIZING FLIGHT CREWMEMBER ACCESS TO MEL

(a) OIs may approve a method other than printed means for providing the flight crew with access to the MEL. Before authorizing such a method, the OI must be confident that the operator has an adequate means in place to provide flight crews with the complete equivalent of the actual text of the MEL. This method must be described in detail in the operator's CAA Operations Manual or equivalent. When the decision is made to authorize this alternative method, the OI should use appropriate provisions, by referring the applicable CARs and the appropriate section of the operator's manual.

29.1.17 DISCREPANCIES DISCOVERED DURING FLIGHT

(a) Use of the MEL is not applicable to discrepancies or malfunctions that occur or are discovered during flight. Once an aircraft moves under its own power, the flight crew must handle any equipment failure in accordance with the approved flight manual. A

flight is considered to have departed when the aircraft moves under its own power for the purpose of flight. Discrepancies occasionally occur between the time the flight departs and the time it takes off. If the flight manual contains procedures for handling that discrepancy, or if the pilot in command (PIC) deems that the discrepancy does not affect the safety of flight, the flight may continue. The discrepancy must be addressed prior to the next departure. For those operators who are required to use a dispatch or flight release, the PIC must handle a discrepancy that occurs after the issuance of the release, but before the flight departs, in accordance with the MEL. The PIC must obtain a new or amended dispatch or flight release, as well as any required airworthiness release. This new or amended release must contain any applicable flight restrictions necessary for operation with any item of equipment that is inoperative.

29.1.18 DOCUMENTATION OF DISCREPANCIES

(a) Provisions of the MMEL preamble require that an airworthiness release be issued or an entry be made in the aircraft technical log prior to conducting any operations with items of equipment that are inoperative.

29.1.19 CONFLICT WITH AIRWORTHINESS DIRECTIVES

(a) Occasionally an AD may apply to an item of equipment that may be authorized to be inoperative under the MEL. The item may not simply be deferred under the MEL in order to avoid or delay compliance with the AD. In all cases, when an AD has been issued, the operator must comply fully with the terms of the AD. In other cases, the provisions of an AD may allow operation of the aircraft on the condition that certain items of installed equipment be used or be operable. In those cases, the affected items must be operable even though the MEL may provide for deferral of repair.

29.1.20 INTERRELATIONSHIPS OF INOPERATIVE COMPONENTS

(a) When the MEL authorizes a component of a system to be inoperative, only that component may be affected. When a system is authorized to be inoperative, individual components of that system may also be inoperative. Any warning or caution systems associated with that system must be operative unless specific relief is authorized in the MEL. The operator must consider the interrelationship of inoperative components. This consideration must include the following:

(1) The interrelationship of one piece of equipment on another;

(2) The crew workload;

(3) The operation of the aircraft;

(4) The flight restrictions.

29.1.21 REPAIR CATEGORIES

(a) When an item of equipment becomes inoperative, and repair is deferred under an MEL, the operator must make repairs as specified by the associated repair category designator ("A," "B," "C," or "D") and the operator's MEL management system. In the event that more items are installed then those that are required for normal operation, the "C" repair category may be used. For example, if one altitude alerting system is required and the associated repair category is "B," but there are two such systems installed, failure of the first system could be deferred as specified for a "C" category item (10 days). Failure of the

remaining system would limit at least one system to the repair category for the "B" category item (3 days). See the definitions section of the MMEL for an explanation of repair categories.

29.1.22 MEL FOR LEASED AIRCRAFT

(a) MEL for Leased Foreign Registered Aircraft:

(1) An MEL for a particular leased foreign registered aircraft must not be less restrictive than the CAA approved MEL for the same type of aircraft;

(2) The foreign country of registration of the leased aircraft may require that their aircraft be operated in accordance with their approved MEL, in which case any less restrictive changes to this MEL must be approved by the foreign regulatory authority. In such case the CAA will coordinate with the State of Registry, to ensure that its approval of the MEL does not affect the aeroplane's compliance with the airworthiness requirements applicable in that State.

(b) MELs for Foreign Leased Liberia Registered Aircraft

(1) CAA reviews each lease and approves or accepts the use of an MEL for such aircraft based on whether a bilateral airworthiness agreement or a technical arrangement exists between LCAA and the foreign regulatory authority and it has been determined that the MEL procedures are acceptable.

(2) If there is no agreement between LCAA and the foreign authority a review of the foreign operator's MEL is conducted to determine that it is consistent with the Liberia airworthiness requirements.

29.2 CONFIGURATION DEVIATION LISTS

29.2.1 GENERAL

(a) This section contains information concerning the development and approval processes of configuration deviation lists (CDL). Transport aircraft may be approved for operations with missing secondary airframe and engine parts. Approval for operating with these parts missing would be authorized by the State of aircraft design. Evaluation and approval of CDLs are functions of the State of aircraft design.

29.2.2 DEVELOPMENT AND APPROVAL OF A CDL

(a) An aircraft manufacturer develops a proposed CDL for a specific aircraft type. Engineering specialists submit the proposed CDL to the responsible CAA for approval. The CAA will then co-ordinate with the appropriate aircraft evaluation groups to resolve any problems and discrepancies prior to approving the CDL. The CDL may be a stand-alone document and part of the MMEL or the Structure Repair Manual, incorporated into the limitations section of the aeroplane flight manual (AFM) as an appendix or another manufacturer's document. Some operators may choose to attach a copy of the CDL to their MEL for easy and ready reference by flight crews. The operations inspector, in coordination with the airworthiness may approve the CDL as part of the AFM or operators MEL, based on the originally approved AFM or MMEL by the State of design, as applicable, and the acceptance of the type certificate by the CAA. No changes are allowed to the originally approved document.

29.2.3 USE OF THE CDL

(a) Operators must follow the CDL limitations when operating with a configuration deviation. Operators are required to observe the following:

(1) The limitations in the CDL when operating with certain equipment missing (except as noted in the appendix to the Approved Flight Manual);

(2) The flight operations, restrictions, or limitations that are associated with each missing airframe and engine part;

(3) Any placard(s) required by the CDL describing associated limitations, which must be affixed in the cockpit in clear view of the pilot in command (PIC) and other appropriate crewmembers.

29.2.4 CDL USE APPROVAL

(a) It is the CAA responsibility to ensure that operators comply with any applicable approvals for the use of the CDL, issued by the State of Registry and/or State of Design.

(b) The operations inspector (OI) must ensure that the operator has developed appropriate procedures for the PIC and, if appropriate, procedures for notifying dispatch of the CDL missing parts by an appropriate notation in the aircraft technical logbook or other acceptable means.

29.3 PROCEDURES/ JOB PERFORMANCE SUBTASKS

(a) Receive request from operator for approval to use a Minimum Equipment List (MEL).

(1) Require a MEL to be produced for initial certification.

(b) Open work tracking record.

(c) Access the MMEL for the specific aircraft.

(1) Provide Operator with copy of MMEL.

(d) Evaluate MEL submitted by Operator.

(1) Compare operator's MEL to MMEL.

(2) Disapprove Operators MEL for being less restrictive or not based on the MMEL.

(e) Approve Operator's MEL.

(f) Document the evaluation of the MEL.

(1) Maintain a copy of approved MEL in CAA office.

(2) Update national data base.

(g) Close work tracking record.

29.4 TASK OUTCOMES

(a) *Task Completion.* Successful completion of this task will result in the following:

(1) Approval of the Operator's MEL or CDL;

Date		**Control #**	

(2) Update of operator's information in ISATS database;

(3) Recording of OJT in ITS if applicable.

(b) *Document Task.* File all supporting paperwork in the operator/applicant's office file such as update the aircraft database.

APPENDIX 29-A: JOB AID: AW-024/OP-028-MEL Evaluation

FILE REFERENCE: _____

Name of Operator		**AOC #**	
State of Operator		**Aircraft MMS**	
Location		**Aircraft Reg#**	
Destination		**PIC #**	
Action Taken		**Other PEL#**	

KEY PERSONNEL MET:

	NAME	TITLE
12.		
13.		
14.		
15.		
16.		
17.		

PLEASE CHECK THE APPROPRIATE BOX FOR THE FOLLOWING; SATISFACTORY (S), NOT SATISFACTORY (NS) OR NOT APPLICABLE (N/A). INDICATE REGULATORY OR OTHER REFERENCE(S) FOR NOT SATISFACTORY (NS) ITEMS WHERE APPLICABLE. PROVIDE FURTHER DETAILS IN THE REMARKS SECTION IF REQUIRED.					
		CHECKLIST ITEMS			
REFERENCE	**1**	**EXAMINE AIRWORTHINESS AND REGISTRATION CERTIFICATES TO ENSURE THE FOLLOWING:**	**S**	**NS**	**N/A**
	1.1	Bound in a secure form (not loose)?			
	1.2	Exterior of binder clearly indicates manual content?			
	1.3	Table of contents?			
	1.4	Tabbed by ATA chapter?			
REFERENCE	**2**	**MANUAL CONTROL PROCESS**	**S**	**NS**	**N/A**
	2.1	Copies numbered for controlled issuance (Manual Distribution List).			
	2.2	Amendment issuance tracking process.			
	2.3	GCAA issued numbered volume.			
REFERENCE	**3**	**MANUAL REVISION PROCESS**	**S**	**NS**	**N/A**
	3.1	Revision Instructions adequate.			
	3.2	Revision page for revision entry.			
	3.3	List of effective pages provided and correct.			

	3.4	Last revision to individual pages identified.			
REFERENCE	**4**	**MANUAL REFERENCING SYSTEM**	**S**	**NS**	**N/A**
	4.1	Master table of contents easy to find and use.			
	4.2	Table of contents easy to find and use.			
	4.3	Index, if included, easy to find and use.			
	4.4	Tabbed as necessary for usability without difficulty.			
REFERENCE	**5**	**INDIVIDUAL PAGE PRESENTATION**	**S**	**NS**	**N/A**
	5.1	Page numbered in chronological sequence (by chapter or single document).			
	5.2	Last revision number/ date appears on each page.			
	5.3	Company name and Logo appears on each page except 5.4 below.			
	5.4	If manufacturer's document is submitted in lieu of a company manual, does the manufacturer's name appear on each page.			
	5.5	For all manufacturers' documents submitted, a manufacturer's letter or reference document is provided to substantiate current revision number/date.			
	5.6	ATA chapter identified?			
REFERENCE	**6**	**PARAGRAPH NUMBERING**	**S**	**NS**	**N/A**
	6.1	Paragraphs and sub-paragraphs numbered or alphabetized for ease of reference.			
REFERENCE	**7**	**INDIVIDUAL ITEM PRESENTATION & CONTENT REFERENCING**	**S**	**NS**	**N/A**
	7.1	Proper MMEL-MEL number comparison?			
	7.2	Proper item title?			
	7.3	No item relief other than that shown in MMEL is allowed?			
	7.4	Aircraft for which item is applicable identified by R/N or S/N?			
	7.5	Number of item installed correct?			
	7.6	Aircraft with non-standard installation identified by R/N or S/N?			
	7.7	Correct repair interval listed?			
	7.8	Number required for dispatch conforms to MMEL?			
	7.9	Placarding symbols provided in accordance with MMEL?			
	7.10	(O) & (M) symbols provided in accordance with MMEL?			

	7.11	Remarks correctly aligned with applicable "required" numbers?			
	7.12	Wording of MEL remarks not less restrictive than MMEL (special attention to use of "or" & "and"?			
	7.13	Configuration (# installed/required) allowed is in accordance with all applicable regulations?			
	7.14	All references to applicable regulations converted to remarks format and aligned with "required" number?			
	7.15	All references to "by AFM" converted to remarks format?			
	7.16	Adherence (#installed/required) to all special restrictions applicable to operations authorized for AOC holder included?			
	7.17	All references to operations not authorized to AOC holder deleted?			
	7.18	Tables referenced for ease of use.			
	7.19	Figures referenced for ease of use.			
	7.20	Appendicies referenced for ease of use.			
REFERENCE	**8**	**INDIVIDUAL (O) & (M) PROCEDURES**	**S**	**NS**	**N/A**
	8.1	There is an ops procedure for every MMEL (O) reference?			
	8.2	There is an maint procedure for every MMEL (M) reference?			
	8.3	Procedures provided in accordance with manufacturers MEL dispatch guide conform to the source references?			
	8.4	Maintenance procedures taken from sources other than the manufacturer's dispatch guide are technically correct, meet all remarks and have the source cited?			
	8.5	Operations procedures taken from sources other than the manufacturers MEL dispatch guide are technically correct, not a normal operating procedure and meet all remarks?			
	8.6	No normal operating procedures are provided?			
	8.7	All procedures apply to the "dispatch" of aircraft?			
REFERENCE	**9**	**CDL EVALUATION**	**S**	**NS**	**N/A**
	9.1	CDL properly tabbed in rear of MEL?			
	9.2	CDL contents clearly identified?			
	9.3	CDL items in accordance with current manufacturers guidance?			
REFERENCE	**10**	**MANUAL CONTENTS CONFORMANCE**	**S**	**NS**	**N/A**
	10.1	**Preamble**			
	10.2	**General**			
	10.3	**REFERENCEs / a compliance statement.**			

	10.4	Definitions and Terminology.			
	10.5	Maintenance Actions.			
	10.6	ATA CHAPTERS – (SYSTEMS)			
	10.7	CONFIGURATION DEVIATION LIST			
	10.8	CONFIGURATION DEVIATION LIST SYSTEM			
REFERENCE	11	SPECIAL PROCEDURES	S	NS	N/A
	11.1	RVSM			
	11.2	PBN			
	11.3	CAT II/CAT III			
	11.4	MNPS			
	11.5	EDTO			
	11.6	LOW VISIBILITY			

Item Number	REMARKS

RECOMMENDED APPROVAL	**S .....** **NS .....**	**REASON LISTED FOR NO OPTION:**		
AIRWORTHINESS INSPECTOR NAME & SIGNATURE			**INSPECTOR STAMP**	
OPERATIONS INSPECTOR NAME & SIGNATURE			**INSPECTOR STAMP**	

APPENDIX 29-B: Example of Letter to Operator Approving an MEL

Civil Aviation Authority

[date]

Name
Director of Operations
International Air, Ltd.
Address
AOC #

Dear [Name]:

This letter is to inform you that the Minimum Equipment List (MEL) submitted for approval on June 6 has been approved. The control page (or list of effective pages) has been duly signed.

Sincerely,

Name
Manager of Flight Safety Standards

APPENDIX 29-C: Example of Letter Denying Approval of Mel

[date]
Name
Director of Operations
International Air, Ltd.
Address

Dear (Name):

This letter is to inform you that the Minimum Equipment List (MEL) submitted for approval on June 6 is being returned to your office. A comparison of International Air's MEL against the current Master Minimum Equipment List (MMEL) shows that in the following places International Air's MEL is less restrictive and/or not in accordance with the MMEL or CAA Technical Circular TC 120-004 Approval of an MEL and CDL.

Specifically, these System and Sequence Numbers do not comply with acceptable procedures:
1. Page 24-1, item 3. DC Loadmeter
2. Page 28-1, item 1. Boost Pumps
3. Page 30-3, item 13. Pitot Heater

Additionally, International Air's MEL does not include the required Control Page.
If you have further questions on the MEL approval process, please feel free to contact this office.

Sincerely,

Name
Operations inspector

CHAPTER 30: SPECIAL OPERATIONS APPROVALS

30.1 OBJECTIVE

(a) This chapter provides guidance on the special maintenance and operational approvals Including—

(1) Reduced Vertical Separation Minima (RVSM)

(2) Required Navigation Performance (RNP)

(3) All-Weather Operations (AWO)

(4) Minimum Navigation Performance Specifications (MNPS)

(5) Extended Range Twin-Engine Operations (EDTO)

30.2 REDUCED VERTICAL SEPARATION MINIMUMS (RVSM) APPROVAL

30.2.1 PURPOSE

(a) The purpose of this section is to provide guidance to LCAA personnel in the evaluation and approval of Reduced Vertical Separation Minimums (RVSM).

30.2.2 POLICY

(a) Airspace where RVSM is applied should be considered special qualification airspace. The specific aircraft type or types that the operator intends to use will need to be approved by the LCAA before the operator conducts flight in RVSM airspace. In addition, where operations in specified airspace require approval in accordance with an ICAO Regional Navigation Agreement, an operational approval will be needed. This document provides guidance for the approval of specific aircraft type or types, and for operational approval.

(b) Each aircraft type that an operator intends to use in RVSM airspace should have received RVSM airworthiness approval from the aircraft certificating authority prior to approval being granted for RVSM operations, including the approval of continued airworthiness programs.

(c) It is accepted that aircraft that have been approved in compliance with JAA Information Leaflet No. 23 or FAA Interim Guidelines 91- RVSM satisfy the airworthiness criteria.

(d) The integrity of the design features necessary to ensure that altimetry systems continue to meet RVSM approval criteria should be verified by scheduled tests and inspections in conjunction with an approved maintenance program. The operator should review its maintenance procedures and address all aspects of continued airworthiness that may be relevant.

(e) Adequate maintenance facilities are required to enable compliance with the RVSM maintenance procedures.

(f) Each operator requesting RVSM operational approval must establish RVSM maintenance and inspection practices acceptable to the LCAA that include any required maintenance specified in the data package. Operators of aircraft subject to a continuous airworthiness maintenance program must incorporate these practices in their program.

30.2.3 PROCEDURE

(a) The following materials, together with completed LCAA FORM, should be submitted to the Authority, in sufficient time to permit evaluation, before the intended start of RVSM operations.

(1) *Airworthiness Documents:* Documentation that shows that the aircraft has RVSM airworthiness approval.

(2) *Description of Aircraft Equipment:* A description of the aircraft equipment appropriate to operations in an RVSM environment.

(3) *Training Programs and Operating Practices and Procedures:* Holders of Air Operators Certificates (AOC) may need to submit training syllabi for initial, and where appropriate, recurrent training programs together with other appropriate material(s) to the LCAA.

(4) *Past Performance:* Relevant operating history, where available, should be included in the application. The applicant should show that changes needed in training, operating or maintenance practices to improve poor height keeping performance have been made.

(5) *Minimum Equipment List:* Where applicable, a Minimum Equipment List (MEL), adapted from the Master Minimum Equipment List (MMEL) and relevant operational Directives, should include items pertinent to operating in RVSM airspace.

(6) *Maintenance:* When application is made for operational approval, the operator should present a maintenance program acceptable to the LCAA.

(7) *Plan for Participation in Verification/Monitoring Programs:* The operator should establish a plan acceptable to the LCAA, for participation in any applicable verification/monitoring program. This plan will need to include, as a minimum, a check on a sample of the operator's fleet by an independent height monitoring system, and an analysis of reliability data.

(b) The following items should be reviewed, as appropriate:

(1) Maintenance Manuals.

(2) Structural Repair Manuals.

(3) Standard Practices Manuals.

(4) Illustrated Parts Catalogues.

(5) Maintenance Schedule.

(6) MMEL/MEL.

(c) If the operator is subject to an approved maintenance program, that program should include, for each aircraft type, the maintenance practices stated in the applicable aircraft and component manufacturers' maintenance manuals. In addition, for all aircraft, including those not subject to an approved maintenance program, attention should be given to the following items:

(1) All RVSM equipment should be maintained in accordance with the component manufacturers' maintenance instructions and the performance criteria of the RVSM approval data package.

(2) Any modification or design change that in any way affects the initial RVSM approval should be subject to a design review acceptable to the responsible authority.

(3) Any repairs, not covered by approved maintenance documents, that may affect the integrity of the continuing RVSM approval, e.g. those affecting the alignment of pitot/static probes, repairs to dents or deformation around static plates, should be subject to a design review acceptable to the responsible authority

(4) Built-in Test Equipment (BITE) testing should not be used for system calibration unless it is shown to be acceptable by the aircraft manufacturer or an approved design organization, and with the agreement of the responsible authority.

(5) An appropriate system leak check (or visual inspection where permitted) should be accomplished following reconnection of a quick-disconnect static line.

(6) Airframe and static systems should be maintained in accordance with the aircraft manufacturer's inspection standards and procedures.

(7) To ensure the proper maintenance of airframe geometry for proper surface contours and the mitigation of altimetry system error, surface measurements or skin waviness checks will need to be made, as specified by the aircraft manufacturer, to ensure adherence to RVSM tolerances. These checks should be performed following repairs, or alterations having an effect on airframe surface and airflow.

