SIERRA LEONE CIVIL AVIATION AUTHORITY

ADVISORY CIRCULAR

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Aircraft Maintenance Engineer Licence (General) Skill Test

Director General
Sierra Leone Civil Aviation Authority

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FORWORD

The Sierra Leone Civil Aviation Authority (SLCAA) has developed skill test standards for airmen licences and ratings and these are published as SLCAA Directives (ACs). This AC establishes the standards for the Aviation Maintenance Technician Licence – General Skill Test. Sierra Leone inspectors and designated mechanic examiners shall conduct skill tests in compliance with these standards. Instructors and applicants should find these standards helpful in skill test preparation. Other ACs have been developed for other airmen licences and can be obtained from the SLCAA website: http://www.slcaa.gov.sl

Information considered directive in nature is described in this skill test AC in terms such as "shall" and "must," indicating the actions are mandatory. Guidance information is described in terms such as "should" and "may," indicating the actions are desirable or permissive, but not mandatory.
The Sierra Leone Civil Aviation Regulations (SLCARs) can be obtained from the SLCAA at the address given below. SLCAR Part 1A covers the requirements for Personnel Licensing.

This skill test standard may be downloaded from the SLCAA website at http://www.slcaa.gov.sl Subsequent changes to the skill test standard will also be available on the SLCAA website.

Comments regarding this publication should be sent to:

Sierra Leone Civil Aviation Authority
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SECTION ONE: INSTRUCTIONS

1.1 GENERAL

The SLCAA has developed this skill test AC as the standard that shall be used by SLCAA inspectors and designated examiners when conducting AMTL – General Skill Tests. Instructors are expected to use this document when preparing applicants for skill tests. Applicants should be familiar with this document and refer to these standards during their training.

1.2 PURPOSE

The purpose of this AC is to prescribe the standards that shall be used by SLCAA inspectors and designated mechanic examiners when conducting the Aviation Maintenance Technician Licence (AMTL) – General Skill Test. Instructors are expected to use this document when preparing applicants for skill tests. Applicants should be familiar with this document and refer to these standards during their training.

1.3 SKILL TEST STANDARD CONCEPT

(1) SLCAR Part 1A specifies the areas in which knowledge and skill must be demonstrated by the applicant before the issuance of a licence or rating. SLCARs provide the flexibility to permit the SLCAA to publish skill test standards (STS) containing the AREAS OF OPERATION and specific TASKS in which pilot competency shall be evaluated. "Knowledge" (oral) elements are indicated by use of the words "Exhibits knowledge of...." "Skill" (practical) elements are indicated by the use of the words "Demonstrates the ability to...."

(2) The SLCAA will revise this STS whenever it is determined that changes are needed in the interest of safety. Adherence to the provisions of the regulations and the STS is mandatory for evaluation of pilot applicants.

(3) The STS contains sections. Section one contains the directions and other relevant information for the conduct of the skill test. Section two contains the areas of operation for each skill test. Within the AREAS OF OPERATION are subject area elements, which contain individual TASKS. Some elements are labelled as core competency elements, which mean that the entire element must be completed by the applicant.

1.4 SKILL TEST DESCRIPTION

(1) The Aviation Maintenance Technician Licence – General STS include the subject areas of knowledge and skill for the issuance of an aviation maintenance technician licence. The subject areas are the topics in which aviation maintenance technician licence applicants must have knowledge and/or demonstrate skill.

(2) REFERENCE identifies the publication(s) that describe(s) the subject area. Descriptions of the subject area are not included in the skill test standards, because this information can be found in references listed and/or in manufacturer or SLCAA-approved or acceptable data related to each subject area. Publications other than those listed may be used as references if their content conveys substantially the same information as the referenced publications. Except where appropriate (e.g., pertinent SLCARs), references listed in this document are NOT meant to supersede or otherwise replace data from the manufacturer or approved or accepted by the SLCAA, but to serve as general information and study material sources. Information contained in data from the manufacturer and/or approved and accepted by the SLCAA always takes precedence over advisory or textbook-referenced data. Written instructions given to applicants for the completion of assigned skill portions of the skill test standard may include service bulletins, Airworthiness Directives, SLCARs, type certificate data sheets or specifications,

manufacturer maintenance manuals, and other similar approved/acceptable data necessary for accomplishment of objective testing.

