



SIERRA LEONE CIVIL AVIATION AUTHORITY

ADVISORY CIRCULAR

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Aircraft Maintenance Engineer (Airframe) Skill Test

Director General
Sierra Leone Civil Aviation Authority

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FORWARD

The Sierra Leone Civil Aviation Authority (SLCAA) has developed skill test standards for airmen licences and ratings and these are published as Advisory Circulars (ACs). This AC establishes the standards for the Aircraft Maintenance Engineer (Airframe) skill test. Sierra Leone inspectors and designated aircraft maintenance engineer examiners shall conduct skill tests in compliance with these standards. Aircraft maintenance engineer 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 listed below. SLCARs 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 web site.

Comments regarding this publication should be sent to

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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 MCAA inspectors and designated mechanic examiners when conducting AMTL – Airframe 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 Aviation Maintenance Technician Licence (AMTL) – Airframe 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 (STSs) containing the AREAS OF OPERATION and specific TASKS in which 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 aviation maintenance technician applicants.
- (3) The STS contains sections. The first section contains the directions for and other relevant information about the conduct of the skill test. The subsequent sections contain 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 means that the entire element must be completed by the applicant.

1.4 SKILL TEST DESCRIPTION

- (1) The Aviation Maintenance Technician Licence – Airframe STSs include the subject areas of knowledge and skill for the issuance of an aviation maintenance technician licence and/or the addition of a rating. The subject areas are the topics in which aviation maintenance technician licence applicants must have knowledge and/or demonstrate skill.
- (2) The 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 manufacturer- or other SLCAA-approved or acceptable data, but to serve as general information and study material sources. Information contained in manufacturer and/ or SLCAA-approved/acceptable data 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, SLCAR Parts, type certificate data sheets or specifications, manufacturer maintenance manuals, and other similar approved/acceptable data necessary for accomplishment of objective testing.

Reference List

SLCARS Part 6	Operations
SLCARS Part 7	Aircraft Nationality And Registration Marks
RESERVED	
RESERVED	
RESERVED	
RESERVED	
RESERVED	
RESERVED	
RESERVED	
RESERVED	
RESERVED	
RESERVED	
RESERVED	

- (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 applicant’s 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 – Airframe Skill Test is required to meet the applicable experience requirements in SLCAR 1A for an aviation maintenance technician licence for airframe and 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 ensure 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 is 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 manufacturer's 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: AVIATION MAINTENANCE TECHNICIAN LICENCE –
AIRFRAME SKILL TEST STANDARDS**

1.1 AREAS OF OPERATION

A. AREA OF OPERATION: WOOD STRUCTURES

Objective: To determine that the applicant:

- (1) ELEMENT: Exhibits knowledge of at least two of the following:
TASKS:
 - (a) Inspection tools for wood structures
 - (b) Inspection techniques and practices for wood structures
 - (c) Effects of moisture/humidity on wood
 - (d) Types and/or general characteristics of wood used in aircraft structures
 - (e) Permissible substitutes and/or other materials used in the construction and repair of wood structures
 - (f) Acceptable wood defects
 - (g) Non-acceptable wood defects
 - (h) Wood repair techniques and practices
- (2) N/A
- (3) ELEMENT: Demonstrates the ability to perform at least one of the following:
TASKS:
 - (a) Inspect aircraft wood structure or wood sample. (Level 3)
 - (b) Inspect a wood repair for airworthiness. (Level 3)
 - (c) Identify and select aircraft quality/acceptable wood. (Level 2)
 - (d) Determine acceptable repairs or limits for one or more specific defects. (Level 2)
 - (e) Locate data for allowable substitute wood material. (Level 1)
 - (f) Determine the allowable species of wood that can be used as a substitute for spruce, and what, if any, dimensional changes are necessary. (Level 2)
 - (g) Locate wood spar and/or rib structure repair procedures. (Level 1)