(8) The maintenance and inspection program for the autopilot will need to ensure continued accuracy and integrity of the automatic altitude control system to meet the height keeping standards for RVSM operations. This requirement will typically be satisfied with equipment inspections and serviceability checks.

(9) Whenever the performance of installed equipment has been demonstrated to be satisfactory for RVSM approval, the associated maintenance practices should be verified to be consistent with continued RVSM approval. Examples of equipment to be considered are:

(i) Altitude alerting.

(ii) Automatic altitude control system.

(iii) Secondary surveillance radar altitude reporting equipment.

(iv) Altimetry systems.

(d) The maintenance procedures should provide that aircraft identified as exhibiting height keeping performance errors that require investigation should not be operated in RVSM airspace until the following actions have been taken:

(1) The failure or malfunction is confirmed and isolated; and,

(2) Corrective action is taken as necessary and verified to support RVSM approval.

(e) Evaluate maintenance training as additional instruction may be necessary to support RVSM approval. Areas that may need to be highlighted for initial and recurrent training of relevant personnel are:

(1) Aircraft geometric inspection techniques.

(2) Test equipment calibration and use of that equipment.

(3) Any special instructions or procedures introduced for RVSM approval.

(f) Evaluate the proposed test equipment for the following:

(1) The test equipment should have the capability to demonstrate continuing compliance with all the parameters established in the data package for RVSM approval or as approved by the responsible authority.

(2) Test equipment should be calibrated at periodic intervals using reference standards whose calibration is certified as being traceable to national standards acceptable to the LCAA.

(g) The approved maintenance program should include an effective quality control program with attention to the following:

(1) Definition of required test equipment accuracy.

(2) Regular calibrations of test equipment traceable to a master standard. Determination of the calibration interval should be a function of the stability of the test equipment. The calibration interval should be established using historical data so that degradation is small in relation to the required accuracy.

(3) Regular audits of calibration facilities both in-house and outside.

(4) Adherence to approved maintenance practices.

(5) Procedures for controlling operator errors and unusual environmental conditions that may affect calibration accuracy.

(h) Approval to operate in designated RVSM for AOC holders will be accomplished thru operations specifications in accordance with Part 9. Each aircraft group for which the operator is granted approval will be listed in the Operations Specification.

(i) Non AOC Holders will be approved by “Letter of Authorization” detailing the information as required for the AOC Operations specifications. These approvals will be valid for a typically 2 years, and may require renewal.

30.3 MONITORING RVSM STANDARDS

30.3.1 PURPOSE

The purpose of this section is to provide guidance to LCAA inspectors in the monitoring and inspection of the programs utilized in maintaining RVSM standards.

30.3.2 GENERAL

(a) The incidence of height keeping errors that can be tolerated in an RVSM environment is small. It is expected of each operator to take immediate action to rectify the conditions that cause an error. The operator should report an occurrence involving poor height keeping to the responsible authority within 72 hours.

(b) The report should include an initial analysis of causal factors and measures taken to prevent repeat occurrences. The assigned LCAA inspector will determine any need for follow up reports.

(c) Occurrences that should be reported and investigated are errors of:

(1) TVE equal to or greater than ±90 m (±300ft),

(2) ASE equal to or greater than ±75 m (±245 ft), and

(3) Assigned altitude deviation equal to or greater than ±90 m (±300ft).

(d) Height keeping errors fall into two broad categories:

(1) errors caused by malfunction of aircraft equipment; and

(2) operational errors.

30.3.3 PROCEDURE

(a) The inspector will review all reports submitted by the organization to evaluate trends, margin of error, reported corrective actions, results of corrective action and any follow-up that may be necessary.

(b) Determine that the operator has procedures in place that make an effective, timely response to each height keeping error.

(c) Review the calibration of precision test equipment used in the maintenance of instruments and systems relating to RVSM. Ensure that all equipment is within the required tolerances.

(d) Review the training records for employees involved in the maintenance/inspection of the RVSM systems. Ensure all are current.

(e) An operator that consistently experiences errors in either category identified in paragraph 30.2.2 above should have approval for RVSM operations suspended or revoked until the required reliability can be achieved. If a problem is identified which is related to one specific aircraft type, then RVSM approval may be suspended or revoked for that specific type within that operator's fleet.

(f) The operator must satisfy the LCAA that the causes of height keeping errors are understood and have been eliminated and that the operator's RVSM programs and procedures are effective. At its discretion and to restore confidence, the LCAA may require an independent height monitoring check of affected aircraft to be performed.

30.4 REQUIRED NAVIGATION PERFORMANCE 10 (RNP-10)

(a) The purpose of this section is to provide policy and direction for obtaining operational approval of Required Navigation Performance 10 (RNP-10) capability. Guidance on airworthiness, continuing airworthiness, and RNP-10 operational approval are provided. The order enables an applicant to be approved as capable of meeting the NAVIGATION ELEMENT requirements when RNP-10 is specified. It does not address communications or surveillance requirements that may be specified to operate on a particular route or in a particular area. Those requirements are specified in other documents such as Aeronautical Information Publications (AIP) and the International Civil Aviation Organization (ICAO) Regional Supplementary Procedures Document (DOC 7030).

(b) While it is not anticipated at this time such operations will be applied for in Liberia, the background information and procedures are made a part of this manual for future use.

30.4.1 POLICY STATEMENT

(a) This guidance applies to all operators conducting operations under LCAR Part 9.

(b) The guidance is consistent with requirements that each AOC holder, operating a civil aircraft of Liberia registry outside of Liberia, to comply with ICAO, Annex 2, when over the high seas, and to comply with the Directives of a foreign country when operating within that country's airspace.

30.4.2 PROCEDURES

(a) General. To obtain operational approval, aircraft eligibility must be determined, appropriate flightcrew procedures for the navigation systems to be used must be identified by the applicant (e.g., Class II Nav procedures); and database use and operating procedures must be evaluated, if applicable. Then appropriate operations specifications or a letter of authorization (LOA) may be issued, as applicable to the operator.

(b) RNP-10 requires that each individual aircraft must be determined to be qualified, and the individual operator must be approved by LCAA before the operator conducts flight in RNP-10 airspace.

(c) The Advisory Circular provides guidance for the approval of operators for flight in airspace where RNP-10 is applied, and provides guidance on aircraft certification where RNP-10 eligibility cannot otherwise be determined, or where the operator chooses to lengthen RNP-10 approval time limits. The following paragraphs provide application guidelines for operators desiring to obtain RNP-10 operational approvals. Appendix 1 is a combined operator's and inspector's Job Aid that provides a concise summary of the steps required to complete the approval process.

(d) Determining Eligibility and Approval of Aircraft for RNP-10. Many aircraft and navigation system types currently in use in oceanic or remote area operations will qualify for RNP-10 based on one or more provisions of existing certification criteria. Thus, additional aircraft certification action may not be necessary for the majority of RNP-10 approvals. In these instances, additional aircraft certification will only be necessary if the operator chooses to claim additional performance beyond that originally certified or stated in the Airplane Flight Manual (AFM) and if the operator cannot demonstrate the desired performance through data collection, evaluate the procedures for corrective action following any engine

shut-down, primary system failure, adverse trend or any other prescribed event that may require a verification flight or other follow- up action to ensure accomplishment.

(e) Eligibility Airworthiness Documents. Sufficient documentation should be available to establish that the aircraft has an appropriate AFM Supplement (AFMS), if applicable, and is otherwise suitably qualified to fly the intended routes (e.g., long-range navigation, communication).

(f) The applicant should provide a configuration list which details pertinent components and equipment to be used for long range navigation and RNP-10 operations.

(g) Maintenance. The operator should submit a maintenance program for approval in accordance with the following at the time the operator applies for operational approval.

(1) MEL. If RNP-10 operational approval is granted on the basis of a specific operational procedure (such as credit for Triple-Mix), operators should make MEL adjustments specifying the required dispatch conditions.

(2) CONTINUING AIRWORTHINESS (MAINTENANCE REQUIREMENTS).Aircraft in Group 1, Group 2, and Group 3 should have an established maintenance program for the individual navigation systems. For others installing navigation systems, the operator will submit those changes appropriate to their existing maintenance manual for review and acceptability.

(h) The advisory circular throughout the authorization process is required as it is a lengthy and complicated certification task.

30.5 ALL WEATHER OPERATIONS APPROVALS

(a) The purpose of this section is to provide LCAA Airworthiness personnel with the necessary guidance to evaluate and approve an operator's application/request for all weather operations.

(b) Definitions of terms used in all-weather operations:

(1) Low visibility as used in this context is taken to mean landing with minima less than Cat I or take-off with visibility less than 800 m

(2) **Cat I** means a precision approach with a decision height (DH) not lower than 200 ft and a visibility of not less than 800 m or RVR not less than 500m.

(3) **Cat II** means a precision approach with a DH between100ft and 200ft, and RVR not less than 350m.

(4) **Cat IIIA** means a precision approach with a DH below 100ft or no DH, and RVR not less than 200m.

(5) **Cat IIIB** means a precision approach with a DH lower than 50ftorwithno DH, and RVR between 200 m and 50m.

(6) **Cat IIIC** means a precision approach with no DH and no RVR limitations.

30.5.1 POLICY

(a) Before operators commence low-visibility operations using an auto-land facility, LCAA should be satisfied that the operator is adequately prepared. This requires an assessment of the following matters:

(1) Aircraft certification and equipment

(2) Maintenance procedures

(3) Demonstration of achievement of required accuracy

(4) Internal reporting system of results of auto-lands

(5) Crew training and procedures

(6) Recency standards

(7) Operations Manual material

(8) Airport evaluation

(9) Environmental limits.

(b) The aircraft must be certified for auto-land and the Flight Manual should indicate the minimum equipment that satisfies the certification requirement — for example, the number of serviceable autopilots, radio altimeters, auto-brake etc.

(c) Minimum equipment requirements for the conduct of auto-lands must also be included in the MEL.

(d) The operator must include in the Aircraft Maintenance Program any special maintenance requirements that the manufacturer has specified for auto-land operations.

(e) The accuracy with which the aircraft is delivered to the runway during an auto-land may depend upon the physical characteristics of the runway, the ILS, wind velocity and gradient, or upon the maintenance system in so far as all components of the auto-land system and the integrated system itself are operating within tolerance.

(f) With the introduction of a new aircraft type or when first introducing auto-landings, the operator should conduct a series of trials in VMC conditions to confirm that acceptable results are being obtained. At least the first five landings should be made during training flights without passengers and conducted, preferably, by a nominated company 'development pilot'. Significant displacement either laterally or longitudinally or "firm" landings should be investigated and the cause rectified. Trials should continue until ten consecutive acceptable landings are achieved.

(g) The company should initiate a system of pilot reporting where the crew fills out an appropriate form after each auto-land. This provides assistance in fault rectification for unsuccessful auto- lands and is a means of providing trend information for the maintenance system.

(h) To assist in the maintenance process for system reliability, at least the following topics must be addressed in the Operations Manual:

(1) Minima to be used for auto-land Nomination of 'monitoring pilot' and 'lookout pilot' (lookout when approaching minima)

(2) Limitations on conduct of auto-lands including recency, nominated crew etc.

(3) Action in the event of system failures

(4) Auto-coupled approaches to runways not cleared for auto-land, such as those subject to cross, head, tail wind and gust limitations

(5) Reporting and MEL requirements.

(i) LCAA inspectors may find the following references useful in evaluating an operators program.

(1) JAR-AWO Subpart 2 (CATII), Subpart 3(CATIII).

(2) FAA Advisory Circular 120-28C, Criteria for Approval of Category II Landing Weather Minima, as amended

(3) FAA Advisory Circular 120-29, Criteria for Approving Category I and Category II Landing Minima for FAR 121 Operators, as amended

30.5.2 PROCEDURES

(a) The Principal Operations Inspector has the primary responsibility to grant the operator approval for lower minimums. It is the Airworthiness (Avionics) Inspector's responsibility to evaluate and approve the avionics requirements and associated support programs. Successful completion of this task will therefore consist of coordination with the Operations ASI for final approval of all original Category II and IIIa operations.

(b) The Avionics Inspector must review the applicant's Maintenance/Inspection Program to ensure that it contains control and accountability of the following:

(1) All maintenance accomplished on lower minimum required systems and equipment

(2) All alterations to systems and equipment

(3) Approach status of each aircraft at all times

(4) Evaluations of self-test, Built-In Test Equipment (BITE), or Automated Test Equipment (ATE) to ensure stability

(5) Spare equipment

(6) Maintenance calibration, use of test equipment, records/reporting requirements

(7) Repetitive and chronic discrepancies to ensure the affected aircraft remains out of lower minimums approach status until positive corrective actions is made

(8) All aircraft in the fleet that have not been evaluated for lower minimums approaches

(c) Review the Existing Maintenance/Inspection Programs. Ensure that the existing maintenance/inspection program has procedures for the following:

(1) Identifying chronic discrepancies and corrective action follow-up

(2) Keeping aircraft with chronic and/or repetitive discrepancies out of a lower minimum status until positive corrective action is taken

(3) Training maintenance personnel assigned to reliability analysis

(4) Initial evaluation checks for existing aircraft for new aircraft to the fleet before inclusion in the operator's lower minimum operations

(5) Identification of all components used in the lower minimum systems in the existing parts pool, parts borrowing procedure, and control of spare parts

(6) Ensuring that calibration standards for all test equipment used for maintaining lower minimum systems and equipment are met

(7) Ensuring that each flight crew and persons with operational dispatch authority are aware of any equipment malfunction that may restrict lower minimum operations

(d) Review the Functional Flight Checks. If a functional flight check has been submitted, ensure that the following information is included:

(1) Maintenance clearance and/or concurrence before an aircraft is returned to a lower minimum status, even if the functional flight check was found to be satisfactory

(2) Request for a flight check by maintenance in the aircraft log

(3) Maintenance entry acknowledging the results and the action taken

(e) Evaluate the Supporting Data. Unless the applicant provides supporting approval data, the Avionics Inspector should coordinate with the Operations Inspector and the aircraft Type Certificate Holding Authority to determine the acceptability of each aircraft for the authorizations requested.

(f) Review, the Minimum Equipment List (MEL) to ensure that all appropriate sections have been revised to identify Category II required systems and special procedures, if applicable.

(g) Review the Personnel Training Requirements. Ensure there are procedures for the following:

(1) Ensuring personnel contracted to perform Category II related maintenance are qualified and the program requirements are made available to these persons

(2) Training and/or recurrent training for the operator’s maintenance personnel. Personnel not qualified to perform maintenance on Category II systems and equipment, including flight crew and dispatch, should be trained in the airworthiness release requirements of the lower minimums program.

(h) The All Weather Operations Conformance Checklist must be submitted by the operator and evaluated and accepted by Avionics and Operations Inspectors.

(i) After all requirements have been adequately addressed the approval of the maintenance procedures will be accomplished and reported to the appropriate operations Inspector for operational approval.

30.6 MINIMUM NAVIGATION PERFORMANCE SPECIFICATIONS (MNPS) APPROVALS

(a) This section is to give guidance in the evaluation and authorization of North Atlantic Minimum Navigation performance Specifications airspace (NAT/MNPS).

30.6.1 POLICY STATEMENT

(a) Airspace where MNPS is applied should be considered special qualification airspace. The specific aircraft type or types that the operator intends to use will need to be approved by the LCAA before the operator conducts flight in MNPS airspace. In addition, where operations in specified airspace require approval in accordance with an ICAO Regional Navigation Agreement, an operational approval will be needed. This document provides guidance for the approval of specific aircraft type or types, and for operational approval.

(b) Each aircraft type that an operator intends to use in MNPS airspace should have received MNPS airworthiness approval from the aircraft certificating authority prior to approval being granted for MNPS operations, including the approval of continued airworthiness programs.

(c) The NAT/MNPS, as implemented in the North Atlantic Region, is a demanding standard. Safety of flight in this airspace is critically dependent on each operator achieving and continuously maintaining a high level of navigation accuracy. The operator must obtain this approval for each airplane and navigation/system combination used for operations in this airspace. To obtain MNPS approval, the operator must show compliance with the following conditions:

(1) Each aircraft is suitably equipped and capable of meeting the MNPS standards

(2) The operator has established operating procedures that ensure MNPS standards are met

(3) The flight crews are trained and capable of operating to MNPS requirements

(d) Each operator requesting MNPS operational approval must establish maintenance and inspection practices acceptable to the LCAA that include any required maintenance specified in the data package. Operators of aircraft subject to a continuous airworthiness maintenance program must incorporate these practices in their program.

30.6.2 PROCEDURES

(a) **Initial NAT/MNPS Approvals**. Each operator, and each aircraft and navigation system combination must be approved before operating in NAT/MNPS airspace. Each operator must demonstrate (validate) that it can meet MNPS standards before receiving approval.

(1) Validation flights must be conducted through NAT/MNPS airspace.

(2) Inspectors must ensure that requirements of the applicable Advisory Circular(s) and/or other official documentation for Loran-C, Global Positioning System (GPS),

or Multi-Sensors (or equivalent) are fully met by the operator before approving any operation in this airspace. All NAT/MNPS approvals are granted by issuing OpSpecs and by adding that area of en route operation to the standard OpSpecs.

(3) Approval for Operations Using GPS in North Atlantic Minimum Navigation Performance Specifications Airspace. The navigation specialists will provide guidance on process and procedures for confirming the operator's capability to meet the requirements. The operator is not required to collect navigation performance data in NAT/MNPS airspace to apply to Pass/ Fail graphs.

(b) The NAT/MNPS represents navigational performance (necessary to reduce the risk of collision) on a internationally established level. While the NAT MNPS airspace currently does not have a published RNP value, it is anticipated that in the future an RNP requirement will be implemented. The MNPS establishes the following demanding criteria:

(1) The average lateral deviation (for any cause) cannot be greater than 6.3 nautical miles (nm) from the centerline of the assigned route over any portion of the route.

(2) Ninety-five percent of all of the lateral displacements (for any cause) from the centerline of the assigned route cannot be greater than 12.6 nm for all flights over any portion of that route.

(3) Each operator cannot have more than 1 lateral deviation (for any cause) of 30 nm or more in 1,887 flights in the NAT/MNPS airspace. When errors of these magnitudes occur, the aircraft has failed to navigate to the degree of accuracy required for the control of air traffic.

(4) Each operator cannot have more than 1 lateral deviation (for any cause) which is within ±10 nm of a multiple of the separation minimums applied in 7,693 flights in the NAT/MNPS airspace. NAT/MNPS airspace routes are separated by 60 nm. If an error of 50 - 70 nm occurs, the aircraft has blundered into the airspace of an adjacent route. Errors of these magnitudes are extremely serious. The potential for a collision is high because the resulting flight path can overlap the flight path assigned to another aircraft (possibly coming from the opposite direction).

(c) Maintaining NAT/MNPS Authorization.

(1) In addition to initially meeting MNPS criteria, each operator must continuously maintain the required level of navigational performance. Each gross navigational error (errors 25 nm or more) has a significant impact on flight safety in this airspace and must be fully investigated in a timely manner. The cause of each error must be identified and effective action must be taken to prevent reoccurrence of similar errors. Gross navigational errors (GNE) are detected by ATC and reported to one of the regional monitoring agencies of the world. The regional monitoring agency then provides the notification of the GNE to not only the operator that made the GNE but also to the navigation specialists in AFS-400 at headquarters. The navigation specialists in turn review the GNE and contact the appropriate Flight Standards office.

(2) When an inspector learns of a GNE by one of his/her operators, the inspector must immediately contact the operator and advise that the GNE will be investigated. The inspector must ensure that the operator takes timely corrective action. After this notification, inspectors must determine the effectiveness of the operator's actions as follows:

(i) If it is determined that an operator's actions will prevent the occurrence

of similar errors, the operator should be permitted to continue NAT/MNPS operations with close surveillance of the operator's navigational performance. If similar errors occur (in subsequent operations) more frequently than permitted by the standard, stronger action must be taken.

(ii) If an operator fails to take action to improve navigation performance, action must be initiated to suspend NAT/MNPS authorization (operations specification B039 is rescinded).

(iii) If it is determined that an operator's actions to improve navigational performance are inadequate or otherwise unsatisfactory, the operator must be notified that the corrective action is unacceptable. When an operator does not implement a satisfactory solution in a timely manner, the action must be initiated to suspend NAT/MNPS authorization and could include enforcement action.

(d) Canadian MNPS airspace.