SLCARs Part 1A	Personnel Licensing
SLCARs Parts 6	Operations
SLCARs Part 8	Airworthiness
SLCARs Part 22	General Policies, Procedures, and Definitions
SLCARs Part 25	Instruments and Equipment
SLCARs Part 26	Air Operator Certification
RESERVED	
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(3) Each subject area has an OBJECTIVE. The OBJECTIVE lists the important knowledge and skill elements that must be utilised by the examiner in planning and administering aviation mechanic tests and that applicants must be prepared to satisfactorily perform.

(4) EXAMINER is used in this standard to denote either the SLCAA inspector or SLCAA designated mechanic examiner (DME) who conducts the skill test.

(5) The following abbreviations have the meanings shown:

AC	Advisory Circular (when followed by a number)
AC	Alternating Current (when used regarding electricity)
DC	Direct Current
MMM	Manufacturer Maintenance Manual
TSO	Technical Standards Order

1.5 USE OF THE SKILL TEST STANDARDS

(1) The SLCAA requires that all skill tests be conducted in accordance with the appropriate STS. When conducting the skill test, the examiner must evaluate the applicants knowledge and skill in sufficient depth to determine that the OBJECTIVE for each subject area ELEMENT selected is met.

(2) An applicant is not permitted to know before testing begins which selections in each subject area are to be included in his or her test (except the core competency elements, which all applicants are required to perform). Therefore, an applicant should be well prepared in all oral and skill areas included in the skill test standard.

1.6 SKILL TEST PREREQUISITES

An applicant for an AMTL – General Skill Test is required to meet the general experience requirements in SLCAR Part 1 for an aviation maintenance technician licence and the specific requirements for the rating(s) sought.

1.7 EXAMINER RESPONSIBILITY

The examiner who conducts the skill test is responsible for determining that the applicant meets acceptable standards of knowledge and skill in the assigned subject areas within the appropriate skill test standard.

Since there is no formal division between the knowledge and skill portions of the skill test, this becomes an ongoing process throughout the test.

The following terms may be reviewed with the applicant prior to, or during, element assignment.

(1) "Inspect" means to examine by sight and/or touch (with or without inspection enhancing tools/equipment).

(2) "Check" means to verify proper operation.

(3) "Troubleshoot" means to analyse and identify malfunctions.

(4) "Service" means to perform functions that assure continued operation.

(5) "Repair" means to correct a defective condition.

1.8 PERFORMANCE LEVELS

The following is a detailed description of the meaning of each level.

(1) Level 1

(a) Know basic facts and principles

(b) Be able to find information and follow directions and written instructions

(c) Locate methods, procedures, instructions, and reference material

(d) Interpretation of information not required

(e) No skill demonstration is required

EXAMPLE:

Z3b. Locate specified non-destructive testing methods. (Level 1)

Performance Standard: The applicant will locate information for non-destructive testing.

(2) Level 2

(a) Know and understand principles, theories, and concepts

(b) Be able to find and interpret maintenance data and information and perform basic operations using the appropriate data, tools, and equipment

(c) A high level of skill is not required

EXAMPLE:

Z3c. Detect electrical leakage in electrical connections, terminal strips, and cable harness (at least ten will have leakage faults). (Level 2)

Performance Standard: Using appropriate maintenance data and a multimeter, the applicant will identify items with leakage faults.