B. AREA OF OPERATION: AIRCRAFT COVERING

Objective: To determine that the applicant:

- (1) ELEMENT: Exhibits knowledge of at least two of the following:
TASKS:
 - (a) Factors used in determining the proper type covering material
 - (b) Types of approved aircraft covering material
 - (c) Seams commonly used
 - (d) Covering textile terms
 - (e) Structure surface preparation
 - (f) Covering methods commonly used
 - (g) Covering means of attachment
 - (h) Areas on aircraft covering most susceptible to deterioration
 - (i) Aircraft covering preservation/restoration
 - (j) Inspection of aircraft covering
 - (k) Covering repair techniques and practices
- (2) N/A
- (3) ELEMENT: Demonstrates the ability to perform at least one of the following:
TASKS:
 - (a) Inspect the repair of a damaged covering for airworthiness. (Level 3)
 - (b) Test a finished covering sample to determine acceptability of strength. (Level 3)
 - (c) Determine the minimum fabric strength covering requirements for a specific aircraft. (Level 2)
 - (d) Determine if a covering sample has appropriate identification markings. (Level 2)

- (e) Determine acceptable repairs for a specific defect. (Level 2)
- (f) Determine the classification (major or minor) of a specific repair to a fabric-covered surface. (Level 2)
- (g) Locate the requirements for repair of a specific fabric covering defect. (Level 1)

C. AREA OF OPERATION: AIRCRAFT FINISHES

References: SLCAR Part 7

Objective: To determine that the applicant:

- (1) ELEMENT: Exhibits knowledge of at least two of the following:
TASKS:
 - (a) Protection of airframe structures
 - (b) Primer materials
 - (c) Topcoat materials
 - (d) Surface preparation for a desired finishing material
 - (e) Effects of ambient conditions on finishing materials
 - (f) Effects of improper surface preparation on finishing materials
 - (g) Regulatory requirements for registration markings
 - (h) Inspection of aircraft finishes
 - (i) Safety practices/precautions when using finishing materials
 - (j) Fungicidal, butyrate, and/or nitrate dopes
 - (k) Finishing materials application techniques and practices
 - (l) Where necessary, balance considerations after refinishing
- (2) N/A
- (3) ELEMENT: Demonstrates the ability to perform at least one of the following:
TASKS:
 - (a) Select appropriate finishing materials for a specific application. (Level 2)
 - (b) Determine preparation necessary for application of finishing materials to a particular surface. (Level 2)
 - (c) Prepare a surface for application of finishing materials. (Level 3)
 - (d) Apply primer and/or topcoat materials. (Level 3)
 - (e) Inspect one or more finished surfaces. (Level 3)
 - (f) Locate appropriate data to use for a specific finishing TASK. (Level 1)
 - (g) Determine the allowable location and size of registration numbers for a fixed-wing and/or rotorcraft aircraft. (Level 2)

D. AREA OF OPERATION: SHEET METAL AND NON-METALLIC STRUCTURES

Objective: To determine that the applicant:

- (1) ELEMENT: Exhibits knowledge of at least two of the following:
TASKS:
 - (a) Inspection/testing of sheet metal structures
 - (b) Types of sheet metal defects
 - (c) Selection of sheet metal
 - (d) Layout, and/or forming of sheet metal
 - (e) Selection of rivets
 - (f) Rivet layout
 - (g) Rivet installation
 - (h) Inspection/testing of composite structures
 - (i) Types of composite structure defects
 - (j) Composite structure fiber, core, and/or matrix materials