(1) Certain high altitude airspace in Northern Canada has been designated as MNPS airspace (see the Canadian Aeronautical Information Publication (AIP)). The navigational performance criteria for operation in Canadian MNPS airspace is identical to the criteria for NAT/MNPS airspace.

30.7 EXTENDED RANGE TWIN ENGINE (EDTO) APPROVALS

30.7.1 OBJECTIVE

(a) The purpose of this section is to provide LCAA inspectors with the information necessary to properly evaluate and approve the airworthiness requirement for extended range operations. (EDTO) by aircraft with a maximum certificated take-off mass exceeding 5700 kg and powered by two turbine engines.

(b) While it is not anticipated at this time such operations will be applied for in Liberia, the background information and procedures are made a part of this manual for future use.

30.7.2 POLICY STATEMENT

(a) Approval for EDTO flight times of more than 60 minutes requires an assessment by:

(1) Airworthiness Engineers for design and reliability;

(2) Airworthiness Inspectors (Maintenance & Avionics) for maintenance factors; and

(3) Operations inspectors for airports, minimums, facilities, procedures and crew training.

(b) ICAO Standards containing the basic requirements for the approval of EDTO are contained in Annex 6, Part I, 4.7. Attachment E of the Annex contains guidance on the setting of a threshold time and on the means of achieving the required level of safety. Part III, Section 5, Chapter I of the Airworthiness Technical Manual contains guidance on the assessment of the level of performance and reliability of systems.

(c) In considering an application from an operator to conduct EDTO, the LCAA should make an assessment of the operator's over-all safety record, past performance, training and maintenance programs. The data provided with the application should substantiate the operator's ability and competence to safely conduct and support these operations and should include the means used to satisfy the airworthiness considerations outlined. Any reliability assessment obtained, either through analysis or service experience, should be included in the evaluation.

(d) The LCAA should evaluate the operator's ability to achieve and maintain the level of propulsion system reliability achieved by the world fleet. The evaluation should include trend comparisons of the operator's data with other operators as well as the world fleet average values and the application of a qualitative judgment that considers all of the relevant factors. The operator's past record of engine reliability with related types of powerplants should also be reviewed, as well as the record of achieved systems reliability with the airframe-engine combination for which authorization is sought to conduct EDTO.

(e) Although these considerations are normally part of the operator's continuing airworthiness program, the maintenance and reliability program may need to be supplemented in consideration of the special requirements of EDTO. The following items, as part of the operator's program, should be reviewed to ensure that they are adequate for EDTO.

(1) *Engineering modifications.* The operator should provide the titles and numbers of all modifications, additions and changes which were made in order to substantiate the incorporation of the configuration, maintenance and procedures (CAMP) standard for the aircraft used in EDTO.

(2) *Maintenance procedures.* Following approval of the changes in the maintenance and training procedures, substantial changes to maintenance and training procedures, practices or limitations established to qualify for EDTO should be submitted before such changes may be adopted.

(3) *Reliability reporting.* The reporting requirement of the reliability program as supplemented and approved, should be implemented prior to and continued after approval of EDTO. Data from this process should result in a suitable summary of problem events. Reliability trends and corrective actions should be provided regularly to the LCAA and to the concerned airframe and engine manufacturers.

(4) *Modifications and inspections implementation.* Approved modifications and inspections that would maintain the reliability objective for the propulsion system and airframe systems as a consequence of AD actions and revised CAMP standards should be promptly implemented. Other recommendations made by the engine and airframe manufacturers should also be considered for prompt implementation. This would apply to both installed and spare parts.

(5) *Aircraft dispatch procedures.* Procedures and centralized control processes should be established which would preclude an aeroplane's being dispatched for EDTO after propulsion system shut-down or primary airframe system failure on a previous flight, or significant adverse trends in system performance, without appropriate corrective action having been taken. Confirmation of such action as being appropriate may, in some cases, require successful completion of one or more non-revenue or non-EDTO revenue flights (as appropriate) prior to dispatch on an EDTO.

(6) *Maintenance program.* The operator's maintenance program should ensure that the airframe and powerplant systems will continue to be maintained at the level of performance and reliability necessary for EDTO, including engine condition monitoring and engine oil consumption monitoring programs.

(f) The nature of EDTO necessitates a re-examination of the dispatch systems to ensure that they are adequate for EDTO. Systems redundancy levels appropriate to EDTO should be reflected in the Master Minimum Equipment List (MMEL). An operator's minimum equipment list (MEL) may be more restrictive than the MMEL considering the kind of EDTO proposed and equipment and service problems unique to the operator. Systems considered to have a fundamental influence on flight safety may include, but are not limited to:

(1) electrical, including battery;

(2) hydraulic,

(3) pneumatic,

(4) flight instrumentation;

(5) fuel;

(6) flight control;

(7) ice protection;

(8) engine start and ignition;

(9) propulsion system instruments;

(10) navigation and communications;

(11) auxiliary power-units;

(12) air conditioning and pressurization-,

(13) cargo fire suppression;

(14) engine fire protection;

(15) emergency equipment-, and any other equipment required for EDTO.

30.7.3 PROCEDURES

(a) The LCAA Airworthiness inspector must consider the following in conducting evaluation and approval of submitted programs for EDTO.

(1) Does the aircraft model have an EDTO Type Design Approval from the country of manufacture?

(2) The world fleet in-service experience for the particular airframe/engine combination.

(3) IF the applicant's system of maintenance is designed to achieve the required reliability.

(4) An EDTO MEL submitted, describing the systems/equipment that must be serviceable for departure on an EDTO route.

(5) Reliability and ETOP suitability relate to all principle systems on the aircraft, and not just the engines. One limiting factor could be cargo-hold fire suppressant capability.

(b) The major components of the EDTO airworthiness program are to be evaluated as independent programs integrated into a final reliability consideration. The LCAA inspector will evaluate each as outlined in the followings paragraphs.

(c) Evaluate the Engine Condition Monitoring program. It should reflect the manufactures instructions and industry practices, describing parameters to be monitored, the method of data collection, and the corrective action process. The program should provide for engine limit margins to preclude any prolonged single engine diversion exceeding approved engine limits at all power levels and environmental conditions.

(d) Evaluate the procedures for corrective action following any engine shut-down, primary system failure, adverse trend or any other prescribed event that may require a verification flight or other follow-up action to ensure accomplishment.

(e) If the operator currently has an approved reliability program it must be re-evaluated to ensure that all required revisions or supplements has been included to provide for EDTO considerations.

(f) If the operator does not currently utilize a reliability program, one must be developed for EDTO. The program should be designed to provide for early identification and prevention of EDTO related problems. The program should be event oriented and incorporate reporting procedures for significant events. There must be a method of reporting events and reliability information to the LCAA in a timely manner.

(g) Ensure that the items identified to be reported to the LCAA include—

(1) Engine in-flight shut-downs

(2) Diversions or turn-backs

(3) Un-commanded power changes or surges

(4) Inability to control the engine or obtain desired power

(5) Problems with systems critical to EDTO

(6) Any other event detrimental to ETOP.

(h) Review the reporting format intended for use by the operator. It should include in addition to the information required above the following data:

(1) The aircraft identification (make, model, serial number)

(2) The engine identification (make, model, serial number)

(3) Total time, cycles and time since last shop visit

(4) If systems, identification and time since last overhaul or last inspection of the defective component

(5) Phase of flight

(6) Corrective action

(i) Review the training program to ensure EDTO training in addition to the general training for the personnel that will be involved in the EDTO program. The EDTO program should

identify the personnel that have completed the training and have satisfactorily accomplished EDTO task under supervision as" Authorized Personnel".

(j) Evaluate the parts control program to ensure that the proper parts and configuration are available and maintained to the standards for EDTO. The parts control should program provide for notification to all involved personnel if parts identified and maintained for EDTO are not installed in the aircraft.

(k) Extended range operations are formally approved by operations specification (D-86). The approval documents must specify:

(1) The aircraft make, model and maximum diversion time

(2) The Identification of the reliability program including date

(3) The identification of the CMP including date and amendment number

(l) A completed Conformance Checklist Shall be submitted by the operator and evaluated by the responsible Inspectors.

(m) After acceptance of the Conformance checklist, the operator shall be inspected in accordance with Job Aid. Both Documents are to be placed into the operator file.

30.7.4 MONITORING OF EDTO OPERATIONS

(a) This chapter provides guidance for ensuring that the operator's program for EDTO continues to include the monitoring, corrective action and reporting necessary to maintain its aircraft at a level of reliability necessary.

30.7.4.1 General

(a) EDTO reliability reports are required to be submitted by the operator containing information relative to events that have impact of the reliability level of the aircraft, engines and systems. The determination that the level is adequate for the operators' competence and capability to safely continue EDTO operations must be made by the LCAA in conjunction with the operator.

(b) The Engine Condition Monitoring program describes parameters to be monitored, the method of data collection, and the corrective action process. The program should provide for engine limit margins to preclude any prolonged single engine diversion exceeding approved engine limits at all power levels and environmental conditions.

(c) The procedures for corrective action following any engine shut-down, primary system failure, adverse trend or any other prescribed event that may require a verification flight or other follow- up action to ensure accomplishment.

(d) A reliability program should be designed to provide for early identification and prevention of EDTO related problems. The program should be event oriented and incorporate reporting procedures for significant events. There must be a method of reporting events and reliability information to the LCAA in a timely manner.

(e) Ensure that the items identified to be reported to the LCAA include:

(1) Engine in-flight shut-downs

(2) Diversions or turn-backs

(3) Un-commanded power changes or surges

(4) Inability to control the engine or obtain desired power

(5) Problems with systems critical to EDTO

(6) Any other event detrimental to ETOP.

(f) Review the reporting format intended for use by the operator. It should include in addition to the information required above the following data:

(1) The aircraft identification (make, model, serial number)

(2) The engine identification (make, model, serial number)

(3) Total time, cycles and time since last shop visit

(4) If systems, identification and time since last overhaul or last inspection of the defective component

(5) Phase of flight

(6) Corrective action

(g) EDTO training in addition to the general training for the personnel that will be involved in the EDTO program should be provided and documented. The EDTO program should identify the personnel that have completed the training and have satisfactorily accomplished EDTO task under supervision as" Authorized Personnel".

30.7.4.2 Procedure

(a) Monitoring an EDTO program is an ongoing responsibility of the LCAA. Each reliability and/or malfunction report submitted by an operator should be immediately reviewed and evaluated for program impact.

(b) Determine that the operator is following the policy and procedures that are required for maintenance thru reliability methods including data collection, analysis, establishing alert values, corrective action, follow-up and reporting.

(c) In addition to the review of the above reports the LCAA inspector should ensure that the procedures utilized are the same as the approved manual.

(d) Inspect the engine/APU oil consumption program, recording requirements and corrective action procedures.

(e) Inspect the engine condition monitoring program to ensure all identified parameters are:

(1) Being monitored

(2) The data is being collected in the method approved

(3) The corrective action process is being followed.

(f) Review the training program for inclusion of EDTO related procedures and/or task.

(g) Inspect training records to ensure all personnel identified as "Authorized Personnel" have documented formal and OJT training on all EDTO parameters.

(h) Inspect parts configuration control and determine that all parts are identified in accordance with the CMP document. Determine that spare parts are properly identified and controlled.

(i) Review logbooks to determine that:

(1) Reportable items noted in logbooks are reflected in the programs

(2) MEL items are properly handled regarding EDTO items

(3) Engine monitoring data is properly recorded

(4) Engine and APU oil consumption is recorded

(j) Review and discuss the operator's reliability assessment of his systems for the extended range fleet. Review as a minimum:

(1) Engine hours flown for the assessment period

(2) In-flight shutdown rate for all causes

(3) Engine removal rate computed on a 12 month rolling average

(k) Determine, based on the above review and inspections if corrective action to any program or procedure is necessary or if any operational restrictions should be implemented.

(l) Record the activity in the office activities reporting system and forward any safety resolution items to the operator with a cover letter.

APPENDIX 30-A: JOB AID: AW-035 RVSM EVALUATION

FILE REFERENCE: _____

Date		**Control #**	
Name of Operator		**AOC #**	
State of Operator		**Type of Aircraft**	
Location		**Aircraft Reg#**	
Destination		**PIC #**	
Action Taken		**Other PEL#**	

KEY PERSONNEL MET:

	NAME	TITLE
18.		
19.		
20.		
21.		
22.		
23.		

PLEASE CHECK THE APPROPRIATE BOX FOR THE FOLLOWING; SATISFACTORY (S), NOT SATISFACTORY (NS) OR NOT APPLICABLE (N/A). INDICATE REGULATORY OR OTHER REFERENCE(S) FOR NOT SATISFACTORY (NS) ITEMS WHERE APPLICABLE. PROVIDE FURTHER DETAILS IN THE REMARKS SECTION IF REQUIRED.					
		CHECKLIST ITEMS			
REFERENCE	**1**	**RVSM MAINTENANCE PROCEDURES**	**S**	**NS**	**N/A**
	1.1	Is the proposed aircraft certified for RVSM? TD or AFM			

AIRCRAFT CONFIGURATION	
● **Aircraft Make & Model?**	
● **Engine Make & Model & Serial Number?**	
● **Engine Make & Model & Serial Number?**	
● **Engine Make & Model & Serial Number?**	
● **Engine Make & Model & Serial Number?**	

	1.2	Are components considered to be RVSM critical identified and listed?			

REFERENCE		RVSM MAINTENANCE PROCEDURES (Conti..)	S	NS	N/A
	1.3	Are structural areas noted as RVSM critical areas identified and listed?			
	1.4	Is the name or title of the person who will ensure that the aircraft is maintained in accordance with the approved programme included?			
	1.5	Does the method the operator will use to ensure that all personnel performing maintenance on the RVSM system are properly trained, qualified, and knowledgeable of that specific system?			
	1.6	Does the MEL identify systems and equipment that are required for RVSM?			
	1.7	Is the method the operator will use to notify the crew if the aircraft has been restricted from RVSM but is airworthy for an intended flight identified?			
	1.8	Is the method the operator will use to ensure conformance to the RVSM maintenance standards, including the use of calibrated and appropriate test equipment described?			
	1.9	Is there a quality assurance programme for ensuring continuing accuracy and reliability of test equipment, especially when outsourced?			
	1.10	Is the method the operator will use to verify that components and parts are eligible for installation in the RVSM system identified?			
	1.11	Are there procedures to prevent ineligible parts from being installed?			
	1.12	Is the method the operator will use to return an aircraft to service after maintenance has been performed on an RVSM component/system or after the aircraft was determined to be non-compliant defined?			
REFERENCE	**2**	**CONTINUED AIRWORTHINESS ISSUES**	**S**	**NS**	**N/A**
	2.1	Are there provisions for Periodic inspections, functional flight tests, and maintenance and inspection procedures for ensuring continued compliance with the RVSM aircraft requirements?			
	2.2	Are the maintenance requirements listed in Instructions for Continued Airworthiness (ICA) associated with any RVSM associated component or modification identified?			
	2.3	Does the Operator plan to participate in a monitoring programme?			
REFERENCE		**CONTINUED AIRWORTHINESS ISSUES (Conti..)**	**S**	**NS**	**N/A**
	2.4	Does the Monitoring Programme include method of scheduling?			

	2.5	Does the programme have provisions for monitoring the results?			
	2.6	Is there an "altitude error" reporting system in place?			
	2.7	Are other maintenance items the operator incorporated to ensure continued compliance with RVSM requirements identified and appropriate?			
REFERENCE	**3**	**USE OF AMO SERVICE PROVIDERS**	**S**	**NS**	**N/A**
	3.1	Operators using the services of an Approved Maintenance Organization must include provisions to ensure that the requirements of their RVSM programmes are being met.			

Item Number	REMARKS

INSPECTOR NAME		**ORG REP NAME**	
INSPECTOR SIGNATURE		**ORG REP SIGNATURE**	

APPENDIX 30-B: JOB AID: AW-033 EDTO Evaluation

FILE REFERENCE: _____

Date		**Control #**	
Name of Operator		**AOC #**	
State of Operator		**Type of Aircraft**	
Location		**Aircraft Reg#**	
Destination		**PIC #**	
Action Taken		**Other PEL#**	

KEY PERSONNEL MET

	NAME	TITLE
1.		
2.		
3.		
4.		
5.		
6.		

PLEASE CHECK THE APPROPRIATE BOX FOR THE FOLLOWING; SATISFACTORY (S), NOT SATISFACTORY (NS) OR NOT APPLICABLE (N/A). INDICATE REGULATORY OR OTHER REFERENCE(S) FOR NOT SATISFACTORY (NS) ITEMS WHERE APPLICABLE. PROVIDE FURTHER DETAILS IN THE REMARKS SECTION IF REQUIRED.					
		CHECKLIST ITEMS			
REFERENCE	**1**	**Configuration, Maintenance Procedures Document (CMP)**	**S**	**NS**	**N/A**
	1.1	Has the applicant supplied the applicable Configuration, Maintenance and Procedures (CMP) document listed in the aircraft's AFM, or TDS, or STC?			
	1.2	Does the operator have a contract to receive the latest revisions to the CMP? Non Vietnam registered AC only, LCAA freezes CM)			
REFERENCE		**Configuration, Maintenance Procedures Document (CMP)**	**S**	**NS**	**N/A**
	1.3	Is the supplied CMP applicable to the proposed airframe engine combination?			
	1.4	Does the supplied CMP have the signed approval statement from the authority of the country of manufacturer?			
	1.5	Is the application for EDTO approval within the times listed in he CMP approvals for that configuration?			

	1.6	Are applicable Service Bulletins listed in the CMP complied with?			
	1.7	Does the operator have procedures to require priority action (before the next EDTO flight) in regards to revisions to the CMP?			
	1.8	Does the operator have procedures to supply the LCAA copies of all revisions received by them with notations as to actions taken?			
	1.9	Does the operator have the required EDTO CMP compliance statement, applicable to the specific aircraft, from the authority of the country of manufacturer? (Only applicable to aircraft specifically manufactured to EDTO standards)			
	1.10	Has all special requirements/retrofits listed in the compliance statement been accomplished?			
	1.11	Does the operator receive the manufacturer's industry EDTO reliability reports?			
	1.12	Does the operator have procedures to compare its EDTO operations to the industry standards?			
REFERENCE	**2**	**WEIGHT & BALANCE**	**S**	**NS**	**N/A**
	2.1	Has the operator established a specific EDTO Maintenance Manual?			
	2.2	Does the manual provide for an Engine Oil Consumption Programme?			
	2.3	Does the manual provide for an APU Oil Consumption Programme?			
	2.4	Does the manual provide for an Engine Condition Monitoring Programme?			
	2.5	Does the manual provide for a Reliability Programme?			
	2.6	Does the manual provide for a Propulsion System Monitoring Programme?			
	2.7	Does the manual provide for Maintenance Training?			
REFERENCE		**WEIGHT & BALANCE**	**S**	**NS**	**N/A**
	2.8	Has the operator established a specific EDTO Maintenance Manual?			
	2.9	Does the manual provide for EDTO Parts Control?			
	2.10	Does the manual provide for Aircraft Performance Monitoring?			
	2.11	Does the manual provide for monitoring of Sub-Contact Maintenance?			
	2.12	Does the manual contain the additional maintenance			

		procedures required to ensure EDTO requirements are met?			
	2.13	Does the manual specify the EDTO Critical Systems?			
	2.14	Does the manual provide for a Continued Airworthiness Programme needed for EDTO operation?			
	2.15	Does the manual spell out specific EDTO responsibilities?			
	2.16	Does the manual spell out specific EDTO requirements?			
	2.17	Does the manual spell out specific EDTO limitations?			
	2.18	Does the manual spell out specific EDTO interfaces?			
	2.19	Does the manual spell out specific EDTO duties?			
	2.20	Does the manual spell out specific EDTO programme procedures?			
	2.21	Does the manual have EDTO specific Technical Log procedures?			
	2.22	Is the manual subject to revision control?			
	2.23	Does the programme contain Deferred Item procedures for EDTO related systems?			
REFERENCE	**3**	**EDTO Continued Airworthiness Programme**	**S**	**NS**	**N/A**
	3.1	Has the basic maintenance programme been supplemented with EDTO tasks?			
	3.2	Does the programme clearly define EDTO related tasks?			
	3.3	Has EDTO related tasks been clearly identified on routine work cards, work forms and check sheets?			
	3.4	Does the programme require an EDTO Service Check to ensure the aircraft status and related critical systems?			
REFERENCE		**EDTO Continued Airworthiness Programme (Conti…)**	**S**	**NS**	**N/A**
	3.5	Is the required EDTO Service Check accomplished within 3 days of an intended EDTO flight and/or after EDTO critical system maintenance?			
	3.6	Does the programme call for prompt implementation of modifications and inspections, which could affect propulsion system reliability?			
	3.7	Does the programme ensure duel EDTO significant systems are not maintained during the same check?			
	3.8	Does the programme ensure when duel EDTO significant systems maintenance is performed different individuals accomplish it and/or additional checks are performed?			
	3.9	Does the programme contain procedures for verification			

		flights after unscheduled maintenance is performed on EDTO required systems?			
REFERENCE	**4**	**Reliability Programme**	**S**	**NS**	**N/A**
	4.1	Does the operator have a LCAA approved Reliability Programme?			
	4.2	Are the operator's EDTO aircraft included in the Reliability Programme?			
	4.3	Does the Reliability Programme emphasize EDTO Systems /Components?			
	4.4	Is the EDTO Reliability Programme event oriented?			
	4.5	Does the EDTO Reliability incorporate specific EDTO reports and rectification procedures?			
	4.6	Is there a requirement in the programme to forward copies of all reliability reports and corrective actions taken to the GCAA?			
	4.7	Does the operator have sufficient Reliability Experience for the EDTO approval applied for?			
REFERENCE	**5**	**Engine/APU Oil Consumption Programme**	**S**	**NS**	**N/A**
	5.1	Does the operator have procedures to monitor Engine/APU Oil consumption?			
	5.2	Is the Technical Log used to monitor Oil consumption?			
	5.3	If the Technical Log or another method is used to monitor oil consumption are their procedures to ensure timely notification of oil usage?			
REFERENCE		**Engine/APU Oil Consumption Programme (Conti…)**	**S**	**NS**	**N/A**
	5.4	Are there procedures to ensure the oil consumption is within the limits per 1000 flight hours for the EDTO approval being sort?			
	5.5	Are procedures in place to ensure timely corrective action to high oil consumption reports?			
	5.6	Does the programme provide for assessment and reporting of the propulsion system monitoring?			
REFERENCE	**6**	**Engine Condition Monitoring Programme**	**S**	**NS**	**N/A**
	6.1	Does the ECM reflect the manufacturer’s instructions?			
	6.2	Does the programme identify the parameters to be monitored?			
	6.3	Does the programme identify the method of data collection?			