(3) Level 3

(a) Know, understand, and apply facts, principles, theories, and concepts

(b) Understand how they relate to the total operation and maintenance of aircraft

(c) Be able to make independent and accurate airworthiness judgements

(d) Perform all skill operations to a return-to-service standard using appropriate data, tools, and equipment. Inspections are performed in accordance with acceptable or approved data

(e) A fairly high skill level is required

EXAMPLE:

Z3e. Check control surface travel. (Level 3)

Performance Standard: Using type certificate data sheets and the manufacturers service manual, the applicant will measure the control surface travel, compare the travel to the maintenance data, and determine if the travel is within limits.

1.9 SATISFACTORY PERFORMANCE

The skill test is passed if the applicant demonstrates the prescribed proficiency in the assigned elements (core competency and other selected elements) in each subject area to the required standard. Applicants shall not be expected to memorise all mathematical formulas that may be required in the performance of various elements in this skill test standard. However, where relevant, applicants must be able to locate and apply necessary formulas to obtain correct solutions.

1.10 UNSATISFACTORY PERFORMANCE

If the applicant does not meet the standards of any of the elements performed (knowledge, core competency, or other skill elements), the associated subject area is failed, and thus, the skill test is failed.

The examiner or the applicant may discontinue testing any time after the failure of a subject area. In any case, the applicant is entitled to credit for only those subject areas satisfactorily completed.

Typical areas of unsatisfactory performance and grounds for disqualification include the following:

(1) Any action or lack of action by the applicant that requires corrective intervention by the examiner for reasons of safety

(2) Failure to follow acceptable or approved maintenance procedures while performing skill (practical) projects

(3) Exceeding tolerances stated in the maintenance instructions

(4) Failure to recognise improper procedures

(5) The inability to perform to a return-to-service standard, where applicable

(6) Inadequate knowledge in any of the subject areas

SECTION TWO: AIRCRAFT MAINTENANCE ENGINEER- GENERAL SKILL TEST STANDARDS

1.1 AREAS OF OPERATION

A. AREA OF OPERATION: BASIC ELECTRICITY

Objective: To determine that the applicant:

(1) ELEMENT: Exhibits knowledge of at least two of the following TASKS:

(a) Sources and/or effects of capacitance in a circuit
(b) Uses of capacitance in a circuit
(c) Sources and/or effects of inductance in a circuit
(d) Uses of inductance in a circuit
(e) Operation of basic AC and/or DC electrical circuits
(f) Ohm's law
(g) Kirchhoff's laws
(h) Procedures used in the measurement of voltage, current, and/or resistance
(i) Determining power used in simple circuits
(j) Troubleshooting, and/or repair or alteration using electrical circuit diagrams
(k) Common types of defects that may occur in an installed battery system
(l) Aircraft battery theory/operation
(m) Servicing aircraft batteries

(2) CORE COMPETENCY ELEMENT: Demonstrates the ability to perform both of the following TASKS:

(a) Use measuring equipment to measure in a circuit or circuit component(s), at least one of the following: voltage, current, resistance, or continuity. (Level 3)
(b) Determine the appropriateness of measurement(s) according to instructions/specifications. (Level 2)

(3) ELEMENT: Demonstrates the ability to perform at least one of the following: TASKS:

(a) Read and interpret one or more electrical circuit diagrams. (Level 2)
(b) Troubleshoot an electrical circuit. (Level 3)
(c) Calculate voltage, current, and resistance using Ohm's Law. (Level 2)
(d) Inspect a battery and installed battery system. (Level 3)
(e) Accomplish a battery state-of-charge (hydrometer) and/or electrical leak (cell imbalance) test. (Level 3)
(f) Accomplish removal and/or installation of a battery in an aircraft. (Level 3)
(g) Set-up and connect a charger to one or more batteries for constant current and/or constant voltage charging. (Level 3)

B. AREA OF OPERATION: AIRCRAFT DRAWINGS

Objective: To determine that the applicant:

(1) ELEMENT: Exhibits knowledge of at least two of the following: TASKS:

(a) Characteristics and/or uses of any of the various types of drawings/blueprints and/or system schematics.
(b) The meaning of any of the lines and symbols commonly used in aircraft sketches/drawings/blueprints.
(c) Using charts or graphs.
(d) Troubleshooting an aircraft system or component(s) using drawings/blueprints and/or system schematics.
(e) Inspection of an aircraft system or component(s) using drawings/blueprints and/or system schematics.