- (k) Composite materials storage practices and shelf life
 - (l) Composite structure repair methods, techniques, and practices
 - (m) Window inspection/types of defects
 - (n) Window material storage and handling
 - (o) Window installation procedures
 - (p) Care and maintenance of windows
 - (q) Window temporary and/or permanent repairs
 - (r) Maintenance safety practices/precautions for sheet metal, and/or composite materials/structures, and/or windows
- (2) CORE COMPETENCY ELEMENT: Demonstrates the ability to install and remove at least two each, of two or more types of rivets. (Level 3)
- (3) ELEMENT: Demonstrates the ability to perform at least one of the following:
TASK:
- (a) Lay out and form sheet metal to given dimensions; include at least one bend. (Level 3)
 - (b) Determine a rivet lay out pattern. (Level 2)
 - (c) Visually inspect an unpainted composite surface. (Level 3)
 - (d) Inspect a composite structure using a non-destructive testing method (in addition to visual). (Level 3)
 - (e) Select materials and clean a transparent surface. (Level 3)
 - (f) Inspect a window or windscreen. (Level 3)
 - (g) Remove one or more minor scratches from a transparent surface. (Level 3)
 - (h) Determine hole size to use in a sheet metal repair. (Level 2)
 - (i) Inspect a sheet metal assembly or repair for airworthiness. (Level 3)
 - (j) Drill and countersink and/or dimple sheet metal. (Level 3)
 - (k) Identify the fiber-reinforcing materials in at least three laminated composite structure samples. (Level 2)
 - (l) Locate data for composite structure damage assessment. (Level 1)

E. AREA OF OPERATION: WELDING

Objective: To determine that the applicant:

- (1) ELEMENT: Exhibits knowledge of at least two of the following:
TASKS:
- (a) Flame welding gasses
 - (b) Storage/handling of welding gasses
 - (c) Flame welding practices and techniques
 - (d) Inert-gas welding practices and techniques
 - (e) Purpose and types of shielding gasses
 - (f) Characteristics of acceptable welds
 - (g) Characteristics of unacceptable welds
 - (h) Types of steel tubing welding repairs
 - (i) Procedures for weld repairs
 - (j) Soldering preparation, types of solder, and/or flux usage
 - (k) Welding and/or soldering safety practices/precautions
- (2) N/A
- (3) ELEMENT: Demonstrates the ability to perform at least one of the following:
TASKS:
- (a) Ignite a torch, set one or more specified flame patterns, and accomplish proper torch shutdown. (Level 2)
 - (b) Solder a joint or connection. (Level 2)

- (c) Using aircraft quality materials weld or braze a joint. (Level 2)
- (d) Determine the appropriate method/material(s) to use for a specific welding, soldering, or brazing TASK. (Level 2)
- (e) Determine the appropriate data to use for a specific welding, soldering, or brazing TASK. (Level 1)

F. AREA OF OPERATION: ASSEMBLY AND RIGGING

Objective: To determine that the applicant:

- (1) ELEMENT: Exhibits knowledge of at least two of the following:
TASKS:
 - (a) Control cable
 - (b) Control cable maintenance
 - (c) Cable connectors
 - (d) Cable guides
 - (e) Control stops
 - (f) Push pull tubes
 - (g) Torque tubes
 - (h) Bell cranks
 - (i) Flutter and flight control balance
 - (j) Rigging of aeroplane or rotorcraft flight controls
 - (k) Aeroplane or rotorcraft flight controls and/or stabiliser systems
 - (l) Types of rotorcraft rotor systems.
 - (m) Rotor vibrations
 - (n) Rotor blade tracking
 - (o) Aircraft jacking procedures
 - (p) Jacking safety practices/precautions
- (2) CORE COMPETENCY ELEMENT: *Demonstrates the ability to check and/or set control surface cable tension. (Level 3)
- (3) ELEMENT: Demonstrates the ability to perform at least one of the following:
TASKS:
 - (a) Install a control surface. (Level 3)
 - (b) Check the static balance of a control surface. (Level 3)
 - (c) Locate the procedures for rigging a helicopter. (Level 1)
 - (d) Locate helicopter rotor blade tracking procedures. (Level 1)
 - (e) Identify fixed-wing aircraft rigging adjustment locations. (Level 2)
 - (f) Locate levelling methods and procedures for a specific aircraft. (Level 1)
 - (g) Inspect a flight control system for travel and security. (Level 3)
 - (h) Inspect a primary flight control cable. (Level 3)
 - (i) Install one or more swaged cable terminals and check with appropriate gage. (Level 3)
 - (j) Install one or more Nicopress sleeves and check with appropriate gage. (Level 3)
 - (k) Check and adjust as necessary a push-pull flight control system. (Level 3)
 - (l) Locate jacking points and levelling locations for a specific aircraft. (Level 2)
 - (m) Determine the jacking requirements for a particular aircraft. (Level 2)
 - (n) Jack an aircraft or portion thereof (e.g., as appropriate for tire/wheel change, or gear retraction). (Level 3)