	6.4	Does the programme define the corrective action process?			
	6.5	Does the programme identify responsibilities and interfaces?			
REFERENCE	**7**	**Maintenance Training Programme**	**S**	**NS**	**N/A**
	7.1	Does the training programme contain the additional maintenance tasks (CMP)?			
	7.2	Does the programme include engine and systems review?			
	7.3	Does the programme explain EDTO service checks?			
	7.4	Does the programme include spare parts control?			
	7.5	Does the programme include engine/APU preventive maintenance?			
	7.6	Does the programme include the use of onboard maintenance facilities?			
REFERENCE	**8**	**EDTO Parts Control**	**S**	**NS**	**N/A**
	8.1	Are procedures established to ensure EDTO parts configuration control?			
	8.2	Are parts identified in accordance with the CMP document?			
	8.3	Are provisions for verification of parts used during parts pooling or borrowing as well as parts used after repair or overhaul to ensure they maintain necessary EDTO configuration for that aircraft?			
REFERENCE	**9**	**Aircraft Performance Monitoring**	**S**	**NS**	**N/A**
	9.1	Are all EDTO significant systems (or component) identified?			
	9.2	Are these systems included in the reliability programme?			
REFERENCE	**10**	**Monitoring of Sub-Contact Maintenance**	**S**	**NS**	**N/A**
	10.1	If contractor is AMO does its authorization include EDTO?			
	10.2	Are the contractor's personnel properly trained, authorized, and equipped to perform EDTO maintenance functions?			
	10.3	Is current technical data available at the location?			
REFERENCE	**11**	**Minimum Equipment List**	**S**	**NS**	**N/A**
	11.1	Has a current MEL been submitted?			
	11.2	Does the submitted MEL contain the items identified by ATA code in the manufacturer's manual as significant?			
	11.3	Are the items properly identified as EDTO operations required?			

Item Number	REMARKS

INSPECTOR NAME		**ORG REP NAME**	
INSPECTOR SIGNATURE		**ORG REP SIGNATURE**	

CHAPTER 31: PROCEDURE FOR TRANSMISSION OF FAULT, DEFECT TO STATE OF DESIGN

31.1 BACKGROUND

The mandatory defect reporting is one of the major components of continuing airworthiness. Liberia CAA has made all operators responsible to report such defects to the organization holding type certificate. However, it is the responsibility of Liberia CAA to transmit such defects to the state of design for enabling state of design to issue continuing airworthiness information.

31.2 PROCEDURE

(a) Collect information from operators and maintenance organization from mandatory defect reporting system.

(b) Prepare the list of defect

(c) Segregate defects to be reported to each concern state of design.

(d) Keep record of sent reports in hard as well as soft copy.

(e) Take necessary action if any in the event that state of design so requires.

(f) Transmit the information from state of design from (e) above to all concerned.

CHAPTER 32: PROCEDURE FOR DEVELOPING MANDATORY AIRWORTHINESS ACTION ON FOREIGN PRODUCT

32.1 BACKGROUND

In normal circumstances the state of design issues mandatory airworthiness action for product of its design. However, Liberia CAA also, in the interest of safety, issues such directives, particularly following an accident or incident and repetitive failure of any component.

32.2 PROCEDURE

(a) Collect the data relating to the component involved in accident or incident.

(b) Analyze the data from frequent failure of components.

(c) Check the periodic maintenance requirements of the components discussed in (a) and (b) above.

(d) Hold discussion with operators and maintenance organizations for possibility of lowering the maintenance interval.

(e) If agreed in (d) inform state of the design with a copy of local Airworthiness Directive (A.D.).

(f) After positive response from state of design issue the A.D. and inform the concerned operators and maintenance organizations.

(g) Put the A.D. in the net for public access.

CHAPTER 33: POLICY/ PROCEDURE FOR INSPECTION OF OPERATORS, AMOs, FOREIGN AIR OPERATORS

33.1 BACKGROUND

In order to discharge its obligation of towards safety oversight functions, Liberia CAA undertakes various measures including audit, inspection etc. of national and international air carriers as well as national and international AMOs.

33.2 POLICY/ PROCEDURE

(a) The national air operators shall be audited once in every year, followed by follow up audit in the same year. The standard checklist shall be used during audit.

(b) The international air operators shall be audited once in every year, with mutual agreement with air operators, causing least inconvenience to travelling public.

(c) The national AMOs and supplier organizations shall be audited once in every year followed by follow up audit in the same year.

(d) The checklist in Part-2 of handbook shall be used for the audit.

(e) The foreign AMOs and supplier organizations shall be audited once in every two years.

(f) The local authority whose approval is validated shall also be informed of the validation by Liberia CAA and request for the surveillance activities report shall be made.

(g) The local authority shall also be requested for the intimation of the alteration of approval, suspension or cancellation of the approval.

(h) The audit report of authority, whose certificate of approval has been validated, shall also be evaluated during such audit.

(i) The serious findings, if any, shall be forwarded to the state issuing original approval.

(j) The condition of validation shall contain all the conditions set forth for the validations.

CHAPTER 34: APPROVAL OF SAFETY MANAGEMENT SYSTEM

34.1 GENERAL

(a) Safety is the term very frequently encountered in aviation community and is the concern of all.

(b) Depending on the perspective, the concept of safety in aviation may have different connotations, such as:

(1) Zero accidents or serious incidents, a view widely held by the travelling public;

(2) Freedom from hazards, i.e. those factors which cause or are likely to cause harm;

(3) Attitudes towards unsafe acts and conditions by employees of aviation organizations;

(4) Error avoidance;

(5) Regulatory compliance; etc.

(c) Whatever the connotation one might choose, they have one underlying commonality: they all convey the possibility of absolute control. Zero accidents, freedom from hazards, and so forth, convey the idea that it would be possible –by design or by intervention – to bring under control in aviation operational contexts all variables that can precipitate bad or damaging outcomes.

However, while the elimination of accidents and/or serious incidents and the achievement of similar absolutes of control would certainly be desirable, such absolutes of control are unachievable goals in open and dynamic operational contexts. Hazards are integral components of aviation operational contexts. Failures and operational errors will occur in aviation, in spite of the best and most accomplished efforts to prevent them. No human activity or human-made system can be guaranteed to be absolutely free from hazards and operational errors.

(d) Safety is therefore a concept that must encompass relatives rather than absolutes, whereby safety risks arising from the consequences of hazards in operational contexts must be acceptable in an inherently safe system. The key issue still resides in control, but in relative rather than absolute control. As long as safety risks and operational errors are kept under a reasonable degree of control, a system–open and dynamic, such as commercial civil aviation–is considered to be safe. In other words, safety risks and operational errors that are controlled to a reasonable degree are acceptable in an inherently safe system.

(e) Safety is increasingly viewed as the outcome of the management of certain organizational processes, which have the objective of keeping the safety risks of the consequences of hazards in operational contexts under organizational control. Thus, for the purposes of this manual, safety is considered to have the following meaning:

(1) Safety is the state in which the possibility of harm to persons or of property damage is reduced to, and maintained at or below, an acceptable level through a continuing process of hazard identification and safety risk management.

(f) Safety benefits of an SMS: The SMS is essentially a quality management approach to controlling risk. It also provides the organizational framework to support a sound safety

culture. For general aviation operators, the SMS can form the core of the company's safety efforts. For certificated operators such as airlines, air taxi operators, and aviation training organizations, the SMS can also serve as an efficient means of interfacing with CAA oversight office. The SMS provides the company's management with a detailed roadmap for monitoring safety related processes.

(g) Civil Aviation Authority of Liberia has made it mandatory to implement Safety Management System in aircraft maintenance from 1st January 2009.

(h) It was agreed during the meeting with air operators that SMS would be implemented in a phased manner.

(i) The implementation status would be verified during the regular audit of the air operator.

(j) This Standard is in accordance with the following documents:

(1) Annex 6 to the Convention on International Civil Aviation, Operation of Aircraft

(2) International Civil Aviation Organization (ICAO) Document 9859, ICAO Safety

(3) Management Manual

(4) ICAO Document 9734, Safety Oversight Manual

34.2 PROCEDURE

(a) Make sure that the proposed SMS manual of operator (for maintenance of aircraft) has been application signed by the authorized personnel like QA Chief or Engineering Director.

(b) Verify that the following elements are included in the proposed manual before approval else return the manual for necessary correction so that it includes all the elements specified in (1) below.

(1) Structure of SMS manual

(i) Scope and Applicability

(ii) References

(iii) Definitions

(iv) Policy

(A) General Requirements

(B) Safety Policy

(C) Quality Policy

(D) Safety Planning

(E) Organizational Structure and Responsibilities

(F) Compliance with Legal and Other Requirements

(G) Procedures and Controls

(H) Emergency Preparedness and Response

(I) Documentation and Records Management

(v) Safety Risk Management

(A) System and Task Analysis
(B) Analyze Safety Risk
(C) Assess Safety Risk
(D) Control Safety Risk

(vi) Safety Assurance and Internal Evaluation

(A) General Requirements
(B) System Description
(C) Information Acquisition
(D) Continuous Monitoring
(E) Internal Audits by Operational Departments
(F) Internal Evaluation
(G) External Auditing of the SMS
(H) Investigation
(I) Employee Reporting and Feedback System.
(J) Analysis of Data
(K) System Assessment
(L) Preventive/Corrective Action
(M) Preventive/Corrective Action
(N) Management Reviews
(O) Continual Improvement

(vii) Safety Promotion
(viii) Safety Culture
(ix) Communication and Awareness
(x) Personnel Requirements (Competence)
(xi) Training
(xii) Safety Lessons Learned

34.3 APPROVAL

After meeting all the requirements of 37.2 (b) (1), approve the SMS manual, return one copy stamping the approval stamp and keep one copy in the technical library.

APPENDIX 34-A: JOB AID: AW-042 Evaluation of Safety Management System (Sms) Manual

\
FILE REFERENCE: _____

Date		**Control #**	
Name of Operator		**AOC #**	
State of Operator		**Type of Aircraft**	
Location		**Aircraft Reg#**	
Destination		**PIC #**	
Action Taken		**Other PEL#**	

KEY PERSONNEL MET:

	NAME	TITLE
1.		
2.		
3.		
4.		
5.		
6.		
7.		

PLEASE CHECK THE APPROPRIATE BOX FOR THE FOLLOWING; SATISFACTORY (S), NOT SATISFACTORY (NS) OR NOT APPLICABLE (N/A). INDICATE REGULATORY OR OTHER REFERENCE(S) FOR NOT SATISFACTORY (NS) ITEMS WHERE APPLICABLE. PROVIDE FURTHER DETAILS IN THE REMARKS SECTION IF REQUIRED.					
		CHECKLIST ITEMS			
REFERENCE	1	GENERAL MANUAL PRESENTATION	S	NS	N/A
	1.1	Bound in a secure form (not loose).			
	1.2	Binder is 3 or 4 rings?			
	1.3	Exterior of binder clearly indicates manual content.			
	1.4	Approval page available.			
	1.5	Glossary (Abbreviations/Acronyms) available.			
	1.6	The word 'INTENTIONALLY LEFT BLANK' written on all blank pages.			
	1.7	Bound in a secure form (Not loose).			

REFERENCE	2	MANUAL CONTROL PROCESS	S	NS	N/A
	2.1	Copies numbered for controlled issuance (Manual Distribution List).			
	2.2	Amendment issuance tracking process.			
	2.3	LCAA issued numbered volume.			
REFERENCE	3	MANUAL REVISION PROCESS	S	NS	N/A
	3.1	Revision Instructions adequate.			
	3.2	Revision page for revision entry.			
	3.3	List of effective pages provided and correct.			
	3.4	Last revision to individual pages identified.			
REFERENCE	4	MANUAL REFERENCING SYSTEM	S	NS	N/A
	4.1	Master table of contents easy to find and use.			
	4.2	Table of contents easy to find and use.			
	4.3	Index, if included, easy to find and use.			
	4.4	Tabbed as necessary for usability without difficulty.			
REFERENCE	5	INDIVIDUAL PAGE PRESENTATION	S	NS	N/A
	5.1	Page numbered in chronological sequence (by chapter or single document).			
	5.2	Last revision number/ date appears on each page.			
	5.3	Company name and Logo appears on each page except 21 below.			
	5.4	If manufacturer's document is submitted in lieu of a company manual, does the manufacturer's name appear on each page.			
	5.5	For all manufacturers' documents submitted, a manufacturer's letter or reference document is provided to substantiate current revision number/date.			
REFERENCE	6	PARAGRAPH NUMBERING	S	NS	N/A
	6.1	Paragraphs and sub-paragraphs numbered or alphabetized for ease of reference.			
REFERENCE	7	SUPPLEMENTAL CONTENT REFERENCING	S	NS	N/A
	7.1	Tables referenced for ease of use.			
	7.2	Figures referenced for ease of use.			
	7.3	Appendices referenced for ease of use.			
REFERENCE	8	MANUAL CONTENTS CONFORMANCE	S	NS	N/A

	8.1	Scope and Applicability.			
	8.2	References (ICAO Annex 6; ICAO DOCS.9859 & 9734)			
	8.3	Definitions			
	8.4	**Policy** **A. General Requirements** **(i)** Complete scope of safety management systems to include; Flight Operations; Dispatch/ Flight following; Maintenance and Inspection; Cabin Safety; Ground Handling and Servicing; Cargo Handling; and Training **(ii)** SMS processes to indicate; Documentation of the processes. Monitoring of the processes. Chronological steps of the processes. Analysis of the processes. **(iii)** SMS outputs to indicate; Records of the outputs. Monitoring of the outputs. Chronological steps of the outputs. Analysis of the outputs. **(iv)** Promoting the growth of a positive safety culture. **B. Safety Policy** **(i)** Definition of the Organization 's safety policy **(ii)** Procedures to ensure the Safety policy shall: **-**include a commitment to implement an SMS. **-**include a commitment to continual improvement in the level of safety. **-**include a commitment to the management of safety risk. **-**include a commitment to comply with applicable regulatory requirements. **-**include a commitment to encourage employees to report safety issues without reprisal; **-**establish clear standards of acceptable behaviour; **-**provide management guidance for setting safety objectives; **-**provide management guidance for reviewing safety objectives; **-**be documented; **-**be communicated to all employees and responsible parties; **-**be reviewed periodically to ensure it remains relevant and appropriate to the organization **-**identify responsibility of management and employees with respect to safety performance.			
REFERENCE		**MANUAL CONTENTS CONFORMANCE (Conti…)**	**S**	**NS**	**N/A**
	8.5	**Quality policy**			
	8.6	**Safety Planning**			
	8.7	**Organizational Structure and Responsibilities**			

	8.8	**Compliance with Legal and Other Requirements**			
REFERENCE		**MANUAL CONTENTS CONFORMANCE (Conti…)**	**S**	**NS**	**N/A**
	8.9	**Procedures and Controls** (i) Establish and maintain procedures with measurable criteria to accomplish objectives of the safety policy. (ii) Establish and maintain process controls to ensure procedures are followed for safety – related operations and activities.			
	8.10	**Emergency Preparedness and Response**			
	8.11	**Documentation and Records Management** **(A) General** Procedure to establish and maintain information, in paper or electronic form, to describe; (i) safety policies; (ii) safety objectives; (iii) SMS requirements; (iv) safety – related procedures and processes; (v) responsibilities and authorities for safety – related procedures and processes; (vi) Interaction / Interfaces between safety – related procedures and processes; (vii) SMS outputs; **(B) Documentation Management:** **(C) Records Management**			
	8.12	**Safety Risk Management**			
	8.13	**System and Task Analysis**			
	8.14	**Identify Hazards**			
	8.15	**Analyse Safety Risk**			
	8.16	**Assess Safety Risk**			
	8.17	**Control Safety Risk**			
	8.18	**Safety Assurance and Internal Evaluation** A schematic figure illustrating how Safety Assurance functions are linked to the SRM process described in item 38. **(A) General Requirements** **(B) System Description** **(C) Information Acquisition**			
	8.19	**Internal Audits by Operational Departments**			
	8.20	**Internal Evaluation**			
	8.21	**External Auditing of the SMS**			
	8.22	**Investigation** (i) A description of collecting data on incidents and accidents (ii) Establishing procedures to: Investigate accidents;			

		Investigate incidents; Investigate instances of potential regulatory non-compliance.			
	8.23	**Employee Reporting and Feedback System**			
	8.24	**<u>Analysis of Data</u>** (i) A description indicating the analysis of the operator's acquisition of information to demonstrate the effectiveness of: The risk controls in the operator's operational processes. The SMS. (ii) An evidence of evaluation where improvements can be made to the operational processes and the SMS.			
	8.25	**System Assessment**			
	8.26	**Preventive / Corrective Action**			
	8.27	**Management Reviews**			
	8.28	**Continual Improvement**			
REFERENCE	**9**	**Safety Promotion**	**S**	**NS**	**N/A**
	9.1	**Safety Culture** Procedure to indicate that the operator's top management must promote the growth of a positive safety culture through: (i) publication of senior management's stated commitment to safety to all employees; (ii) visible demonstration of their commitment to the SMS; (iii) communication of the safety responsibilities for the operator's personnel; (iv) clear and regular communication of safety policy, goals, objectives, standards, and performance to all employees of the operator; (v) an effective employee safety feedback system that provides confidentiality as is necessary; (vi) use of a safety information system that provides an accessible efficient means to retrieve information; (vii) allocation of resources essential to implement and maintain SMS.			
	9.2	**<u>Communication Awareness</u>** (i) A procedure indicating that the operator to communicate outputs of the SMS to its employees, as appropriate. (ii) A procedure indicating that operator to provide access to the outputs of the SMS to its oversight organisation, in accordance with established agreements and disclosure programmes.			