(f) Repair or alteration of an aircraft system or component(s) using drawings/blueprints and/or schematics.
(g) Use of drawings/blueprints in component fabrication.
(h) Terms used in conjunction with aircraft drawings/blueprints and/or system schematics.

(2) N/A

(3) ELEMENT: Demonstrates the ability to perform at least one of the following:
TASKS:

(a) Maintenance and/or inspection using drawings/blueprints and/or system schematics. (Level 3)
(b) Preventive maintenance using drawings/blueprints and/or schematics. (Level 3)
(c) Troubleshooting using drawings/blueprints and/or schematics. (Level 3)
(d) Use a control cable tension chart. (Level 3)
(e) Use a servicing, limitation, or calculation chart or graph. (Level 3)
(f) Draw a sketch of an alteration or repair. (Level 2)
(g) Draw a diagram of an electrical circuit or other system, or portion thereof, and explain the drawing. (Level 2)

C. AREA OF OPERATION: WEIGHT AND BALANCE

Objective: To determine that the applicant:

(1) ELEMENT: Exhibits knowledge of at least two of the following:
TASKS:
(a) The purpose(s) of weighing or reweighing.
(b) General preparations for weighing, with emphasis on aircraft preparation and/or weighing area considerations.
(c) The general location of aeroplane centre of gravity (CG) in relation to the centre of lift for most fixed main aerofoils.
(d) Definitions of any of the following: datum, arm, moment (positive or negative), or moment index.
(e) The meaning and/or application of any terms/nomenclature associated with weight and balance other than those mentioned in element "d" above, including but not limited to any of the following: tare, ballast, and residual fuel/oil.
(f) Procedures for finding any of the following: datum, arm, moment (positive or negative), or moment index.
(g) Purpose and/or application of mean aerodynamic chord (MAC).
(h) Adverse loading considerations.

(2) CORE COMPETENCY ELEMENT: Demonstrates the ability to calculate weight and balance CG and complete aircraft weight and balance documentation. (Level 3)

(3) ELEMENT: Demonstrates the ability to perform at least one of the following:
TASKS:
(a) Weighing equipment preparation and setup according to manufacturer instructions. (Level 3)
(b) Locate procedures for levelling and the levelling points for an aircraft. (Level 2)
(c) Locate weigh points, procedures for determining CG, and determine the weigh point arms for an aircraft. (Level 2)
(d) Identify tare items for a specific aircraft and weighing procedure. (Level 2)
(e) Find the datum for at least two different aircraft. (Level 2)
(f) Determine the weight and location of required ballast after an (actual or hypothetical) equipment change. (Level 2)

D. AREA OF OPERATION: FLUID LINES AND FITTINGS

Objective: To determine that the applicant:

(1) ELEMENT: Exhibits knowledge of at least two of the following:
TASKS
- (a) Tubing materials
- (b) Tubing materials application
- (c) Tubing sizes
- (d) Flexible hose material
- (e) Flexible hose materials application
- (f) Flexible hose sizes
- (g) Flexible hose identification
- (h) AN, MS, and/or AC plumbing fittings
- (i) Rigid line fabrication techniques/practices
- (j) Rigid line installation techniques/practices
- (k) Flexible hose fabrication techniques/practices
- (l) Flexible hose installation techniques/practices

(2) CORE COMPETENCY ELEMENT: *Demonstrates the ability to perform at least one of the following TASKS:
- (a) Rigid line fabrication to include tube fittings, bending, and tube flaring. (Level 3)
- (b) Flexible line fabrication using replaceable fittings on at least one end. (Level 3)