G. AREA OF OPERATION: AIRFRAME INSPECTION

Objective: To determine that the applicant:

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

- (a) One or more required inspections under relevant parts of the Regulations
 - (b) Maintenance requirements under relevant parts of the Regulations
 - (c) Inspection requirements under relevant parts of the Regulations
 - (d) Requirements for complying with airworthiness directives
 - (e) Compliance with service letters, instructions for continued airworthiness, and/or bulletins
 - (f) Maintenance record requirements under relevant parts of the Regulations
 - (g) Maintenance record requirements under relevant parts of the Regulations
- (2) CORE COMPETENCY ELEMENT: Demonstrates the ability to examine an aircraft maintenance record, and determine if inspection and/or maintenance is due. (Level 3)
- (3) ELEMENT: Demonstrates the ability to perform at least one of the following:
TASKS:
- (a) Accomplish a regulations task required inspection on an airframe portion or component thereof. (Level 3)
 - (b) Inspect an aircraft or portion thereof after maintenance or preventive maintenance. (Level 3)
 - (c) Determine placarding requirements for a specific aircraft and condition. (Level 2)
 - (d) Determine if all required instruments and equipment for specific operating conditions under relevant parts of the Regulations are installed in a particular aircraft. (Level 2)
 - (e) Accomplish a conformity inspection on an airframe portion or component thereof and record results. (Level 3)
 - (f) Generate a checklist for conducting a 100-hour airframe inspection on a specific aircraft. (Level 2)

H. RESERVED

I. RESERVED

J. RESERVED

**SECTION THREE: AIRFRAME SYSTEMS AND COMPONENTS SKILL TEST
STANDARDS**

1.1 AREAS OF OPERATION

A. AREA OF OPERATION: AIRCRAFT LANDING GEAR SYSTEMS

Objective: To determine that the applicant:

- (1) ELEMENT: Exhibits knowledge of at least two of the following:
TASKS:
 - (a) Landing gear strut servicing/lubrication
 - (b) Landing gear steering systems
 - (c) Landing gear retraction/extension systems
 - (d) Landing gear inspection
 - (e) Brake assembly inspection
 - (f) Wheel and tire construction
 - (g) Tire mounting
 - (h) Wheel and tire inspection
 - (i) Wheel bearing inspection
 - (j) Tire storage, care, and/or servicing
 - (k) Landing gear and/or tire and wheel safety practices/precautions
- (2) CORE COMPETENCY ELEMENT: *Demonstrates the ability to perform inspection of an installed brake for serviceability. (Level 3)
- (3) ELEMENT: Demonstrates the ability to perform at least one of the following:
TASKS:
 - (a) Determine the proper lubricant(s) for a landing gear. (Level 1)
 - (b) Inspect a landing gear or landing gear component(s). (Level 3)
 - (c) Service an oleo strut. (Level 3)
 - (d) Install a brake lining or brake assembly. (Level 3)
 - (e) Clean and inspect wheel bearings. (Level 3)
 - (f) Disassemble, clean as necessary, and inspect a wheel. (Level 3)
 - (g) Select lubricant, and lubricate wheel bearings. (Level 3)
 - (h) Remove and replace/install a wheel and tire assembly on a landing gear. (Level 3)
 - (i) Inspect a wheel and tire assembly, check tire pressure, and service as necessary. (Level 3)
 - (j) Service a nosewheel shimmy damper. (Level 3)
 - (k) Accomplish a landing gear retraction/extension check. (Level 3)
 - (l) Replace a tire or tube valve core and check for leaks. (Level 3)