	9.3	**Personnel Requirements (Competence)** (i) Procedure to indicate that the operator document competency requirements for aviation – related positions; (ii) A description to indicate aviation – related positions occupied by individuals meet competency requirements as established under item 33.			
	9.4	**Training** **(A)** Reference item 58 (ii), procedure to develop training for those individuals to include (i) initial training; (ii) recurrent training. **(B)** Procedure indicating employees to receive training commensurate with their: (i) Level of responsibility; (ii) impact on the safety of the operator's product or service. **(C)** Procedure to indicate periodically reviewed and updated training currency.			
	9.5	**Safety Lessons Learned** (i) Procedure to indicate that the operator must develop safety lessons learned. (ii) Evidence of safety lessons information to be used to promote continuous improvement of safety. (iii) Communication of information on safety lessons learned.			

Item Number	REMARKS

RECOMMENDED ACCEPTANCE / APPROVAL	**S .....** **NS .....**	**REASON LISTED FOR NS OPTION:**		
INSPECTOR SIGNATURE & DATE			**INSPECTOR STAMP**	

CHAPTER 35: PROCEDURE FOR AMENDMENT OF ADOPTED AIRWORTHINESS REGULATIONS

35.1 GENERAL

Liberia CAA having limited aviation activities adopts the code of airworthiness regulations of reputed authorities like FAA (USA), EASA (EU) and other contracting states especially in cases of type acceptance, AMO, licensing, training organizations. While adopting these foreign regulations it is the responsibility of Liberia CAA Airworthiness Inspection Division that these regulations are updated with amendments in applicable ICAO SARPs.

Adoption of regulation from another State may sometimes become necessary due to insufficient experience or for the benefit of harmonization of regulations.

35.2 PROCEDURE FOR AMENDMENT

(a) The following procedures will be followed for adopted regulations:

(1) Before adopting regulation of another State, it will be verified that the adopted regulation fully aligns with the corresponding SARPs by referring to the list of differences filed by that State.

(2) If it is found that the concerned State has filed the differences for the regulation to be adopted, the regulation will not qualify for adoption.

(3) If no difference exists, the regulation will be adopted and customized in the operational context of Liberia.

(4) The Legal and regulations committee will check the amendments to the adopted regulation and corresponding SARPs to ensure the continued compliance with parent regulation as well as SARPs.

(5) If the parent regulation no longer aligns with the SARPs of Annexes the adoption will be discontinued and own set of regulation will be promulgated.

(6) In addition, if harmonization on regulation is no longer useful to Liberia, the adoption of such regulations will be discontinued.

CHAPTER 36: PROCEDURE FOR FOREIGN AMO VALIDATION

36.1 BACKGROUND

LCAR Part 6, 6.2.8 has got provisions to validate the AMO certificates issued by ICAO contracting states. Liberia CAA validates such foreign AMO on the basis of certificate for approval issued by contracting states.

36.2 PROCEDURE

(a) Make sure that the application has been made by –

(1) CEO/Accountable Manager

(2) QA Manger or Personnel

(3) Local agent/representative

(4) Local operator

(b) Ensure that MOE/RSM or equivalent manual is attached in hard or soft copy. Preference should be given to the approval from authority where the maintenance organization is located.

(c) Has the maintenance organization got certificate of approval as described in 2.11.?

(d) Ensure the certificate is valid and scope well specified.

(e) Make sure the applicable fee has been paid in accordance with LCAR.

(f) Have the facilities been audited? If yes, is the audit report satisfactory?

(g) Ensure the audit report from the local state is also satisfactory.

(h) If all the above conditions are met, initiate an office memo to superior officer for approval from the Director General.

(i) Once approved, prepare a Certificate of Validation along with condition of validation and send them to applicant. The condition of validation shall contain –

(1) The Liberian validation shall remain valid till the date of original certificate validity.

(2) The Liberian validation shall be revoked, suspended if the original authority does so in its certificate.

(3) The applicant shall be responsible to inform LCAA for any suspension, variation and cancellation of original certificate.

(j) The local state shall also be notified of the validation and request be made to provide annual audit report and actions taken if any against the AMO.

CHAPTER 37: PROVING FLIGHTS

37.1 BACKGROUND AND OBJECTIVES

(a) Proving tests consist of a series of flights which are designed to demonstrate prior to the issuance of the AOC that the applicant is capable of operating and maintaining each aircraft type which he proposes to use to the same standards required of an established carrier. Proving flights may also be required of a fully certified airline which is adding a new airplane type to its fleet. Successful proving flights may be considered the final proof that an operator is ready to commence revenue operations with a specific type of airplane. During these inspections, the AAAA will have the opportunity to observe and evaluate the in-flight operations within the total operational environment of the air transportation system. In the course of these flights, paying passengers will not be carried. However, it is generally desirable for the applicant to have on board company officials who can make decisions and commitments on behalf of the applicant concerning actions to correct deficiencies. These company officials may also serve as passengers for purposes of realism, so that the UUUU can perform their normal duties such as passenger briefings and meal services.

(b) The applicant and the AAAA inspector should plan well in advance for the conduct of the proving flights. All concerned must have a clear understanding and agreement as to what must be accomplished by the applicant to show compliance with the applicable operating regulations and rules. General objectives for pre-certification proving flights should include the determination of the adequacy of:

(1) in-flight procedures laid down in the operations manual and compliance with thoseprocedures;

(2) the facilities and equipment provided to the flight crew to conduct the flight safely and in accordance with regulations;

(3) the support provided by operational control to the flight crew;

(4) the general provision made for ground handling of the aircraft and assisting the flight crew to carry out their duties at all aerodromes utilized by the applicant along the routes; and

(5) en-route facilities.

(c) Proving test flights are operated exactly as though the applicant is conducting revenue operations. However, during the course of the flights the AAAA may introduce simulated situations which will require appropriate responses by crewmembers and ground personnel.

37.2 SPECIFIC PROCEDURES

(a) Proving flights will consist of a minimum of 10 hours (5 hours for domestic flights) flown over routes for which the operator seeks approval. At least 4 route segments must be flown, if practicable. If the operator seeks approval for night operations, 5 of the 10 hours must be flown at night, if practicable. The sequence of events for the proper planning for and carrying out of proving flights will be as follows:

(1) Well before the proving flights (during the pre-application phase of the certification process) the AAAA will have briefed the operator regarding the necessity for proving flights, what must be accomplished, and the areas which will be evaluated.

(2) At least 10 days prior to the proving flights, the operator must submit a proving test plan consisting of a detailed schedule of the proposed flights including dates, times, and airports to be used, along with a list of names of all crewmembers who will be used on each flight. The applicant should also provide a list of names and titles of non-crewmember personnel who will be aboard the aircraft during the flights. Preliminary flight plan information containing predicted fuel, baggage, and passenger loads for each segment along with predicted gross takeoff and landing weights must also be provided.

(3) After receipt of the proving test plan from the operator, the AAAA team will develop a proving flight scenario consisting of simulated emergencies and other means of testing the crewmembers' and operators operator's ability to cope with actual operational contingencies. Since the primary purpose of the proving flights is to ensure basic compliance with safe operating procedures during routine operations, the introduction of simulated abnormal and emergency conditions should be kept to the minimum required to evaluate the operator's capability to respond to such conditions. The following are typical scenarios which may be useful in evaluating the operator's capabilities:

(i) Diversion to alternate airports for reasons such as weather or maintenance. This tests the company's communications, maintenance, ground handling, and other operational capabilities.

(ii) MEL or CDL situations - this tests crewmembers' understanding of specific operational limitations and the company's operations and maintenance procedures. For example, dispatching with an inoperative AC generator tests the operator's ability to comply with the operational and maintenance provisions of the MEL.

(iii) Performance problems - this requires the aircrew and dispatch or flight control personnel to demonstrate competency and knowledge of such items as aircraft performance, airport analysis charts, and alternative company procedures. For example, simulating one-half inch of standing water on a departure runway will test the operator's ability to make performance adjustments.

(iv) Hazardous cargo - the introduction of simulated hazardous cargo will test the applicant's ability to properly document and handle such items.

(v) Simulated aircraft emergencies such as engine failure - this tests the flightcrew's knowledge and competency in handling emergency situations. It also tests the operator's communications, maintenance, and other capabilities. Under no circumstances may an actual engine shutdown be required. However, at the discretion of the AAAA team leader, a throttle may be retarded to idle thrust during flight and throughout the approach and landing.

(vi) Simulated cabin emergencies - this tests the ability of the UUUU to deal with cabin abnormalities in accordance with established company procedures and to coordinate with the flight deck crew. Possible scenarios may include a simulated incapacitated passenger in need of immediate medical assistance, a simulated lavatory fire, or a simulated loss of pressurization.

(4) The proving test flights are then carried out in accordance with the operator's plan and the AAAA scenario.

(5) Following each segment of the flight, the operator should be debriefed by the AAAA team leader regarding the progress thus far. Unsatisfactory conditions noted by the team leader should immediately be brought to the attention of the applicant for corrective action. The opportunity should be provided to the applicant to remedy any deficiencies affecting the safety of the operation before any further flights are undertaken. All discrepancies and items of non-compliance must be corrected or resolved to the satisfaction of the AAAA team leader before the series of flights can be considered successful. Some examples of deficiencies requiring corrective action are:

(i) flight crew member not properly trained, e.g. requires assistance from applicant supervisors or a AAAA inspector;

(ii) flight crew member not familiar with aircraft, systems, procedures or performance;

(iii) cabin crew member not properly trained or not familiar with location or use of emergency equipment or emergency evacuation procedures;

(iv) numerous aircraft deficiencies and/or systems malfunctions;

(v) inadequate mass and balance or load control; ! unsatisfactory operational control, e.g. improper flight planning and flight release procedures;

(vi) unacceptable maintenance procedures or practices; and

(vii) improper aircraft servicing and ground handling procedures.

(6) Within 24 hours after the entire series of proving flights is completed, the operator will be provided with a detailed de-briefing and will be informed whether or not his overall performance was satisfactory or unsatisfactory. This will be followed with a letter detailing the same information.

37.3 EVALUATION AND REPORTING

The routine portion of the applicant's operational performance during the series of proving test flights will be evaluated using the Cockpit Enroute Inspection Checklist/Report form and the criteria contained in Part 2 Chapter 15 of this handbook, the Cabin Enroute Checklist/Report along with criteria contained in Part 2 Chapter 15 of this handbook, and the Station Facility Inspection Checklist/Report along with the criteria contained in Part 2 Chapter 12 of this handbook, (if applicable). These will be attached to the Proving Flight Checklist/Report form which is shown at the end of this chapter. Emergency and abnormal scenarios which were conducted during the proving flights will be listed in item 4 of the below figure.

CCCC
SSSS
TTTT

AIR OPERATOR PROVING FLIGHT REPORT

1. Airline.

2. Aircraft Type.

3. Flight Information

Dates	Route Segments (List 3-letter identifiers of origin and destination airports)	Flight Time	
		Day	Night

4. Emergency/Abnormal Scenarios. (list)

5. **Results: " Satisfactory " Unsatisfactory**

6. Remarks: (Continue on back if necessary)

Note: Attach en route cockpit and cabin report forms and station facility inspection report forms if applicable, along with copy of letter to company advising whether flights were found to be satisfactory or unsatisfactory.

Inspector's Signature

CHAPTER 38: EMERGENCY EVACUATION DEMONSTRATIONS

38.1 CATEGORIES OF EMERGENCY EVACUATION DEMONSTRATIONS

There are two categories of emergency evacuation demonstrations: full-scale evacuation and partial evacuation.

(a) Full-scale Evacuation Demonstration

The primary purpose of a full-scale evacuation demonstration is to ensure that the airplane design and seating configuration will permit the safe and complete evacuation of all passengers through 50 per cent of the installed emergency exits within a specified time frame. Adequacy of the crewmember compliment and operational procedures and training is also evaluated.

A full-scale evacuation demonstration requires the use of an aircraft, parked on apron or in a hanger, with a complete complement of crew members (flight deck and cabin) and each passenger seat occupied by a "passenger" participant. The crewmembers are required to simulate an aborted takeoff followed by a situation which requires the immediate evacuation of the aircraft in 90 seconds or less.

Full scale demonstrations are usually conducted by the manufacturer for the State of manufacture during the type certification process. Subsequent full-scale evacuations are only required when an airline uses a seating capacity which is greater than what has previously been demonstrated. It is unlikely that the AAAA will ever have to require an operator to perform a full-scale evacuation. Because a full-scale evacuation demonstration is a complex undertaking with an inherent risk of minor injury to the participants, in the event that a full-scale demonstration is required of a VVVV operator, the AAAA will obtain assistance from another State which is highly experienced in conducting such demonstrations.

(b) Partial Evacuation Demonstration

For issuance of an AOC or variation to an AOC, the adequacy of an operator's training and procedures along with the proper functioning of emergency exits can be determined through a partial evacuation demonstration. In this demonstration, a full complement of crew members are required to carry out the procedures for an emergency evacuation, including opening 50 per cent of the emergency exits and successfully deploying the escape slides at those exits within a specified time frame. No passenger seats are occupied and no person is required to actually exit the airplane by means of an escape slide.

38.2 PROCEDURES FOR PARTIAL EVACUATION DEMONSTRATION

The following procedures will be followed in conducting a partial emergency evacuation demonstration:

(a) Planning meeting will be held with the operator well in advance of the demonstration in order to discuss the exact procedures to be followed and the criteria for a successful demonstration.

(b) The operator will provide for the demonstration an aircraft of the type, model, and cabin configuration for which approval is sought, along with a qualified and current cockpit crew and two complete compliments of cabin crew members. The purpose of requiring two complete compliments of UUUU is so that the AAAA may select, immediately prior to the demonstration, the flight attendants who will actually participate in the demonstration.

This is to lessen the possibility that the operator will provide extra training to those flight attendants which it knows in advance will participate in the demonstration, so that their performance will not be representative of the level of proficiency of all of the operator's UUUU.

(c) The demonstration will be conducted in darkness, either on an apron at night or in a hangar with the lights extinguished.

(d) During the steps leading to the commencement of the timing of the demonstration, the airplane's electrical system will be fully powered by either an external power unit or the APU.

(e) Crewmembers will simulate complete preparation for takeoff, including the execution of all checklists up to and including the takeoff checklist. Engine operation will be simulated. UUUU will be seated at their normal stations for takeoff.

(f) The cockpit crew will simulate the commencement of the takeoff roll followed by a high-speed, aborted takeoff due to an engine fire or other appropriate simulated malfunction.

(g) The evacuation of the airplane will be signaled through the failure normal electrical power (by disconnecting the external power unit or APU). Interruption of normal power will be a clear signal to all involved that the timing of the demonstration has commenced. Outside, the aircraft's external lights (taxi lights, anti-collision lights, position and logo lights) will extinguish. Inside, normal cabin lighting will extinguish and all emergency exit lights and floor-level lighting (if installed) will illuminate if functioning properly.

(h) Immediately upon failure of the normal electrical system the flight attendants will be required to unbuckle their safety harnesses, leave their jumpseats, ascertain which exits are usable, open the usable exits, and deploy the escape slides. In order for the demonstration to be successful, the total time which elapses from the interruption of electrical power until full deployment of all activated slides must not exceed 15 seconds. Slides are not considered fully deployed until they reach the ground and are inflated to a firmness which would safely support the egress of passengers.

(i) To monitor, time, and evaluate the demonstration, AAAA personnel will be positioned in the cockpit and at each exit inside of the airplane and outside the airplane at each exit. The AAAA inspector who is responsible for the timing of the demonstration will be positioned outside of the airplane with a stop watch. He will commence timing when the external lights of the aircraft are extinguished. After precisely 15 seconds, he will call "time" to all participants and the demonstration will be considered complete. He will then confer with the AAAA team members who were stationed at the exits both inside and outside of the airplane to confirm whether or not procedures were properly followed and that the slides were adequately deployed by the time 15 seconds elapsed.

(j) Only 50 per cent of the exits will be used. The operator's personnel inside the airplane should not know in advance which exits will be used and which will be rendered unusable. One method for indicating to the UUUU immediately after the commencement of the demonstration which exits are unusable is to station AAAA personnel with bright flashlights outside of those exits. When the exterior lights of the airplane are extinguished and the timing begins, those AAAA personnel will shine their flashlights directly on the windows of the emergency exits which are to be considered inoperable, thus simulating a fire on that side of the airplane. In accordance with their procedures, UUUU must look through the window of an emergency exit to make sure that it is usable before opening it and deploying the escape slide for use by passengers. In this case, if the cabin attendant

approaches an exit and observes a light shining on the window, he or she will consider it inoperative and choose an alternative exit to be opened.

38.3 EVALUATION OF THE PARTIAL EVACUATION DEMONSTRATION

(a) Specific points to be noted during the evacuation demonstration are:

(1) adherence by flight and cabin crew members to the execution of assigned duties and responsibilities both in the aircraft and on the ground;

(2) effectiveness of the pilot-in-command in the exercise of command responsibilities;

(3) succession to command in event of casualties;

(4) effectiveness of crew members in performing their assigned evacuation duties; and

(5) shortcomings, deficiencies or delays encountered.

(b) If the applicant cannot satisfactorily demonstrate emergency evacuation for each particular type, model and configuration of aircraft within 15 seconds, the applicant will be required to take steps to correct the deficiency which could include the following:

(1) revising evacuation procedures;

(2) improving crew training;

(3) modifying or changing the equipment used;

(4) changing the passenger compartment arrangement; and

(5) reducing total passenger seating capacity.

38.4 EMERGENCY EVACUATION DEMONSTRATION REPORT

The Figure which follows contains a sample of the report form which is to be used for documenting the demonstration.

CCCC
SSSS
TTTT

AIR OPERATOR PARTIAL EMERGENCY EVACUATION DEMONSTRATION REPORT

1. **Name of operator:**

2. **Date/time of demonstration:**

3. **Aircraft type/model:**

4. **Number of installed seats:**

5. **Crewmember names:** (List name and crew position of each participant)

6. **Results: " Satisfactory " Unsatisfactory**

7. **Remarks:** (Include description of which exits were used and whether or not slides were deployed within 15 seconds of commencement of drill - continue on back if necessary.)

Inspector's Signature

CHAPTER 39: EVALUATE CATEGORY I/II/III/IIIA LANDING MINIMUM MAINTENANCE/INSPECTION PROGRAMS

39.1 OBJECTIVE

This chapter provides guidance for evaluating and accepting applications from operators to use lower approach and landing minimums in respect to the appropriate support program.

39.2 GENERAL

(a) Responsibilities

(1) The Airworthiness Inspector's primary responsibility is to provide technical support to the Operations Inspector and the applicant. The responsibility for monitoring all applicants during the evaluation period should be coordinated between the Avionics and Operations Inspectors, to include:

(i) Approvals

(ii) In flight evaluation observations

(iii) Surveillance

(2) It is the applicant's responsibility to obtain and submit all documents that establish the eligibility of its aircraft, such as:

(i) The required maintenance/inspection program necessary for continued eligibility

(ii) The applicant's Minimum Equipment List (MEL) with the limitations for Category I operations, if applicable

(iii) An acceptable means for maintaining the reliability of the flight guidance control and associated systems

(b) Qualifications for Low Approach Landing Minimums. Low approach and landing minimums are issued to qualified operators. While the operating rules for each type of operation (Light or heavy transport aircraft), may vary significantly, the approval guidelines do not. Approval for low or minimum approaches in all categories will require regulatory compliance in the following three major areas:

(i) Airborne equipment and systems
(ii) Flight crew and maintenance personnel qualifications
(iii) Lowered minimum procedures, including a maintenance/inspection program

(c) Deviations. Commitments to deviations should not be made without coordination between the Airworthiness and Operations Inspectors. All requests for deviations must be forwarded to the Director by the operations inspector. The applicant should be advised not to proceed in operating under its lower minimum proposal until the deviation request is resolved.

39.3 CATEGORY I OPERATIONS

The airworthiness avionics inspector's responsibilities for Category I authorizations are primarily limited to the evaluation of the flight director and/or autopilot systems. The Principal Operations Inspector is responsible for determining the overall suitability of an operator's Category I capabilities.

39.4 CATEGORY II EQUIPMENT APPROVAL FOR LIGHT AIRCRAFT

(a) Lower Approach Minimum Approval. An application for lower approach minimum authority should specify the basis for the aircraft approval to conduct lower minimum approaches. This authority may be based on:

(1) Type certification and the Airplane/Rotorcraft Flight Manual

(2) Supplemental type certification

(3) Operational evaluation

(4) Any acceptable combination of the above

(b) Requirements for Category II Approval

(1) Requirements for Category II approval for general aviation operators have been established in some states regulations (For info refer to FAR 91.189, 91.205, 91.191. These sections specify:

(i) Required instruments and items of equipment

(ii) Methods of approval

(iii) Evaluation program conduct

(iv) Calibration standards

(v) Maintenance/inspection programs

(2) FAA Advisory Circular 91-16, Category II Operations - General Aviation Airplanes, as amended, can assist operators in developing and obtaining approval of Category II equipment installations and maintenance/inspection programs.