(3) ELEMENT: Demonstrates the ability to perform at least one of the following TASKS:
- (a) Inspect for and identify defects in rigid and/or flexible lines. (Level 3)
- (b) Install and remove a rigid and/or flexible line. (Level 3)
- (c) Identify correct and/or incorrect rigid line installations. (Level 2)
- (d) Identify correct and/or incorrect flexible line installations. (Level 2)
- (e) Form a bead on tubing. (Level 3)
- (f) Select components and assemble a flareless fitting tube connection. (Level 3)
- (g) Repair a damaged rigid line. (Level 3)
- (h) Identify various sizes and types of aircraft fittings. (Level 2)
- (i) Secure a rigid line with clamps. (Level 3)
- (j) Identify fluid and/or air lines that may be installed on an aircraft. (Level 2)

E. AREA OF OPERATION: MATERIALS AND PROCESSES

Objective: To determine that the applicant:

(1) ELEMENT: Exhibits knowledge of at least two of the following TASKS:
- (a) Any of the metals commonly used in aircraft and their general application.
- (b) Composites and other non-metallic components and their general application.
- (c) Heat-treated parts precautions, using DD or "icebox" rivets.
- (d) Typical wood materials and fabric coverings.
- (e) Visible characteristics of acceptable and/or unacceptable welds.
- (f) Precision measurement and precision measurement tools.
- (g) Using inspection techniques/methods, including any of the following: visual, metallic ring test, dye/fluorescent penetrant, magnetic particle, and/or eddy current.
- (h) Identification, selection, installation, and/or use of aircraft hardware.
- (i) Safety of components and/or hardware.
- (j) Finding information about material types for specific application(s).

(2) CORE COMPETENCY ELEMENT: *Demonstrates the ability to torque to specification(s), and safety-wire aircraft component(s)/hardware. (Level 3)

(3) ELEMENT: Demonstrates the ability to perform at least one of the following TASKS:

(a) Select and install standard aircraft hardware, to include one or more self-locking nuts. (Level 3)

(b) Select, install, and secure a clevis bolt and associated hardware. (Level 3)

(c) Select and install one or more appropriate screws/bolts, nuts, cotter pins, and washers (Level 3)

(d) Inspect hardware for defects, proper installation. (Level 3)

(e) Safety a turnbuckle. (Level 3)

(f) Perform a dye or fluorescent penetrant inspection. (Level 3)

(g) Find (not visible) defect using eddy current or ultrasonic inspection equipment (Level 2)

(h) Perform, read, and record a precision measurement using a dial indicator, or micrometre, or Vernier calliper. (Level 2)

(i) Visually inspect welds and determine acceptability. (Level 3)

(j) Identify rivets by physical characteristics. (Level 2)

F. AREA OF OPERATION: GROUND OPERATION AND SERVICING

Objective: To determine that the applicant:

(1) ELEMENT: Exhibits knowledge of at least two of the following TASKS:

(a) General procedures for towing aircraft.

(b) Air Traffic Control (ATC) considerations/requirements for towing aircraft on or across active runways.

(c) General procedures for starting, ground operating, and/or taxiing a reciprocating engine powered aircraft.

(d) General procedures for starting, ground operating, and/or taxiing a turbine engine powered aircraft.

(e) The hazards associated with starting, ground operating, and/or taxiing aircraft and procedures for preventing, minimising or otherwise managing any of them.

(f) Procedures for refuelling and/or defueling aircraft.

(g) Oxygen system safety practices/precautions.

(h) Characteristics of aviation gasoline and/or turbine fuels, including basic types and means of identification.

(i) Fuel contamination hazards.

(j) Fuel additives commonly used in the field.

(k) Use of automobile fuel in aircraft engines.

(l) Types/classes of fires, using proper fire extinguishers/methods.

(2) N/A

(3) ELEMENT: Demonstrates the ability to perform at least one of the following TASK:

(a) Service an aircraft with compressed air or nitrogen. (Level 3)

(b) Set-up an aircraft and cockpit controls for engine start. (Level 2)

(c) Start and ground operate an aircraft engine (taxiing optional), and use or respond to standard hand or light wand signals. (Level 3) If an operable engine is available.