B. AREA OF OPERATION: HYDRAULIC AND PNEUMATIC POWER SYSTEMS

Objective: To determine that the applicant:

- (1) ELEMENT: Exhibits knowledge of at least two of the following TASKS:
 - (a) Hydraulic and/or pneumatic system, and/or system component(s) function/operation.
 - (b) Servicing, function, and/or operation of accumulators.
 - (c) Types of hydraulic/pneumatic seals and/or fluid/seal compatibility.
 - (d) Hydraulic/pneumatic seal maintenance procedures.
 - (e) Types of hydraulic/pneumatic filters and/or filter operation.
 - (f) Filter maintenance procedures.
 - (g) Pressure regulators and valves.
 - (h) Servicing hydraulic and/or pneumatic systems.
 - (i) Types/identification and/or characteristics of various hydraulics fluids used in aircraft.

- (j) Hydraulic/pneumatic system safety practices/precautions.
- (2) CORE COMPETENCY ELEMENT: *Demonstrates the ability to select and install a hydraulic seal. (Level 3)
- (3) ELEMENT: Demonstrates the ability to perform at least one of the following TASKS:
 - (a) Service a pneumatic or hydraulic system filter. (Level 3)
 - (b) Inspect components or portions of a hydraulic or pneumatic system. (Level 3)
 - (c) Locate fluid servicing instructions and identify/select fluid for a particular aircraft. (Level 2)
 - (d) Service a hydraulic reservoir. (Level 3)
 - (e) Troubleshoot a hydraulic or pneumatic system. (Level 3)
 - (f) Repair a hydraulic or pneumatic system defect. (Level 3)
 - (g) Remove and install hydraulic or pneumatic system component(s) and check operation (Level 3)
 - (h) Service a hydraulic system accumulator. (Level 3)

C. AREA OF OPERATION: CABIN ATMOSPHERE CONTROL SYSTEMS

Objective: To determine that the applicant:

- (1) ELEMENT: Exhibits knowledge of at least two of the following TASKS:
 - (a) Exhaust heat exchanger and/or system component(s) function, operation, and/or inspection procedures.
 - (b) Combustion heater and/or system component(s) function, operation, and/or inspection procedures.
 - (c) Vapour-cycle system and/or system component(s) operation, servicing and/or inspection procedures.
 - (d) Air-cycle system and/or system component(s) operation and/or inspection procedures.
 - (e) Cabin pressurisation and/or system component(s) operation and/or inspection procedures.
 - (f) Types of oxygen systems and/or oxygen system component(s) operation.
 - (g) Oxygen system maintenance procedures.
- (2) N/A
- (3) ELEMENT: Demonstrates the ability to perform at least one of the following TASKS:
 - (a) Inspect and/or troubleshoot an exhaust heat exchanger cabin heat system or system component(s). (Level 3)
 - (b) Inspect and/or troubleshoot a combustion air heater system and/or system component(s).
 - 1. (Level 3)
 - (c) Select proper solution and leak test oxygen system component(s). (Level 3)
 - (d) Inspect and/or troubleshoot an oxygen system and/or system component(s). (Level 3)
 - (e) Check the operation of an oxygen system. (Level 3)
 - (f) Service an oxygen system. (Level 3)
 - (g) Purge an oxygen system. (Level 3)
 - (h) Inspect and/or troubleshoot a vapour cycle cooling system and/or system component(s). (Level 3)
 - (i) Inspect and/or troubleshoot a cabin pressurisation system and/or system component(s) (Level 3)