(c) Operational Evaluation Programs. Engineering coordination should be requested when necessary, particularly for those aircraft in which the functions and limitations of the automated systems are significant factors for safe operation.

(d) Flight Director Systems. Inspectors should be aware that single flight director systems with dual displays in which the second display repeats only the ILS information on the pilot's display will not meet the requirements for two ILS receiving systems.

(e) Optional Avionics Equipment. Optional avionics equipment installed by the operator will either be approved in the field or referred to an authorized Engineering source for evaluation. The engineering evaluation can assist in determining if flight-testing is required, what limitations may apply, and whether or not the installation may require a Supplemental Type Certificate. If a Supplemental Type Certificate is required, avionics personnel will assist in the accomplishment of a compliance and conformity inspection, as necessary, when requested by the engineering and manufacturing office. Optional equipment that may be installed and require approval includes the following:

(1) Flight director systems

(2) Automatic throttle control systems
(3) Autopilot and approach coupler systems
(4) Speed control command systems
(5) System fault detection and warning systems
(6) Radio altimeters

(f) Modifications. Proposals to alter installed avionics equipment required for a particular category of operation should be carefully reviewed and handled in accordance with established procedures. Each proposal should be evaluated for its effect on system performance, compatibility with the original standard, and compliance with Category II criteria.

(1) When manufacturer proposed modifications to existing avionics equipment appear to be major, the AWI should verify the approval status before sanctioning incorporation of the change by the operator. If an authorized engineering source approval of the modification is not clearly indicated in the manufacturer's instructions, the operator should obtain such approval before performing the modification.

(2) An Inspector should exercise a cautious approach to field approval of modifications. Pressure from any source should not discourage the Inspector from verifying that the modification is being made in accordance with approved technical data and that the technical evaluation is clearly within the scope of the inspector's training, experience, and approval authority.

(3) Modifications originating in an operator's engineering department should also be examined carefully and, when necessary, referred to the appropriate authorized engineering source Engineering Office.

39.5 CATEGORY II EQUIPMENT APPROVAL

(a) Large Aircraft Criteria. Operators using large aircraft required to be operated under Transport category rules should meet all of the relevant requirements. (FAA AC 120-28C, Criteria for Approval of Category III Landing Weather Minima, or 120-29, Criteria for Approving Category I and Category II Landing Minima for Large Transport Aircraft Operators, are acceptable standards)

(b) Turbojet Criteria. All operators using turbojet aircraft may be required to comply with the aircraft systems evaluation criteria that applies to transport category operators. Applicants operating under light aircraft operating rules using turbojet aircraft should also use the aircraft equipment evaluation standards for heavy transport aircraft. (FAA AC120-28C or 120-29).

(c) Systems Evaluation Approval. Systems evaluation approval should be accomplished in accordance with approved data. (AC 91-16, 120-28C, or 120-29, as applicable).

(d) The aircraft requirements for Category IIIa authorization include requirements for the total aircraft performance and associated systems. The acceptance of an aircraft for this category must be completely based on performance and approved 'Authority" data.

(1) Upon receiving an operator's request for Category IIIa authorization, the assigned Avionics Inspector should immediately contact central office to determine whether the aircraft has been approved for such operation and what equipment and systems have been approved. If the aircraft has not been Category IIIa certified, the

Inspector should request assistance from the appropriate Aircraft Certification Office so that an application for a Supplemental Type Certificate can be properly consolidated.

(2) FAA Advisory Circulars contain information outlining the requirements for a maintenance program. The nature of this type of operation will necessitate a detailed evaluation supported by well-defined maintenance, training, and reliability programs. All maintenance and reliability supporting documents become part of the accepted program.

(3) The initial program should also include appropriate programs identified in the Maintenance Review Board document. The frequency of maintenance actions may be revised when sufficient experience has been gained to justify a change and when there is no conflict with the certification requirements.

(4) The reliability of systems and/or components set forth as substantiation for the Category IIIa certification becomes the performance criteria for the program.

(i) Controlled monitoring of the Category IIIa system reliability will require that the operator, after initial evaluation, incorporate the pertinent systems and components into the approved reliability program. If the Category IIIa system reliability exceeds the approved program, the operator should be allowed a reasonable time period in which to improve the reliability.

(ii) The appropriate Central Office specialist should be advised when the monthly removal rate is exceeded and informed of the probable cause. The reliability reporting is a necessity, particularly when operational approval was predicated upon probability analysis.

(5) The maintenance manual should identify all special techniques, maintenance/inspection frequencies, and test equipment requirements to support the program. It should also specify the method of controlling the operational status of the aircraft. Those Licensed Engineers qualified to release an aircraft for Category IIIa must be identified.

(6) An approved training and recurrent training program must be provided. The listing of such personnel must be current. Only those persons trained and qualified should be permitted to perform Category IIIa maintenance/inspections.

(7) The operational demand for Category IIIa airborne systems with exposure to numerous hidden functions requires that the aircraft be either periodically exercised or functionally checked. This is to ensure that all systems are operational and that no dormant failure has occurred. The initial program should provide either a periodic Category IIIa approach or periodic system functional check.

(8) Until sufficient experience and data is available (excluding any required demonstration period), it is recommended the aircraft status period not exceed 35 days. Failure to exercise the system by simulated Category IIIa approach or functionally checking the system within 35 days should automatically place the aircraft in a non-category IIIa status. The aircraft must maintain this status until the required functional check is made.

39.6 PROGRAM DEVELOPMENT

(a) Initial Development. At the time of formal application, the Inspector should begin to monitor development activity. Participation in all meetings with an applicant will usually require coordination with the Operations Inspector. It is important for the operator to include all key personnel in any meetings.

(b) The Operator's Lower Minimums Program. The operator's lower minimums program must be developed and the procedures used during the evaluation period. Operations specifications must reflect all special Category II/III maintenance requirements that were developed.

39.7 CATEGORY II MAINTENANCE MANUAL REQUIREMENTS

(a) The maintenance manual should identify all special techniques, maintenance/inspection frequencies, and test equipment requirements that support the program. Those technicians qualified to release an aircraft with lower minimums should be listed or identified.

(b) The operator's procedures must include a method for manual distribution to ensure availability to the appropriate maintenance facility.

(c) Operators should be encouraged to show the method of approval of required equipment as listed in the maintenance portion of the manual.

39.8 MAINTENANCE/INSPECTION PROGRAMS

The proposed maintenance/inspection programs must be tailored to the applicant's operations and maintenance organization. All maintenance and reliability supporting documents become part of the accepted program.

(a) Requirements for Maintenance/Inspection Programs. (FAA AC 120-28C and 120-29, as amended, outline acceptable requirements for the maintenance/inspection programs). Maintenance/inspection programs must provide for the proper maintenance and inspection of equipment and aircraft systems.

(b) Control and Accountability. Emphasis must be placed on control and accountability of all areas associated with lower landing minimums approvals. These areas primarily encompass the following:

(1) Initial and recurrent training on flight guidance control systems

(2) The use of test equipment

(3) The differences in aircraft systems between aircraft in an operator's fleet

(4) Special procedures for airworthiness release and control of the aircraft approach status

(5) Initial and recurrent training in all areas of the lower minimums program

(6) Training for new personnel and equipment types

(c) Operational Status of the Aircraft. The method for controlling the operational status of the aircraft lower minimum required equipment must ensure that flight, dispatch, and maintenance personnel are kept aware of the current status.

(d) Purchase of Avionics Equipment "Package" Installations. General aviation maintenance/inspection programs may be developed by some manufacturers and repair stations in conjunction with their Category II avionics equipment installation "package". The contents of such programs should be thoroughly evaluated for compliance and maintainability with Category II regulations.

(e) Requalification Procedures. The program must include procedures for requalification of an aircraft for lower minimums following maintenance on any required system. This must include tests after replacements, resetting in rack, and interchange of components.

(f) Approval. The inspector will indicate approval of maintenance program portion of the operator's Category II manual by signing and dating each page of the program.

39.9 MAINTENANCE TRAINING PROGRAMS

Airworthiness avionics inspectors, during the course of normal surveillance, should evaluate the maintenance facilities performing Category II equipment maintenance to ensure that the training provided meets the requirements of lower minimum standards.

39.10 EXISTING MAINTENANCE/INSPECTION PROGRAMS

(a) Programs can be developed to be compatible with the existing maintenance/inspection program, as long as there is a clear distinction between normal and lower minimum requirements.

(b) When an operator's proposal is based on an existing maintenance/inspection program, the inspector must ensure that all procedures will provide for the lower minimums program requirements. Caution should be exercised when an applicant has used a program approved for use by another operator for developing its own.

(c) The following areas of the proposal and or existing programs should be closely reviewed:

(1) The existing reliability program

(2) The training program

(3) The initial evaluation checks for existing aircraft and for new aircraft

(4) The existing parts pool, borrowed parts procedure, and control of spare parts

(d) Existing Reliability Programs. An operator's existing reliability program may be accepted when shown to be adequate for its lower minimum operations.

39.11 TEST EQUIPMENT AND STANDARDS

(a) Performance Standards, Tolerances, and Calibration Procedures

(1) Performance standards, tolerances, and calibration procedures applicable to ILS equipment have been adequately covered by:

(i) Technical Standard Orders (TSO)
(ii) Radio Technical Commission of Aeronautics (RTCA) documents
(iii) Manufacturers' instruction manuals

(2) These standards or their equivalent are generally considered acceptable for inclusion in maintenance/inspection programs for equipment operated to landing

Cat I minimums. Such standards may not be adequate for Category II. Those which will not provide category system performance should be revised to provide the required level of performance.

(b) Category II Tolerances. In many cases, the tolerances for Category II airborne equipment are more rigid than those for Category I. Therefore, the equipment used to inspect, test, and bench check Category II equipment may require more frequent test and calibration.

(c) Established Standards and Tolerances. Standards and tolerance established in the maintenance/inspection program for testing and calibrating airborne equipment and systems that are required for Category II operations should not be relaxed following program approval without adequate substantiation that system performance will not be degraded.

(d) Self-Test Features. Self-test features may be used for periodic inspections if:

(1) They have been evaluated and found to adequately test the system

(2) Instructions for their use and interpretation of self-test indications are included in the maintenance/inspection program portion of the Category II manual. Inclusion in the approved maintenance/inspection program will indicate 'Authority" approval.

39.12 MAINTENANCE PERIOD EXTENSIONS - GENERAL AVIATION

(a) Applications for Extensions

(1) Applications for extensions of maintenance periods for general aviation operators may be considered at the completion of one maintenance cycle of at least 12 calendar months. Application should be made by letter to the Office having jurisdiction of the area in which the operator is located.

(2) The following factors are considered in granting an extension:

(i) Records of Category II approaches due to malfunctioning equipment

(ii) Number of Category II approaches (actual and simulated)

(iii) Maintenance records of Category II equipment failures

(iv) Service history of known trends toward malfunctioning

(v) Unit mean time between failures

(vi) Records of functional flight checks

(b) Check, Test, and Inspection Extensions. Extensions to the check, test, and inspection periods may be granted if factors indicate that the performance and reliability of the Category II instruments and equipment will not be adversely affected. General aviation extension periods, in most cases, would beone calendar month for tests, inspections, and functional flight checks, and four calendar months for bench checks. The operator's program should include procedures for obtaining the extensions.

(c) Increased Extension Periods. The extension periods suggested in paragraph (b) may be increased at the discretion of the Avionics Inspector.

39.13 FUNCTIONAL FLIGHT CHECKS

Some operators have submitted programs that provide for functional flight checks. This procedure must not be approved unless all airworthiness requirements have been satisfied before dispatch. In no instance can a functional flight check be substituted for the certification by maintenance of complete systems or equipment operation.

39.14 REPORTS AND RECORDS - GENERAL AVIATION

(a) Responsibilities of Record keeping. The persons responsible for these reports should be provided training in appropriate parts of the proposed lower landing minimums program.

(b) Category III or any Autoland Category. Operators authorized for Category III, or any Autoland category, should be encouraged to provide reports of airborne equipment malfunctions during actual approaches. The reports may be provided on a yearly basis or at any time the malfunctions significantly affect the Autoland capability.

39.15 PROGRAM APPROVAL PROCEDURES

(a) Review the Maintenance/Inspection Program. Review the applicant's maintenance/inspection program to ensure that it contains control and accountability of the following:

(1) All maintenance accomplished on lower minimum required systems and equipment

(2) All modifications to systems and equipment

(3) Approach status of each aircraft at all times

(4) Evaluations of self-test, Built-In Test Equipment (BITE), or Automated Test Equipment (ATE) to ensure suitability

(5) Spare equipment

(6) Maintenance calibration, use of test equipment, records/reporting requirements

(7) Repetitive and chronic discrepancies to ensure the affected aircraft remains out of lower minimums approach status until positive corrective actions is made

(8) All aircraft in the fleet that have not been evaluated for lower minimums approaches

(b) Review the Existing Maintenance/Inspection Programs. Ensure that the existing maintenance/inspection program has procedures for the following:

(1) Identifying chronic discrepancies and corrective action follow up

(2) Keeping aircraft with chronic and/or repetitive discrepancies out of a lower minimum status until positive corrective action is taken

(3) Training maintenance personnel assigned to reliability analysis

(4) Initial evaluation checks for existing aircraft and for new aircraft to the fleet before inclusion in the operator's lower minimum operations

(5) Identification of all components used in the lower minimum systems in the existing parts pool, parts borrowing procedure, and control of spare parts

(6) Ensuring that calibration standards for all test equipment used for maintaining lower minimum systems and equipment are met

(7) Ensuring that each flight crew and persons with operational dispatch authority are aware of any equipment malfunction that may restrict lower minimum operations

(c) Review the Functional Flight Checks. If a functional flight check has been submitted, ensure that the following information is included:

(1) Maintenance clearance and/or concurrence before an aircraft is returned to a lower minimum status, even if the functional flight check was found to be satisfactory

(2) Request for a flight check by maintenance in the aircraft log

(3) Maintenance entry acknowledging the results and the action taken

(d) Evaluate the Supporting Data. Unless the applicant provides supporting approval data, the Avionics Inspector should coordinate with the Operations Inspector and C. O. to determine the acceptability of each aircraft for the authorizations requested.

(e) Review the Minimum Equipment List (MEL). Appropriate sections of the MEL must be revised to identify Category II required systems and special procedures, if applicable.

(f) Review the Personnel Training Requirements. Ensure there are procedures for the following:

(1) Ensuring personnel contracted to perform Category II related maintenance are qualified and the program requirements are made available to these persons

(2) Training and/or recurrent training for the air taxi maintenance personnel. Personnel not qualified to perform maintenance on Category II systems and equipment, including flight crew and dispatch, should be trained in the airworthiness release requirements of the lower minimums program.

39.16 TASK OUTCOMES

The Principal Operations Inspector has the primary responsibility to grant the operator approval for lower minimums. It is the Avionics Inspector's responsibility to evaluate and approve the avionics requirements and associated support programs. Successful completion of this task will therefore consist of coordination with the Operations ASI for sending all original Category II and IIIa documentation to C.O.

The following data is useful.

- FAR Parts 23, 25, and 61
- FAA AC 91-16, Category II Operations - General Aviation Airplanes, as amended
- FAA AC 120-28C, Criteria for Approval of Category III Landing Weather Minima,
- FAA AC 120-29, Criteria for Approving Category I and Category II Landing Minima

CHAPTER 40: PARTS POOLING & BORROWING

40.1 BACKGROUND

(a) An operator must ensure that all replacement parts meet or exceed original certification standards. Standard hardware and materials from recognized sources can be used and exchanged without special procedures.

(b) When special requirements must be met, accurate documentation must be maintained. The purchase, use, and exchange of parts require special procedures that must be part of the operator's approved Maintenance Procedures Manual.

(c) This chapter provides guidance in evaluating and approving aircraft parts, a parts pool, and a parts borrowing authorization.

40.2 DEFINITIONS

(a) **Operator Manufactured Parts:** Some states require that parts manufactured and documented by the operator can only be used on that operator's aircraft. The parts must comply with the original type design and cannot be part of a pool or borrowing agreement.

(b) **Parts:** Any engine, propeller, component, accessory, material, or hardware used on operators aircraft.

(c) **Parts Manufacturer Approval (PMA):** PMA parts are parts produced by manufacturers other than the type certificate holder. These parts must be identical to parts covered under a type certificate, and they must be marked as such.

(d) **Supplemental Type Certificate (STC):** When a major change in type design does not require a new application for a type certificate, a supplemental type certificate is issued. Parts manufactured under a supplemental type certificate are approved under the supplemental type certificate.

(e) **Technical Standard Order (TSO):** A technical standard order is a minimum performance standard for specified articles used on civil aircraft, and is issued by CAA Engineering. These articles may be used on a variety of equipment items.

(f) Type Certificate (TC): A type certificate includes the type design, operating limitations, type certificate data sheet, applicable regulations, and any other conditions or limitations prescribed by the Director.

40.3 PARTS POOL AGREEMENT AUTHORIZATIONS

These authorizations normally are applicable to airline operators operating outside the home state.

(a) When operating under this authorization, all other provisions of the regulations remain applicable.

In addition, the regulations normally require the operator to carry out regular surveillance of the foreign facilities and their procedures to ensure that all work on pooled parts is performed according to the operator's manuals. The operators MPM must include procedures to ensure quality inspectors perform an initial inspection of the involved foreign facilities. This inspection should ensure that facilities meet the

certificate holder's manual requirements, have properly qualified and trained personnel, and can furnish the parts intended.

(b) These authorizations are normally approved by approval of the appropriate section of the company Maintenance Procedures Manual or issuance of the appropriate operations specifications. The MPM or operations specifications are required to only to list those participants (and their locations) inspected by the operator and acceptable to the Director.

(1) In instances where several operators use a foreign facility, the Director normally does not object to a participating operator accepting another participating reputable operator's initial or biennial inspection report, provided the operator's manual reflects the arrangement.

(2) Many states regulations permit the release to service and use of airframe components, powerplants, components, and spare parts that have been maintained, modified, or inspected by persons employed outside the home state who do not hold local licenses or approvals. The operator's MCM or operations specifications must detail this procedure.

(c) Foreign Facility Inspections

(1) The CAA may inspect the foreign parts pool facility parts.

(2) The operator must have in its manual procedures to inspect the parts pooling facilities. The manual also must include procedures to ensure the maintenance of parts according to the operator's maintenance manuals.

40.4 PARTS BORROWING AUTHORIZATION

(a) An operator may be approved to allow it to borrow a part with a higher time since overhaul than authorized in the MPM, subject to certain conditions and limitations. Since no regulations normally govern this activity, the operators MPM or operations specifications must specify that the operator can borrow a part from another operator when the time in service of the available part exceeds the operator's approved overhaul time limit. The parts, however, cannot exceed the lender's approved time limits.

(b) If the number of landings controls the part's service or overhaul time limit, an operator may borrow and use a part for a maximum of 100 hours or 50 landings when the time in service of the part exceeds the borrower's approved time limits.

The following limitations are suggested:

- The part should have a minimum time of 200 hours or 100 landings (if approved time is controlled by landings) remaining before service or overhaul in the lender's program

- If the part is life-limited, the part may not be operated beyond its approved life limit

(c) The Operator's MPM must have procedures to control the above restrictions and must include an approved list of authorized vendors, repair stations, and airlines from which it may borrow parts.

40.5 PARTS APPROVAL

(a) A. Most Civil Aviation authorities do not have the authority to prevent the sale or use of aircraft parts of questionable serviceability. Although it is the operator's responsibility to be aware of the possible consequences of using questionable parts on certificated aircraft, the inspector should offer guidance to help prevent possible problems. An operator using a part of unknown quality, condition, or origin must be able to prove conclusively that such parts conform to the TC and are serviceable.

(b) The operator is responsible for maintaining parts in a condition that ensures the parts continue to meet the original type design. Procedures to ensure this proper maintenance must be part of the operator's manual.

(c) The FAA has a parts manufacturing approval system in effect that allows the FAA to control the sale of reproduction parts. Parts manufactured under this system must display evidence of FAA approval, verifying the origin and serviceability.