(d) Determine the engine oil for a specific engine. (Level 2)

(e) Secure an aircraft for outside storage. (Level 3)

(f) Fuel and/or defuel an aircraft (may be simulated). (Level 3)

(g) Sample fuel and inspect for proper fuel and contaminates. (Level 3)

(h) Set-up and connect an aircraft to an external power source. (Level 2)

(i) Connect a tow bar to an aircraft and prepare for towing. (Level 3)

(j) Direct the movement (may be simulated) of aircraft. (Level 3)
(k) Locate and clear a liquid lock (actual or simulated) in an aircraft engine. (Level 3)
(l) Identify the types/classes of fires that local shop and/or flight line fire extinguishers may be used on. (Level 2)

G. AREA OF OPERATION: CLEANING AND CORROSION CONTROL

Objective: To determine that the applicant:

(1) ELEMENT: Exhibits knowledge of at least two of the following TASKS:
- (a) Aircraft preparation for washing, general aircraft cleaning (washing) procedures
- (b) Post-cleaning (washing) procedures
- (c) Corrosion theory
- (d) Types/effects of corrosion
- (e) Conditions that cause corrosion
- (f) Corrosion prone areas in aircraft
- (g) Corrosion preventive maintenance procedures
- (h) Inspection for and identification of corrosion in any of its various forms
- (i) Corrosion removal and treatment procedures
- (j) Use of Material Safety Data Sheets (MSDS)

(2) CORE COMPETENCY ELEMENT: Demonstrates the ability to inspect for and identify two or more of the various forms of corrosion that affect aircraft. (Level 3)

(3) ELEMENT: Demonstrates the ability to perform at least one of the following TASKS:

(a) Identify and select materials used to clean interior and/or exterior surfaces according to aircraft manufacturer instructions. (Level 2)

(b) Corrosion removal from any of the metals commonly used in aircraft. (Level 3)

(c) Preventive corrosion treatment on any of the metals commonly used in aircraft. (Level 3)

(d) Identify and select appropriate corrosion preventive methods and materials for a specific aircraft application. (Level 2)

H. AREA OF OPERATION: MATHEMATICS

Objective: To determine that the applicant:

(1) ELEMENT: Exhibits knowledge of at least two of the following TASKS:
- (a) Areas of various geometrical shapes
- (b) Volumes of various geometrical shapes
- (c) Definitions/descriptions of geometrical terms, including but not limited to any of the following: polygon, pi, diameter, radius, and hypotenuse
- (d) Ratio problems, including one or more examples of where or how they may be used in relation to aircraft maintenance or system(s) operation
- (e) Proportion problems, including one or more examples of where or how they may be used in relation to aircraft maintenance or system(s) operation
- (f) Percentage problems, including one or more examples of where or how they may be used in relation to aircraft maintenance or system(s) operation
- (g) Algebraic operations, including one or more examples of where or how they may be used in relation to aircraft maintenance
- (h) Conditions or areas where metric conversion may be necessary

(2) N/A

(3) ELEMENT: Demonstrates the ability to perform at least one of the following, using appropriate formulas TASKS:
- (a) Calculate the area of a polygon and/or circle. (Level 2)
- (b) Calculate the volume of a sphere, cube, or cylinder. (Level 2)

(c) Algebraic operations involving addition, subtraction, multiplication, and/or division of positive and negative numbers. (Level 2)
(d) Locate mathematical formulas used to assist in the maintenance, preventive maintenance, or alteration of aircraft. (Level 1)

Note: The practical portion of the Mathematics subject area may be tested simultaneously when performing calculation(s) in subject areas Basic Electricity and/or Weight and Balance.