- (j) Inspect and/or troubleshoot an air cycle machine system and/or system component(s) (Level 3)
- (k) Locate procedures for protecting a vapour-cycle system from contamination during component replacement. (Level 1)
- (l) Locate procedures for servicing a vapour-cycle cooling system (Level 1)
- (m) Locate procedures for inspecting a cabin outflow valve. (Level 1)

D. AREA OF OPERATION: AIRCRAFT INSTRUMENT SYSTEMS

Objective: To determine that the applicant:

- (1) ELEMENT: Exhibits knowledge of at least two of the following TASKS:
 - (a) Magnetic compass operation
 - (b) Magnetic compass swinging procedures
 - (c) Gyroscopic instrument(s) purpose and operation
 - (d) Vacuum/pressure and/or electrically operated instrument system operation
 - (e) Vacuum/pressure and/or electricity operated instrument system maintenance procedures
 - (f) Pitot and/or static instruments purpose and operation
 - (g) Pitot and/or static system operation
 - (h) Under relevant parts of the Regulations requirements for static system checks
 - (i) Aircraft instrument range markings
- (2) N/A
- (3) ELEMENT: Demonstrates the ability to perform at least one of the following: TASKS:
 - (a) Remove and install an aircraft instrument. (Level 3)
 - (b) Accomplish a magnetic compass swing. (Level 3)
 - (c) Determine range/limit markings for one or more instruments. (Level 2)
 - (d) Remove, inspect, and install one or more vacuum or pressure system filters. (Level 3)
 - (e) Determine the proper setting of a vacuum and/or pressure system for a particular aircraft (Level 2)
 - (f) Inspect and/or troubleshoot portions of a vacuum and/or pressure and/or electrically operated instrument power system. (Level 3)
 - (g) Inspect portions of a pitot-static system. (Level 3)
 - (h) Find barometric pressure using an altimeter. (Level 2)

E. AREA OF OPERATION: COMMUNICATION AND NAVIGATION SYSTEMS

References: SLCAR Part 6

Objective: To determine that the applicant:

- (1) ELEMENT: Exhibits knowledge of at least two of the following: TASKS:
 - (a) Emergency locator transmitter (ELT) maintenance requirements
 - (b) ELT record keeping requirements
 - (c) Checking/inspecting coaxial cable
 - (d) Coaxial cable installation and/or routing requirements
 - (e) Communication and/or navigation systems commonly used
 - (f) Proper installation of a com/nav radio in an existing radio rack
 - (g) Means of identification of commonly used communication and/or navigation antennas
 - (h) Autopilot system basic components and/or sensing elements

- (i) Static discharger function and operation
- (j) Static discharger maintenance procedures
- (2) N/A
- (3) ELEMENT: Demonstrates the ability to perform at least one of the following:
TASKS:
 - (j) Identify and inspect com/nav cable and connectors. (Level 3)
 - (k) Inspect an ELT and/or ELT installation. (Level 3)
 - (l) Determine ELT battery serviceability/status. (Level 2)
 - (m) Inspect one or more antenna installations. (Level 3)
 - (n) Inspect a coaxial cable installation. (Level 3)
 - (o) Inspect a com/nav radio installation. (Level 3)
 - (p) Inspect a shock mount base. (Level 3)
 - (q) Locate and identify various antennas installed on a particular aircraft. (Level 2)
 - (r) Inspect one or more static dischargers for security, resistance. (Level 3)

F. AREA OF OPERATION: AIRCRAFT FUEL SYSTEMS

Objective: To determine that the applicant:

- (1) ELEMENT: Exhibits knowledge of at least two of the following:
TASKS:
 - (a) Fuel system strainer servicing
 - (b) Construction characteristics of one or more types of fuel tanks
 - (c) Fuel tank maintenance procedures
 - (d) Fuel line routing/installation requirements
 - (e) Hazards associated with fuel system maintenance
 - (f) Types, characteristics, and/or operation of fuel systems and/or components thereof
 - (g) Characteristics, and/or operation of fuel jettison systems and/or components thereof
- (2) CORE COMPETENCY ELEMENT: *Demonstrates the ability to service a fuel system strainer. (Level 3)
- (3) ELEMENT: Demonstrates the ability to perform at least one of the following:
TASKS:
 - (a) Install a fuel quantity transmitter and/or accomplish an operational check. (Level 3)
 - (b) Install a fuel valve and/or accomplish an operational check. (Level 3)
 - (c) Install a fuel pump and/or accomplish an operational check. (Level 3)
 - (d) Troubleshoot a fuel system. (Level 3)
 - (e) Determine the airworthiness of a specified size fuel system leak/seep. (Level 2)
 - (f) Inspect a fuel system and/or fuel system component(s). (Level 3)
 - (g) Check the operation of one or more fuel system components. (Level 3)
 - (h) Inspect a metal fuel tank. (Level 3)
 - (i) Inspect a bladder fuel tank. (Level 3)
 - (j) Locate fuel system operating instructions. (Level 1)
 - (k) Locate fuel system inspection procedures. (Level 1)

G. AREA OF OPERATION: AIRCRAFT ELECTRICAL SYSTEMS

Objective: To determine that the applicant:

- (1) ELEMENT: Exhibits knowledge of at least two of the following:
TASKS:
 - (a) Factors to consider when selecting wire size for an aircraft circuit

- (b) Routing and/or installation of electric wire or wire bundles
 - (c) Wire splicing
 - (d) Use of derating factors in switch selection
 - (e) Requirements for circuit protection devices
 - (f) Voltage regulator – purpose and operating characteristics
 - (g) Lighting and/or lighting system components
 - (h) Electric motor operation and/or motor components
 - (i) Constant speed drive (CSD) and/or integrated drive generator (IDG) systems and/or system components
 - (j) Airframe electrical system components
 - (k) Wiring defects and/or inspection
- (2) CORE COMPETENCY ELEMENT: *Demonstrates the ability to troubleshoot an electrical system or portion thereof, using appropriate tools and/or test equipment. (Level 3)
- (3) ELEMENT: Demonstrates the ability to perform at least one of the following:
TASKS:
- (a) Select a circuit switch or circuit protection device for a specific aircraft and application (Level 2)
 - (b) Install a circuit switch or circuit protection device. (Level 3)
 - (c) Select materials and tools and accomplish a wire splice. (Level 3)
 - (d) Adjust one or more voltage regulators. (Level 3)
 - (e) Select and install one or more wires and pins and/or sockets in a connector. (Level 3)
 - (f) Select materials and fabricate a bonding wire. (Level 3)
 - (g) Install a bonding wire and accomplish a resistance check. (Level 3)
 - (h) Check the operation of one or more airframe electrical system circuits and/or system components. (Level 3)
 - (i) Inspect and check a landing light. (Level 3)
 - (j) Inspect and check anti-collision and position lights. (Level 3)
 - (k) Inspect generator brushes and determine serviceability. (Level 3)

H. AREA OF OPERATION: POSITION AND WARNING SYSTEMS

Objective: To determine that the applicant:

- (1) ELEMENT: Exhibits knowledge of at least two of the following:
TASKS:
- (a) Anti-skid system basic components
 - (b) Anti-skid system operating characteristics
 - (c) Take-off warning system basic components
 - (d) Take-off warning system function and operation
 - (e) Control-surface trim indicating system basic components and/or operating characteristics
 - (f) Landing gear position indicators
 - (g) Flap position indicators
 - (h) Landing gear warning system basic components and/or operating characteristics
 - (i) Checking and/or repairing a landing gear warning system
 - (j) Types of stall warning/lift detector systems and/or operating characteristics
 - (k) Common annunciator system indications
 - (l) Mach warning system indicator(s) and/or operating characteristics
- (2) N/A
- (3) ELEMENT: Demonstrates the ability to perform at least one of the following:
TASKS:

- (a) Inspect and/or adjust a landing gear position switch. (Level 3)
- (b) Accomplish an operational check of a landing gear position indicating and/or warning system. (Level 3)
- (c) Inspect and/or adjust a flap position indicating system. (Level 3)
- (d) Check the operation of a flap position indicating and/or warning system. (Level 3)
- (e) Troubleshoot a landing gear warning system. (Level 3)
- (f) Check the operation of an annunciator system. (Level 3)
- (g) Check the operation of an anti-skid warning system. (Level 3)
- (h) Identify landing gear position/warning system components. (Level 2)
- (i) Locate troubleshooting procedures for an anti-skid system. (Level 1)
- (j) Locate troubleshooting procedures for a landing gear warning system. (Level 1)

I. AREA OF OPERATION: ICE AND RAIN CONTROL SYSTEMS

Objective: To determine that the applicant:

- (1) ELEMENT: Exhibits knowledge of at least two of the following:
TASKS:
 - (a) Aircraft icing causes/effects
 - (b) Ice detection systems
 - (c) Anti-ice and/or de-ice areas
 - (d) Anti-ice and/or de-ice methods commonly used
 - (e) Checking and/or troubleshooting a pitot-static anti-ice system
 - (f) Anti-icing and/or de-icing system components/operation
 - (g) Anti-icing and/or de-icing system maintenance
 - (h) Types of rain removal systems and/or operating characteristics
- (2) N/A
- (3) ELEMENT: Demonstrates the ability to perform at least one of the following:
TASKS:
 - (a) Troubleshoot a pitot anti-ice system. (Level 3)
 - (b) Check the operation of a pitot-static anti-ice system. (Level 3)
 - (c) Inspect a de-icer boot. (Level 3)
 - (d) Check de-icer boot operation. (Level 3)
 - (e) Inspect windshield wiper blade(s) and check blade tension. (Level 3)
 - (f) Adjust a windshield wiper blade tension to specification. (Level 3)
 - (g) Inspect an electrically-heated windshield. (Level 3)
 - (h) Check an electrically-heated windshield operation. (Level 3)
 - (i) Troubleshoot a pneumatic de-icer boot system. (Level 3)
 - (j) Service or repair on a pneumatic de-icer boot. (Level 3)

J. AREA OF OPERATION: FIRE PROTECTION SYSTEMS

Objective: To determine that the applicant:

- (1) ELEMENT: Exhibits knowledge of at least two of the following:
TASKS:
 - (a) Fire and/or smoke detection system(s) or system components
 - (b) Fire extinguishing system(s) and/or system components
 - (c) Fire and/or smoke detection system operating characteristics
 - (d) Fire extinguishing system operating characteristics
 - (e) Determining proper container pressure for an installed fire extinguisher system
 - (f) Maintenance procedures for fire detection and/or extinguishing system(s) and/or system component(s)
 - (g) Inspecting and/or checking a fire detection/overheat system
 - (h) Inspecting and/or checking a smoke and/or toxic gas detection system

- (i) Troubleshooting a fire detection and/or extinguishing system
- (2) N/A
- (3) ELEMENT: Demonstrates the ability to perform at least one of the following:
TASKS:
 - (a) Inspect a fire extinguisher container and determine if the pressure is within limits. (Level 3)
 - (b) Determine the hydrostatic test date of a fire extinguisher container. (Level 2)
 - (c) Troubleshoot a fire detection system. (Level 3)
 - (d) Install/replace one or more smoke and/or fire detection and/or extinguishing system components. (Level 3)
 - (e) Inspect a smoke and/or fire detection and/or extinguishing system, or system component(s). (Level 3)
 - (f) Locate inspection procedures for carbon monoxide detectors. (Level 1)
 - (g) Locate procedures for checking a smoke detection system. (Level 1)