(d) Aircraft maintenance organizations and air operators may manufacture replacement parts as part of their maintenance program. These parts are acceptable, provided they are manufactured according to acceptable CAA approved data.

(e) Parts, and components from aircraft that have been involved in accidents or crashes are available to the industry as replacements. Serviceability must be assured before use.

(f) Ex-military aircraft now under civilian type certificates create parts problems, particularly when the original manufacturer has ceased production. Certain parts of original manufacture are available for a given aircraft for a number of years after its departure from military status. If original manufacturer fabrication can be substantiated for such parts, they are acceptable providing they comply with all applicable airworthiness directives.

(g) Certain parts for ex-military or currently manufactured aircraft are and have been scarce.
Occasionally, parties other than the original or approved manufacturer produce these parts illegally and offer them for sale. These illegal parts constitute a hazard to flight safety.

40.6 TYPICAL PARTS POOLING AND BORROWING APPROVALS

The operator is authorized to participate in a parts pool agreement subject to the following conditions and limitations:

(a) *Only the parts pool participants listed in the table below shall be eligible to provide parts to the certificate holder.*

PARTICIPANT	LOCATION
AER LINGUS AIR CANADA QANTAS	 DUBLIN MONTREAL SINGAPORE, SYDNEY, LONDON

(b) *The certificate holder shall not use any part provided by any participant identified herein unless that part complies with applicable provision of the Regulations and the certificate holder's manual.*

(c) *Administration of this agreement, related policies, and maintenance procedures, including those procedures pertaining to the control over subsequent revisions of maintenance data by the foreign air carrier, shall be included in the certificate holder's manual.*

40.7 PARTS BORROWING AUTHORIZATION

The operator is authorized to use a borrowed part in accordance with the following conditions and limitations:

(a) The borrowed part must be obtained from a certificated operator maintaining aircraft under continuous airworthiness maintenance program.

(b) A borrowed part having a higher time in service since overhaul that the certificate holder's approved overhaul time limit may be used as follows:

(1) The part must have at least 200 hours time in service remaining until overhaul (or 100 landings if the overhaul time limit is controlled by landings) in relation to the lender's overhaul time limit.

(2) The part may be used for a time period not to exceed 100 hours time in service (or 50 landings if the overhaul time limit is controlled by landings).

(c) The certificate holder shall not use a "life-limited" borrowed part beyond its approved life limit.

CHAPTER 41: GENERAL AVIATION OPERATOR'S MAINTENANCE RECORDS

41.1 OBJECTIVE

This chapter describes the process used to inspect the maintenance records of general aviation aircraft.

41.2 GENERAL

(a) The Liberia Civil Aviation Regulations establishes the record keeping responsibilities and requirements for the owner/operator of an aircraft. To comply with the maintenance recording requirements of Liberia Civil Aviation Regulations, the applicant's maintenance manual must identify and contain procedures to complete all applicable documents used by the applicant.

(1) Current Airworthiness Directive (AD) Status. The applicant is required to keep a record showing the current status of applicable ADs, including the method of compliance

(i) This record shall include the following:

- The applicable AD list and the AD revision number.
- The date and time in service or cycles, as applicable.
- The date and method of compliance.
- The time in service or cycles and/or date when the next action is required (if it is a recurring AD).

(ii) An acceptable method of compliance should include a reference to one of the following:

- A specific portion of the AD.
- A manufacturer's service bulletin, if the bulletin is referenced in the AD.
- Another document generated by the applicant that shows compliance with the AD, such as an Engineering Manual (EO) or Engineering Authorization (EA).

(iii) When an Engineering Manual/Engineering Authorization is used, the details must be retained by the applicant. If the Engineering Manual/Engineering Authorization also contains the accomplishment instructions and sign-off, it must be retained indefinitely

(iv) An applicant may apply for an alternate method of compliance for accomplishing ADs. Alternate methods of compliance must be approved by the appropriate CAA Certification Directorate/Department and apply only to the applicant making the application

(v) The applicant's manual must have procedures to ensure compliance with new, emergency ADs within given time limits

(vi) The document that contains the current status of ADs/method of compliance may be the same as the record of AD accomplishment, although the retention requirements are different.

- The record of AD accomplishment must be retained until the work is superseded or repeated.
- The AD status, including the method of compliance record will only be retained until the work is superseded or repeated.

(2) *Total Time in Service Records*. Total time in service records for airframes, engines, propellers and rotors are to be retained by the owner/operator. These records are used to schedule overhauls, retirement life limits, and inspections and may consist of the following:

(i) Aircraft maintenance record pages

(ii) Separate cards or pages,

(iii) A computer listing

(iv) other methods accepted by LCAA as described in the applicant's manual.

Total time in service records must be retained with the aircraft indefinitely. If the airplane is sold, the records must be transferred to the purchaser.

(3) *Life-Limited Parts Current Status Records.* The owner/operator is required to retain a current status record for each airframe, engine, propeller, rotor, and appliance component that is identified to be removed from service when the life limit has been reached.

(i) The current life-limited status of the part is a record indicating the life limit remaining before the required retirement time of the component is reached. This record must include any modification of the part in accordance with ADs, service bulletins, or product improvements by the manufacturer or applicant

(ii) The following are not considered a current life-limited status record:

- Work Manuals.
- Maintenance installation records.
- Purchase requests.
- Sales receipts.
- Manufacturer's documentation of original certification.
- Other historical data.

(iii) Whenever the current status of life-limited parts records cannot be established or has not been maintained (e.g., a break in current status) and the historical records are not available, the airworthiness of that product cannot be determined and it must be removed from service.

(iv) Current status of life limited parts records must be retained with aircraft indefinitely. If the airplane is sold, the records must be transferred to the purchaser.

(4) *Certification for Release to Service.*

(i) Following the performance of maintenance, preventive maintenance, or alterations on an aircraft, certificate of release to service must be completed before the aircraft is operated.

(ii) The person ensuring the certificate of release to service on the aircraft, airframe, engine, propeller, rotor, appliance, or component must make an entry in the maintenance record that contains the following information:

- The type of inspection, with a brief description of the extent of the inspection.
- The date of the inspection and the aircraft total time in service.
- The signature, certificate number, and type of certificate of the person making the approval/disapproval.

(5) *Overhaul List.* The applicant is required to develop manual procedures for recording the time since the last overhaul of all items installed on the aircraft that are required to be overhauled on a specified time basis. The items requiring overhaul are listed either on the operations specifications or in a document referenced in the operations specifications.

(i) The overhaul list includes the actual time or cycles in service since the last overhaul of all items installed on the aircraft. If continuity cannot be established between overhaul periods, the last overhaul records must be reviewed to reestablish the currency of the overhaul list.

(ii) The overhaul list refers to the time since last overhaul of an item and must not be confused with an overhaul record, which requires a description of the work and identification of the person who performed and/or approved the work.

(6) *Overhaul Records.*

(i) record must be made whenever an item of aircraft equipment is overhauled and must include the following:

- A description of the work performed or reference to data acceptable to the LCAA.
- The date of completion of the work performed.
- The name of the person performing the work.

- The signature and certificate number of the individual signing the aircrafts certificate of release to service.

NOTE: *A release to service tag does not constitute an overhaul record, but may be used to reference the overhaul records.*

(ii) The owner/operator must retain the record and make it available to the LCAA upon demand. The overhaul records must be retained until the work is superseded by the work of equal scope and detail

(7) *Current Aircraft Inspection Status.* The applicant can be required to retain a record identifying the current inspection status of each aircraft.

(i) This record shall show the time in service since the last inspection required by the inspection program under which the aircraft and its appliances are maintained.

(ii) Inspection work packages or routine and non-routine items generated while performing any part of the inspection program must be retained as follows:

- For one year after the work is performed.
- Until the work is repeated or superseded by other work.

(8) *Major Alteration and Major Repair.*

(i) Applicants are required to retain records of current major repairs and major alterations that are accomplished on the following:

- Airframe.
- Engine.
- Propeller.
- Rotor.
- Appliance.

(ii) Major alterations and major repairs must be listed with the date of accomplishment and a brief description of the work performed.

(iii) The manual must include procedures for extracting the information required for the list from the actual record of accomplishment of the major alteration or major repair.

41.3 PROCEDURES

(a) C*onduct the Owner/Operator.* Arrange to obtain the aircraft maintenance records for review. If custody of the records is to be temporarily transferred to the LCAA, provide a receipt to the owner/operator.

(b) Review the owner/Operator's Maintenance Records. Determine whether the record keeping requirements of the Liberia Civil Aviation Regulations have been met.

(1) Ensure the entries for maintenance include the following:

(i) A description of the work performed or a reference to data acceptable to the LCAA.

(ii) The date of completion.

(iii) Signature and certificate number of the person releasing the aircraft service.

(2) Ensure entries for inspection include the following:

(i) Type of inspection

(ii) Brief description of the extent of the inspection.

(iii) Date of the inspection

(iv) Total time in service for the aircraft.

(v) Signature, certificate number, and type of certificate held by the person signing or disapproving the signing of the aircrafts of release to service.

(vi) A statement certifying the airworthiness status of the aircraft.

(3) Ensure the owner/operator has records containing the following information:

(i) Total time in service for the airframe.

(ii) The current status of life-limited parts of each airframe, engine, propeller, rotor and appliance.

(iii) Total time since last overhaul for those items installed on the aircraft that are required to be overhauled on a specified time basis.

(iv) Current inspection status of the aircraft, including time since last inspection, as required by the program under which the aircraft and its appliances are maintained.

(v) Copies of Major Repairs and Alterations, for each major alteration to airframe, engine, rotors, propellers, and appliances.

(4) Ensure the owner/operator has records for the current status of each applicable Airworthiness Directive, including the following:

(i) A list of Airworthiness Directives applicable to the aircraft, to include the Airworthiness Directive numbers and revision dates.

(ii) The method of compliance.

(iii) The time when the next action is required for a recurring Airworthiness Directive.

(c) *Analyze Results*. Bring any discrepancies to the attention of the owner/operator.

41.4 TASK OUTCOMES

(a) Return Records to the Owner/Operator.

(b) Document the Task. File all supporting paperwork in the owner operator's office file.

41.5 FUTURE ACTIVITIES

Routine surveillance.

CHAPTER 42: GROUNDING OF OPERATOR'S AIRCRAFT

42.1 OBJECTIVE

This chapter provides guidance for grounding an aircraft used in air transportation, under the provisions of the Liberia Civil Aviation Regulations.

42.2 GENERAL

(a) An inspector will seldom have to impose the grounding provisions of the above Liberia Civil Aviation Regulations. The knowledge that the inspector has this authority and is not reluctant to use it is usually sufficient to cause an operator to take the necessary corrective actions.

(b) An inspector must be able to substantiate a grounding action with factual justification of an unsafe condition. The grounding notice must not be issued unless it is clear to the inspector that, if operated in this condition, the aircraft would be subject to the probable danger of an accident and likely to cause injury/damage to persons or property.

42.3 INSPECTOR RESPONSIBILITY

An inspector who becomes aware of an unsafe condition in an aircraft that is being operated or about to be operated and fails to act under the provisions of Liberia Civil Aviation Regulations as amended, is in dereliction of duty. This duty is placed specifically upon the inspector. If the inspector, after due consideration, still has any doubts regarding whether or not to ground the aircraft, the grounding notice should be issued.

42.4 PREREQUISITES AND COORDINATION REQUIREMENTS

(a) Prerequisites

Knowledge of the Liberia Civil Aviation Regulations, as amended.

(b) Co-ordination.

This task will require co-ordination between the Aviation Safety Inspector (ASI), the of Flight Safety Standards Directorate, and the Director General (DG), LCAA.

42.5 PROCEDURES

(a) *Determine Extent of Problem.* In order to issue a grounding notice, the inspector must come to the following conclusions:

(1) The aircraft is not in a condition for safe operation.

(2) The operator intends to put the aircraft into revenue service in that unsafe condition.

(3) This unsafe condition constitutes a hazard to persons and/or property.

(b) *Consult with the Director of Flight Safety Standards/DG, if Time Permits*. This coordination must not interfere with any immediate action necessary to ground an unsafe aircraft that is expected to operate.

(1) Before notifying an operator that an aircraft is being grounded, the inspector may if circumstances permit, consult by phone with Manager of Flight Safety Standards/DG.

(2) If the inspector performing the task is not the ASI assigned to the operator, the inspector should consult with the assigned inspector, time permitting.

(c) *Notify Appropriate Responsible Personnel that the Aircraft is grounded*

(1) Immediately after discovering the unsafe condition, verbally notify the pilot in command or other operator responsible personnel who have the authority to keep the aircraft on the ground, of the following:

(i) The aircraft cannot be operated for a specified, period or until the unsafe condition is corrected.

(ii) The reasons for the grounding action.

(iii) That necessary precautions must be taken to ensure that the aircraft is not operated.

(iv) The authority of the Liberia Civil Aviation Regulations, as amended.

(2) In the event that the representative of the operator responsible insist upon written notification of the grounding as a prerequisite to taking the aircraft out of service, provide a letter containing as much information as possible.

(d) *Debrief Manager of Flight Safety Standards/DG.* Provide details of the grounding to the Manager of Flight Safety Standards/DG in accordance with established procedures.

(e) *Ensure That Written Notification is* Received by the Appropriate Operator Responsible Personnel. Obtain a receipt for the written notification. The word "received," date, and signature of an operator representative on a copy of the notification is sufficient.

(f) *Determine if Violation Action is Necessary.* If the unsafe condition was as a result of a failure to comply with the Liberia Civil Aviation Regulations initiate enforcement action in accordance with established office procedures.

42.6 TASK OUTCOMES

(a) *Confirm Verbal Grounding in Writing.* As soon as possible, confirm the verbal grounding in writing. Include the following information:

(1) Time and date when verbal grounding notification was given.

(2) Person(s) to whom verbal grounding notification was given.

(3) A statement of unsafe condition(s) that caused the temporary grounding action.

(4) A statement that the Liberia Civil Aviation Regulations, as amended, was used as authority for the grounding action.

(5) A statement that specified grounding period began when the inspector first verbally notified the operator.

(b) *File copies with the Office of Director Flight Safety Standard/DG.*

(1) Provide the details of the grounding and a copy of the grounding confirmation to the operator's assigned inspector, when applicable.

(c) *Document Task. File all supporting paperwork in the operator's file in the office of Director Flight Safety Standards.*

42.7 FUTURE ACTIVITIES

(a) *Inspector*

(2) Closely follow the action taken by the operator to correct the unsafe condition. If the condition is corrected and the aircraft is made safe for the operation before the specified period elapse, notify the operator in writing that the aircraft may now be operated.

(3) If the unsafe condition is not corrected, and there is good reason to expect the operator will operate the aircraft after the specified time elapse, inform the *Manager, Flight Safety Standard/DG*.

(4) of this situation. Request that a formal order be issued by the legal counsel suspending or revoking the Certificate of Airworthiness. This action should be initiated in time to allow such an order to be issued effective immediately upon termination of specified grounding period.

(b) *Manager, Flight Safety Standard*

(1) The Manager, Flight Safety Standard, after receiving the details of the grounding, will notify the DG as promptly as possible. The DG will be given all pertinent details, including a copy of the written confirmation of grounding given the operator by the inspector.

(2) If there is a possibility that the operator will contest the grounding action, the Minister should be informed promptly for the facts, conditions, and circumstances involved.

AIRCRAFT GROUNDING

THIS IS TO INFORM YOU THAT AIRCRAFT MAKE _____, MODEL _____, SERIAL #_____, -_____ IS FOUND TO BE UNSAFE FOR OPERATION

DUE TO THE FOLLOWING CONDITION:

_____

_____

AS A RESULT OF THIS UNSAFE CONDITION AND DUE TO THE FACT THAT _____AIRLINES INTENDS TO OPERATE A8 _____ IN REVENUE SERVICE, THE LCAA HEREBY EXERCISES THE GROUNDING AUTHORITYOF THE **LIBERIA CIVIL AVIATION REGULATIONS** AS AMENDED.

VERBAL NOTIFICATION OF THE GROUNDING OF A8 _____HAS BEEN GIVEN TO (NAME) _____ ON (DATE)_____ AT(TIME)_____ UNDER THE PROVISIONS OF THE **LIBERIA CIVIL AVIATION REGULATIONS** AS AMENDED, AIRCRAFT, A8_____IS GROUNDED FOR A PERIOD OF_____ DAYS AND CANNOT NOT BE USED IN AIRTRANSPORTATION UNLESS FOUND BY THE NCAA TO BE IN A SAFE CONDITION FORSAFE OPERATION. THE GROUNDING STARTED AT THE TIME OF

VERBALNOTIFICATION BEING GIVEN:

LCAA AVIATION SAFETY INSPECTOR _____

DIRECTOR GENERAL, LCAA _____

RECEIVED BY (NAME) _____

OPERATOR's NAME _____

DATE _____

CHAPTER 43: EVALUATION AND APPROVAL OF AN AVIATION TRAINING ORGANIZATION

43.1 PURPOSE

This Chapter is issued to provide basic information and guidance to Authority inspectors when evaluating Aviation Training Organization (ATO) for certification and approval under the Liberia Civil Aviation Regulations.

43.2 GUIDANCE INFORMATION

43.2.1 General

The ATO approval and certification is carried out in accordance with the standard certification Five Phases Process.

43.2.2 Pre Application Phase

(a) After the applicant has made contact with the Authority on the intention to apply for an ATO approval. The Authority will evaluate the complexity of the proposed operation for the establishment of a certification team. The Authority will assign an inspector who will be the Certification Project Manager (CPM) and contact person for the Authority during the certification process.

(b) The CPM shall arrange for a pre application meeting with the applicant to discuss the formal application requirements. These shall include the following:

(1) **Personnel** - Part 3, section 3.3 of the Liberia Civil Aviation Regulations(LCARs) makes reference to competent and qualified Staff and should include the -

(i) Accountable manager;

(ii) Quality control manager;

(iii) Head of Training or Chief Instructor

(iv) Adequate number of instructors relevant to the courses provided, qualified in accordance with the requirements of Part 2 of the Liberia Civil Aviation Regulations.

(2) **Facility and Equipment:** The ATO facility and equipment make reference to part 3, paragraph 3.2.13 of the Liberia Civil Aviation Regulations:

(i) Adequately equipped classrooms for the maximum number of students expected to be taught;

(ii) A well-equipped library;

(iii) Workshops, Equipment, General and Special Tools, adequate supply of materials that are required for the rating sought;

(iv) Adequate Office Facilities; and

(v) Examination facilities and Training records.

(3) **Training program:** The Training Program makes reference to Part 3 of the Liberia Civil Aviation Regulations and shall include:

(i) Pre-requisite entry qualification;

(ii) The course syllabus;

(iii) Proposed training schedules;

(iv) Type of facility to be used for training (ATO);

(v) Special training requirement i.e. simulator, internship etc.;

(vi) Assessment and certification.

(4) Each trainee shall maintain an engineer's record of experience/log book and have it available for inspection by the Authority.

(5) **Documentation and Manuals:** The manuals make reference to Part 3 of the Liberia Civil Aviation Regulations, these will include the following:

(i) Procedures manual;

(ii) Training manual;

(iii) Quality manual;

(iv) Training programs; and

(v) Reference manuals etc.

(6) Additional information to the applicant:

(i) The formal application form and the necessary advisory material;

(ii) The non-refundable application fee;

(iii) The approval process facilitation; and

(iv) The approval process schedule of events.

43.2.3 Formal application

(a) The application package and proof of approval fee shall be forwarded to the inspector assigned.

(b) A cursory review will be carried out by the team on the application package to determine its acceptance.

(c) On rejection the inspector will give a summary of the observed shortcomings in writing and return the package to the applicant.

(d) The formal application is submitted to the Authority at least 90days before the intended date of commencement.

Note: *The 90 days are effective after acceptance of the application.*

43.2.4 Document evaluation

On acceptance the team will carry out an in-depth evaluation of the application package to ensure conformity to the regulatory requirements.

43.2.5 Demonstration and Verification

During the demonstration and evaluation inspection it is required to establish that the procedures, facilities, equipment and personnel are in accordance with those stipulated in the associated manuals and documents evaluated.

43.2.6 Certification

(a) When the applicant has met all regulatory requirements, the assigned inspector will accomplish the following:

(1) Complete the audit form and recommend for the issuance of the approval.

(2) Prepare the Operations Specifications showing the ratings and limitations.

(3) Prepare the Approval Certificate Form which will be signed by the Authority.

