



REPUBLIC OF KENYA

NATIONAL OCCUPATIONAL STANDARDS

FOR

ELECTRICAL INSTALLATION ARTISAN

KNQF LEVEL 4

ISCED OCCUPATIONAL STANDARD CODE:07130454B



TVET CDACC
P.O BOX 15745-00100
NAIROBI

PERFORM ELECTRICAL SYSTEM BREAKDOWN MAINTENANCE

UNIT CODE: ENG/OS/EI/CR/03/4/B

UNIT DESCRIPTION

This unit covers the competencies required to perform breakdown maintenance. Competencies include identify system failure, troubleshooting cause of failure, preparing a list of tools, equipment and materials, repair the system and testing the system.

ELEMENTS AND PERFORMANCE CRITERIA

ELEMENT	PERFORMANCE CRITERIA
These describe the key outcomes which make up workplace function.	These are assessable statements which specify the required level of performance for each of the elements <i>(Bold and italicised terms are elaborated in the Range)</i>
1. Identify system failure	1.1 The necessary information about the <i>failure</i> is obtained from the user, as per set procedures. 1.2 <i>Manuals</i> for the system are referred to identify test points and measured parameters as per established procedure 1.3 Visual inspection to identify system failure is performed as established standards
2. Troubleshoot cause of failure	2.1 Safety procedures are applied in accordance with the safety standards 2.2 System trouble shooting is conducted in accordance with the set procedure 2.3 System is diagnosed for failure according to standard operating procedure 2.4 System failure results are recorded as per established procedure. 2.5 <i>Parameters</i> are compared against the standards values
3. Prepare list of tools, equipment & materials	3.1 Maintenance tools, equipment and materials are identified as per established procedure 3.2 Specifications and functionality of tools, equipment and materials are checked in accordance with established standards 3.3 Safety procedures are observed as per OSHA 3.4 Equipment are calibrated as per manufacturer's specifications

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These describe the key outcomes which make up workplace function.	These are assessable statements which specify the required level of performance for each of the elements <i>(Bold and italicised terms are elaborated in the Range)</i>
4. Repair the installation	4.1 Safety precautions are observed as per OSHA 4.2 System is repaired in accordance with maintenance manual 4.3 Tools and equipment are used as per the manufacture manuals 4.4 Repair activities are recorded according to the established procedure
5. Test the repaired system	5.1 Appropriate tests and test points are identified as per established standards 5.2 Testing is performed in accordance with safety standards 5.3 System is tested as per established procedure 5.4 Test results are recorded according to the established procedures 5.5 Parameters are compared against the standard values 5.6 Maintenance report is prepared according to approved format

RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance

Variable	Range <i>May include but is not limited to:</i>
1. Failure include but not limited to:	<ul style="list-style-type: none"> • Partial • Total
2. Manuals include but not limited to:	<ul style="list-style-type: none"> • Maintenance • Operational • Installation • Commissioning • Technical specification /data sheet

Variable	Range <i>May include but is not limited to:</i>
3. Parameters include but not limited to:	<ul style="list-style-type: none"> • Light intensity • Sound • Speed • Efficiency • Temperature • Electrical quantities e.g. Voltage, current and resistance levels • Expected output

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit of competency.

Required Skills

The individual needs to demonstrate the following skills:

- Apply basic troubleshooting methods
- Use of basic Electrical instruments
- Perform various unit conversions of Electrical quantities
- Perform Electrical earthing
- Lightning arrestors
- Power factor correction
- Logical thinking
- Problem solving problems
- Drawing graphs
- Using different measuring tools

Required knowledge

The individual needs to demonstrate knowledge of:

- Electrical power calculations
- Various laws in Electrical engineering
- Electrical formulas
- Power triangle
- SI units of various electrical parameters
- Earthing testing
- Lightning arrestor testing
- Selecting the correct type of electrical machines for various uses
- Types and purpose of measuring instruments
- Units of measurement and abbreviations

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required knowledge and understanding and range.

1. Critical Aspects of Competency	Assessment requires evidence that the candidate: 1.1 Used testing equipment and tools safely 1.2 Obtained, recorded and interpreted test results 1.3 Documented maintenance report 1.4 Repaired and maintained electrical system
2. Resource Implications	The following resources must be provided: 2.1 Electrical installation tool kit 2.2 Testing equipment 2.3 Measuring equipment Resources the same as that of workplace are advised to be applied
3. Methods of Assessment	Competency may be assessed through: 3.1 Oral 3.2 Observation 3.3 Written tests
4. Context of Assessment	Competency may be assessed individually: 4.1 On-the-job, 4.2 Off-the-job or a combination of these. 4.3 During industrial attachment
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.