I. AREA OF OPERATION: MAINTENANCE FORMS AND RECORDS

References: SLCAR Parts 6, 8 and 22

Objective: To determine that the applicant:

(1) ELEMENT: Exhibits knowledge of at least two of the following TASKS:
(a) Writing descriptions of work performed and approval for return to service after minor repairs or minor alterations.
(b) The content, form, and disposition of aircraft maintenance records reflecting approval for return to service after a 100-hour inspection.
(c) The content, form, and disposition of aircraft maintenance records reflecting disapproval for return to service after a 100-hour inspection.
(d) The recording content, form, and disposition requirements for certificated aviation mechanics (without an Inspection Authorisation) who perform major repairs and/or major alterations.
(e) The inoperative instruments or equipment provisions of relevant parts of the Regulations.
(f) The definition/explanation of any of the terms used in relation to aircraft maintenance, such as overhaul(ed), rebuilt, time-in service, maintenance, preventive maintenance, inspection, major alteration, major repair, minor alteration, and minor repair.

(2) CORE COMPETENCY ELEMENT: Demonstrates the ability to write appropriate entries on relevant Forms, Major Repair and Major Alteration, indicating performance of a major repair, and make appropriate corresponding aircraft maintenance record entry. (Level 3)

(3) ELEMENT: Demonstrates the ability to write entries for at least one of the following TASKS:
(a) Performance of minor repair or minor alteration. (Level 3)
(b) Performance of preventive maintenance. (Level 3)
(c) Compliance with an airworthiness directive. (Level 3)
(d) Performance of a 100-hour inspection with approval for return to service, including a list of some allowable inoperative instruments or equipment in accordance with the provision of relevant parts of the Regulations. (Level 3)
(e) Performance of a 100-hour inspection with disapproval for return to service because of needed maintenance, or noncompliance with applicable specifications or airworthiness directive(s). (Level 3)
(f) Relevant Form, Major Repair and Major Alteration, for additional equipment installation or an alteration in accordance with a supplemental type certificate (STC) and make appropriate maintenance record entry. (Level 3)
(g) Relevant Form Malfunction or Defect Report. (Level 3)

J. AREA OF OPERATION: BASIC PHYSICS

Objective: To determine that the applicant:

(1) ELEMENT: Exhibits knowledge of at least two of the following TASKS:

(a) Any of the simple machines, how they function, and/or how mechanical advantage is applied in one or more specific examples.
(b) Sound resonance, how it can be a hazard to aircraft, and how sound may be used to aid in inspecting aircraft.
(c) The relationship between fluid density and specific gravity.
(d) The characteristic of specific gravity of fluids and how it may be applied to aircraft maintenance.
(e) The general effects of pressure and temperature on gases and liquids and how the qualities of compressibility and/or incompressibility of gases and liquids are generally applied to aircraft systems.
(f) Density altitude and the effects of temperature, and/or pressure, and/or humidity on aircraft and/or engine performance.
(g) Heat, how it is manifested in matter, and how heat transfer is accomplished through conduction, and/or convection, and/or radiation.
(h) Coefficient of linear (thermal) expansion as related to aircraft materials.
(i) Aircraft structures and theory of flight/physics of lift.
(j) The operation of aerodynamic factors in the flight of aeroplanes and/or helicopters.
(k) The relationship between force, area, and pressure.
(l) The five forces or stresses affecting aircraft structures.
(m) The two forms of energy and how they apply to aircraft and/or aircraft systems.

(2) N/A

(3) ELEMENT: Demonstrates the ability to perform at least one of the following TASKS:
(a) Identify any parts or systems of an aircraft and/or engine where Bernoulli's principle and/or Newtonian law is applied. (Level 2)
(b) Identify parts or systems of an aircraft where Boyle's, Charles', and/or Pascal's Laws apply. (Level 2)
(c) Calculate force, area, or pressure in a specific application. (Level 3)
(d) Identify one or more methods of heat transfer in aircraft systems and where and how heat damage may occur when performing aircraft maintenance. (Level 2)
(e) Identify any of the following and describe how they function aerodynamically: stall strips, wing fences, vortex generators, flaps, slats, spoilers, ailerons, stabilators, elevators, rudders, or trim tabs. (Level 2)
(f) Determine which of the five forces/stresses are acting on an aircraft or aircraft parts at specific points under given conditions. (Level 2)
(g) Design a simple machine (on paper) that uses one or more methods of mechanical advantage. (Level 2)