(4) Ensure that the records kept in the organization's file contains the following:

(i) A completed copy of the audit form;

(ii) A copy of the statement of compliance;

(iii) A copy of the certificate issued;

(iv) A copy of the operations specifications issued.

(b) If the applicant is unsuccessful in obtaining the approval the CPM will write a summary report to the Director responsible for safety oversight and the applicant will be notified in writing explaining the reasons for the rejection.

(c) **Validity:** The period of validity of the certificate of approval shall be 24 months unless otherwise specified by the Authority.

(d) **Approval renewal:** An approved Training Organization may apply for renewal of its certificate at least30 days before the expiry date in order to ensure continuity of the training. On receipt of the application the Authority shall assign inspector(s) to carry out the pre-renewal audit. The approval will be renewed when the Authority establishes that the ATO still meets the regulatory requirements and operates in conformity with the approved training specifications and ratings.

(e) Amendments to the Approval: A holder of an ATO certificate shall not make any change to approved training specifications, ratings and limitations unless such changes are approved by the Authority.

CHAPTER 44: GUIDELINES ON THE IMPLEMENTATION OF ARTICLE 83 bis

44.1 OBJECTIVE

This section provides guidance for implementation of Articles 83bis in accordance with provision in the Liberia Civil Aviation Act and LCARs PART 9.

Reference: ICAO, Annex 6, Part I, Chapter 8, Annex 8, Part II Chapter 4, Doc 9760, Vol II, Part B, Chapter 10, Doc 8335 Chapter 10 Circular 295.

44.2 GENERAL

(a) All or part of the duties and function pertaining to Articles 12, 30, 31 and 32*)* a of the Convention may be transferred from the State of Registry to the State of the Operator. The duties and functions to be transferred must be mentioned specifically in the transfer agreement as, in the absence of such mention, they are deemed to remain with the State of Registry.

Note: *Guidance on the transfer of airworthiness-related duties and functions may be found in the* Airworthiness Manual *(Doc 9760), Volume II, Part B, Chapter 10 — International Leasing Arrangements.*

Authorities concerned shall give special consideration to the objectives of continuing airworthiness and to the transfer of information as required in Annex 6, Part I, 8.3 to 8.8,as well as in Annex 8, Part II, Chapter 4.

Additional guidance regarding operational surveillance may be found in the Manual of Procedures for Operations Inspection, Certification and Continued Surveillance (Doc8335), Chapter 10 — Lease, Charter and Interchange Operations.

(b) States should not enter into a transfer agreement if the State of the Operator concerned isnot capable of adequately performing the duties and functions that are envisaged for transfer.

(c) The aircraft concerned should be clearly identified in the agreement by including referenceto the aircraft type, registration and serial numbers.

(d) Any type of commercial arrangement for cross-borders lease, charter or interchange ofaircraft, or any similar arrangement, may give rise to a transfer agreement.

Note: Article 83 bis *refers* inter alia *to "lease" in general, not excluding wet leases in principle. Nevertheless, the application of Article 83* bis *to wet lease arrangements would then require that foreign wet-leased aircraft concerned be operated under the lessee's AOC. Such cases are rare, in view of the difficulty for the State of the lessee, as State of the Operator, to implement the operational requirements of Annex 6 to the Convention.*

(e) The issuance of an AOC, as required by Annex 6 for international commercial operations, is not an absolute precondition for such a transfer agreement, the object of which may be general aviation aircraft as well.

(f) The duration of the agreement on the transfer should not exceed the period covered by the corresponding commercial arrangement (for example, the lease). Accordingly, the period of

validity of the transfer should be mentioned in the agreement, taking into consideration that the registration of the aircraft concerned will not be changed.

(g) The level of authority for signing transfer agreements should be equivalent to that required for administrative arrangements between aeronautical authorities.

> ***Note:*** *Pursuant to Article 83, as referred to in Article 83* bis b)*, the* Rules for Registration with ICAO of Aeronautical Agreements and Arrangements *(Doc 6685) apply to any agreement or arrangement relating to International civil aviation. Implementation of Article 83* bis *may be made through administrative agreements or arrangements between civil aviation authorities, usually signed at the level of director general, i.e. they do not require diplomatic credentials for signature, nor do they require ratification. More formal agreements (e.g. bilateral agreements) are, of course, also legally adequate.*

(h) Any transfer agreement signed between States parties to Article 83 bis will be binding upon
the other States parties thereto, on condition that it has been formally registered with the Council of ICAO and made public in accordance with Article 83 of the Convention, or that any third State concerned has been officially advised by way of direct notification, normally by the State of the Operator. Consequently, the State of Registry shall be relieved of responsibility (and, where applicable, of liability) in respect of the functions and duties duly transferred to the State of the Operator, and the latter shall comply with them in accordance with its own laws and regulations.

> ***Note:*** *The Protocol relating to Article 83* bis *(Doc 9318) came into force on 20 June 1997in respect of the States which have ratified it. While direct notification of a transfer agreement may be preferable for the parties in certain circumstances, for instance in the case of short-term arrangements, attention is drawn to the fact that the States' obligation to register such agreements with ICAO, nevertheless, remains unaffected pursuant to Article83 of the Convention. The registered agreements are published in the quarterly* List of Agreements and Arrangements Concerning International Civil Aviation Registered with ICAO*, which is issued by ICAO.*

(i) For the purpose of entering into transfer agreements, and with reference to Assembly Resolutions A23-3 and A23-13, States should ensure that, as a State of Registry, their national legislation enables them to divest themselves of the functions and duties which are the object of a transfer agreement. Furthermore, as a State of the Operator, States should ensure that their national legislation will apply to foreign-registered aircraft subject to a transfer agreement.

(j) Under Article 33 of the Convention, Contracting States must recognize the validity of each other's C of As and crew licenses, provided the conditions of issuance meet the minimum requirements established by the Standards governing personnel licensing (Annex 1) and airworthiness of aircraft (Annex 8). Article 33, it should be emphasized, refers to certificates and licenses "issued or rendered valid by the Contracting State in which the aircraft is registered". The entry into force of Article 83 bis requires a new reading of Article 33: if the authority to issue these certificates and licenses has been formally transferred to the State of the Operator, Contracting States which have ratified Article 83 bis will be obliged to recognize the validity of the certificates and licenses if they have been officially informed of the transfer (on the proviso that the State of the Operator has issued them or rendered them valid, while fully meeting the requirements of Annexes 1 and 8). Accordingly, States ratifying Article 83 bis should ensure that their rules and policies allow

the recognition of C of As and crew licenses issued by the State of the Operator, in addition to those issued by the State of Registry.

(k) States which have ratified Article 83 bis should ensure that the information they have received concerning the existence of transfer agreements relating to aircraft operating to/from their territory is promptly relayed to the national authorities involved in inspection. Adequate procedures need to be developed and implemented for that purpose.

(l) For the purpose of identifying the States responsible for safety oversight on the occasion of any verification process such as ramp inspections, a certified true copy of the transfer agreement should be carried on board the aircraft at all times while the transfer agreement is in force. It is also recommended that a certified true copy of the AOC under which the aircraft is operated, and in which it should be listed, be carried on board.

(m) In case the aircraft is to enter the airspace of Contracting States which are not parties to Article 83 bis, or which are parties but have not been duly advised about a transfer agreement in accordance with this provision, the certificates and licenses on board the aircraft should be issued or rendered valid by the State of Registry as the latter would, in this case, remain fully responsible in regard to Articles 30, 31 and 32 a) of the Convention despite the transfer agreement with the State of the Operator.

44.3 PROCEDURES

(a) Coordination. This task requires coordination among Director General's office, Legal Unit, Training and the Department of Flight Safety Standards and may also require coordination with the regulatory authority of the State of Registry/State of Operator (as the case may be).

The Director General will determine the officers that will attend the meeting to draw up the agreement in accordance with the draft agreement.

(b) The Authority shall prior to meeting the CAA of the State of Registry/Operator obtain information on the safety oversight capabilities, and the level of compliance with ICAO Standards, of the CAA of the State of Registry/Operator by accessing information from the ICAO Universal Safety Oversight Audit Program (USOAP).

This information is available—

(1) On the ICAO website http://www.icao.int and accessible through the Flight Safety Information Exchange (FSIX) - Safety Oversight Information - Audit Reports (1999-2004) or Audit Reports (Comprehensive Systems Approach); and

(2) On the ICAO Safety Oversight Audit (SOA) Secure Site which is accessible, subject to a password available only to the Authority from ICAO, through the FSIX home page.

(c) The Operator is required to submit the following:

(1) A copy of the lease/transfer agreement.

(2) Aircraft Technical Specifications.

(3) Operators Manuals

(d) Meeting must be arranged between State of Registry/Operator and Liberia to discuss all areas of safety oversight functions such as:

(1) Continuing airworthiness of aircraft

(2) Communication with State of Design

(3) Maintenance Responsibility

(4) Aircraft Maintenance Program

(5) Maintenance Records

(6) Continuing Airworthiness Information

(7) Modification and Repairs

(8) Maintenance Organization

(9) Aircraft affected by the agreement

(10) Any significant matters arising out of inspection

(e) Ensure that the Operator's Manual Includes the Following:

(1) Procedures on:

(i) Aircraft modification and repairs.

(ii) Maintenance arrangements

(iii) Maintenance Program.

(iv) Maintenance responsibility

44.4 TASK OUTCOMES

(a) Completion of this task will result in one of the following:

(1) Signing of safety oversight functions transfer agreement between the State of Registry/Operator and Liberia in accordance with Article 83bis.

(2) Notification of ICAO on the existence of such agreement.

(b) Document Task.

File all supporting paperwork in the operator/applicant's office file.

44.5 FUTURE ACTIVITIES

Meeting should be held between the State of Registry/Operator and Liberia to review the agreement at interval specified in the agreement Normal surveillance.

CHAPTER 45: PROCEDURES FOR ISSUANCE OF AIRWORTHINESS DIRECTIVES

45.1 PURPOSE

This chapter prescribes the procedures that must be followed in the publication and circulation of Airworthiness Directives (ADs) as required by the Liberian Civil Aviation Regulations to the industry. Reference: LCARs Part 5. 4.9

45.2 GENERAL

(a) A primary safety function of the airworthiness organization within the CAA is to require correction of unsafe conditions found in an aircraft, aircraft engine, propeller, equipment or instrument or when such conditions develop in other aeronautical products of the same design. The unsafe conditions may be due to design deficiencies, manufacturing defects, maintenance program deficiencies, or other causes. Mandatory Continuing Airworthiness Information (MCAI) are the means used to notify aircraft owners and other interested persons of unsafe conditions and to prescribe the conditions under which the aeronautical product may continue to be operated. One of the most commonly used types of MCAI issued by States is an Airworthiness Directive (AD). Some States may also consider as MCAI any mandatory and alert service bulletins issued by the organization responsible for the type design.

ADs are generally divided into two categories:

(1) those of an urgent nature requiring immediate compliance upon receipt; and

(2) those of a less urgent nature requiring compliance within a relatively longer period.

(b) The implementation of Airworthiness Directive (AD) could be limited to the State that issues the directive. It is essential, however, that appropriate action be taken on all affected aircraft and parts of all States concerned. States should therefore carefully assess the AD issued by the State of Design. The State of Design and the type design organization are primarily responsible for issuing this airworthiness information and are best suited for being informed about accidents, incidents and service experience concerning the continuing airworthiness of aircraft. A State of Registry may adopt by reference the AD issued by the State of Design of the aircraft, engine, propeller and appliances/accessories. Therefore, aircraft AD could be issued from a different State than the engine, propeller and appliances/accessories AD. The State should ensure that its operators have access to relevant AD and implement the required actions within the compliance time limit

(c) In addition to the MCAI issued by the State of Design, the State of Registry may issue MCAI for an aircraft on its register. States should only make mandatory requirements additional to those of the State of Design when there are urgent safety-related reasons or when the State of Registry has modified an aircraft because of unique airworthiness requirements. When possible, such action should entail prior consultation with the State of Design, but in all cases the State of Design should be notified as soon as practicable.

45.3 PROCEDURES

(a) ACTION BY THE LCAA UPON RECEIPT OF AIRWORTHINESS DIRECTIVES FROM STATE OF DESIGN

(1) Airworthiness Directive (AD) issued by the State of Design are automatically applicable to all Liberian registered aircraft as required by regulation 5.4.1.9(a)& (b)The Department Of Flight Safety Standards would assess the AD and verify during C of A renewal and during safety audit whether or not the AD is applicable to the aircraft on the Nigeria aircraft register and can be accomplished as intended. For instance, in some cases the aircraft may have been modified or had equipment installed without the type design organization or the State of Design directly involved in that modification or installation approval.

(2) The Department of Flight Safety Standards Principal Inspectors should be aware that some States of Design do not issue their Mandatory Continuing Airworthiness Information (MCAI) in the form of ADs, and may instead give mandatory status to notices such as Service Bulletins(SBs) or by requesting the type design organization to include a statement in the SB that the information has mandatory status for aircraft registered in the State of Design. Some States of Design publish summary lists of SBs which are classified as mandatory.

(3) Any service information made mandatory by the State of Design should be clearly distinguished from service information that might be declared mandatory by the organization responsible for the type design. The type design organization may have classified the information as mandatory for the purpose of improving maintainability, inspectability, the part's life-limit or for liability reasons. The Department of Flight Safety Standards Principal Inspector should require operator to accomplish all service information made mandatory by State of Design in order to keep the aircraft airworthy. All relevant AD and service information should be recorded in the maintenance records and all the related maintenance records should be kept so that they could be presented to the LCAA upon request. Proper documentation of mandatory actions will also enable a smoother transfer of aircraft between States.

(4) If an operator wishes to comply with the AD in an alternative way or have an extension of its compliance limit, a written request should be submitted for approval to the LCAA and in the case of the mandatory information issued by the State of Design and adopted by the LCAA, the LCAA may not be able to make such a decision due to lack of relevant information or expertise. In such a case, the LCAA may consult the CAA of the State of Design or accept advice from the type design organization.

(b) ISSUANCE OF AIRWORTHINESS DIRECTIVES BY LCAA

(1) The Liberian Civil Aviation Authority (LCAA) through the Directorate of Flight Safety Standards is empowered by Civil Aviation Act of 2019) to develop, publish and circulate to the aviation industry Airworthiness Directives as soon as the LCAA considers a condition in an aircraft, airframe, engine, propeller, appliances or component is unsafe.

(2) The Department of Flight Safety Standards may assess manufacturer's Service Bulletins and Alert Service Bulletins for potential Airworthiness Directive action[regulation 5.4.9(c)].

(3) If the Department of Flight Safety Standards does not find the required action taken by the State of Design sufficient to correct an unsafe condition, the LCAA will issue its own mandatory action [regulation 5.4.9(c)]. In addition, the LCAA will make the necessary coordination with the State of Design.

(4) The Flight Safety Standards Directorate will constitute a team to draft the AD in consultation with the Type Design Holder and possibly the State of Design. At a minimum, the contents of ADs include the aircraft, engine, propeller, equipment or instrument type, model and serial numbers affected. Also included are the compliance time or period, a description of the difficulty experienced, and the necessary corrective action.

The AD shall contain the following:

(i) The Unsafe Condition that the AD is meant to prevent

(ii) The action required or compliance.

(iii) The alternative method of compliance, if available.

(iv) The cost of compliance and man-hours required, if determinable

(v) Reference SB, ASB or other technical document, if available

(vi) The applicability

(vii) The effective date.

(5) AD Consultation Process

After the draft AD specified in the Para (4) above is completed, the final proposed AD after Director General's approval will be published Notice of Proposed Airworthiness Directive (NPAD) on LCAA website for 30 days for public comments. If deemed necessary, Department Of Flight Safety Standards may decide to modify this period depending on the type of proposed AD. The Department Of Flight Safety Standards may collect public comments, either in a meeting or in written, from the original equipment manufacturer (OEM) and operators to provide comments about corrective actions for unsafe conditions, reasonable cost impact, practicable effective date and compliance time etc.

(6) Approval of the Proposed AD

All Comments received within the comment period will be consolidated and adraft Comment Response Document will be prepared by the team. The Comment Response Document will be submitted to the Directorate of Flight Safety Standards for review through GM-ASA. The Department of Flight Safety Standards with his management reviews the comments received to decide appropriate responses. The Directorate of Flight Safety Standards may consult expert from industry to finalize the corrective action plan. The AD team after incorporating the changes on the basis of decision taken on the comment response document, will prepare the final AD and submit through GM-ASA to Department of Flight Safety Standards for approval of the DG. When time constraint makes collecting public comments impracticable, the LCAA may issue the AD first then collect public comments later to revise the AD. After the AD specified above is issued, the Directorate of Flight Safety Standards may collect comments, either in a meeting or in written, from the public to revise the AD when necessary.

(7) Numbering of AD

The approved AD will be allotted a number. AD number for a new or superseded AD will be given in a format LCAA-YR-MTH-ADXXX for example, LCAA-2016-01-

AD001, where LCAA stands for the Liberian Civil Aviation Authority, and the 1st string represents the year, the 2nd string represents the month, and the last string is the number in sequence Airworthiness Directive - AD 001, AD 002

(8) Changes to previously issued AD

If changes to previously issued ADs are deemed necessary, these changes are issued as corrections or revisions to the original AD depending on the nature of the content being changed. In addition, ADs may be superseded by new Ads depending on the nature of the content being changed. The final consideration is the effect the change will have on the AD and on the owners/ operators who would be affected by the AD.

(9) Corrected AD

The simplest form of an AD change is a corrected AD of non-substantive material, i.e., the change has no effect on compliance with the AD. An AD may require correction of a non-substantive LCAA error or a printing error in the LCAA website. If a non-substantive error or typing error is found in an AD, it may be called for correction. The Flight Safety Standards Directorate reviews such error in the AD in coordination with AD team, if necessary. Then, the GM-ASA corrects the AD and submits it to the Flight Safety Standards Directorate for approval and publication. The original AD is replaced with the corrected AD. The corrected AD is indicated with letter 'A' at the end of last string on the original AD number e.g. LCAA-2016-01-AD001A.

(10) Superseding / Revised AD

A substantive change to an AD, is issued as a superseded AD. Substantive changes, including corrections, are those made to any instruction or reference that affects the substance of the AD. Substantive changes may include part numbers, service bulletin and manual references, compliance time, expanded applicability, methods of compliance, corrective action, inspection requirements, and effective dates. In general, whenever there is an additional (or different) requirement imposed or an expanded scope of required inspection, the change should be issued as a superseded AD. Substantive changes to an AD are assessed by the Department Of Flight Safety Standards in coordination with the TC/STC holder / Industry expert following the process detailed above. After approval of DG, the AD will be issued for distribution and publication. The reason paragraph should include a discussion of each change, how each change affects compliance, and the fact that all other parts of the AD remain as originally published.

(11) Record Keeping

All records related to procedures followed for issuance of AD /EAD should be retained in the TFCC. Before issuing an AD, an AD database containing all key data should be maintained for making AD lists and AD inquiries. The processes leading to the issuance of AD will be filed in a file called AD process file.

(12) Notification, Distribution and Publication of the AD

The approved AD will be published on LCAA website for compliance by stakeholders. A copy of AD will also be forwarded to the TC / STC holder and

affected owners/operators by email. The information on AD, will also be forwarded to the State of Design for information.

45.4 EMERGENCY AD PROCEDURES

(a) In case of situations, in which emergency action by LCAA is required, the Flight Safety Standards Directorate reviews the proposed corrective action and assess, if an Emergency AD is appropriate. The Flight Safety Standards Directorate then drafts the Emergency AD in co-ordination with the TC/ STC holder or industry expert, if available. As the Emergency AD requires immediate notification and publication, the Flight Safety Standards Directorate submits the Emergency AD to DG for approval.

(b) LCAA may decide not to implement the consultation process. A justification explaining why the consultation process is not followed and the reasons for issuing an Emergency AD is provided in the text of the Emergency AD, " Reason" .The standard AD review and public comments collection process may be implemented later on and to revise the AD, if required.

(c) Notification, distribution and publication of Emergency ADs

(1) After approval by the DG, in accordance with Para 51.3 (b)(6), the Department Of Flight Safety Standards advises immediately for issuance of the Emergency AD. Intimation, distribution and publication of Emergency ADs follow the provisions under para 51.3 (b)(12).

(2) The effective date of the Emergency AD is the date of approval unless otherwise specified in the AD itself.