K. AREA OF OPERATION: MAINTENANCE PUBLICATIONS

Objective: To determine that the applicant:

(1) ELEMENT: Exhibits knowledge of at least two of the following TASKS:
(a) How a mechanic makes use of Type Certificate Data Sheets (TCDSs) and/or Aircraft Specifications in conducting maintenance or inspections.
(b) Aircraft maintenance manuals and associated publications including any of the following types of publications and how they are used: service bulletin, maintenance manual, overhaul manual, structural repair manual, or instructions for continued airworthiness.
(c) The requirements of SLCAR Part 8 in the performance of maintenance.

(d) Airworthiness Directives (AD), including purpose and/or AD categories and/or ADs issued to other than aircraft.
(e) In what form individuals may receive CAA published AD summaries and/or how they may be obtained.
(f) The AD identification numbering system.
(g) SLCAA ACs including any of the following: significance of the AC numbering system, one or more examples of ACs issued to provide information in designated subject areas, one or more examples of MAPs issued to show a method acceptable to the SLCAA complying with the SLCARS.
(h) The intent or function of the Aviation Maintenance Alerts.
(i) The Air Transport Association (ATA) Specification 100.

(2) CORE COMPETENCY ELEMENT: Demonstrates the ability to perform both of the following TASKS:
(a) Read, comprehend, and apply information contained in a manufacturer maintenance manual or illustrated parts manual. (Level 3)
(b) Locate and list all applicable ADs for at least one particular make, model, and serial number of an aircraft, engine, propeller, or appliance. (Level 2)
(a) (3) ELEMENT: Demonstrates the ability to read, comprehend, and apply the information contained in at least one of the following TASKS:
(a) Service bulletin (Level 3)
(b) Overhaul manual (Level 3)
(c) Structural repair manual (Level 3)
(d) Instructions for continued airworthiness. (Level 3)
(e) At least one maintenance related section, or appendix, or portion(s) thereof, of SLCAR
(b) (Level 3)
(f) An AD (Level 3)
(g) Aircraft Specifications or TCDSs to specific maintenance or inspection operations, or portions thereof (Level 3)

L. AREA OF OPERATION: AVIATION MECHANIC PRIVILEGES AND LIMITATIONS

References: SLCAR Part 1
Objective: To determine that the applicant:

(1) ELEMENT: Exhibits knowledge of mechanic privileges and limitations and exercise thereof, including at least two of the following TASKS:
(a) Required evidence of eligibility experience satisfactory to the Administrator.
(b) Length of experience required for eligibility.
(c) Practical experience required for eligibility.
(d) The privileges of a mechanic in relation to 100-hour and annual inspections.
(e) Change of address reporting requirements.
(f) Minimum age requirements.
(g) Recent experience requirements to exercise privileges of a certificate.
(h) Who is authorised to perform maintenance/inspection, preventive maintenance, rebuilding, or alteration and/or approve for return to service afterwards.
(i) Causes for revocation or suspension.
(j) Criteria for determining major and minor repair or alteration.

(2) N/A

(3) ELEMENT: When given a copy of SLCAR Part 1, demonstrates the ability to understand mechanic privileges and limitations by finding and

interpreting/explaining essential information contained in at least two of the following TASKS:

(a) Offences involving alcohol or drugs (Level 2)
(b) Written tests: Cheating or other unauthorised conduct (Level 2)
(c) Applications, certificates, logbooks, reports, and records: falsification, reproduction, or alteration (Level 2)
(d) Refusal to submit to a drug or alcohol test (Level 2)
(e) General privileges and limitations (Level 2)
(f) Recent experience requirements (Level 2)
(g) Airframe rating; additional privileges and/or Powerplant rating; additional privileges (Level 2)
(h) Display of certificate (Level 2)