

Domain Control and Instrumentation
Title: Troubleshoot instrumentation and control equipment

Level: 3

Credits:5

Purpose

This unit standard specifies the competencies required to troubleshoot instrumentation and control equipment Analyse fault report, Inspect equipment components, Analyse system operation, Identify type of system malfunction and equipment fault, Verify measurements and readings. This unit standard is intended for those who work

Special Notes

1. Entry information:

Prerequisite

 - Unit 1157 - Demonstrate basic knowledge of workplace health and safety
 - Unit I&C02 - Plan and organise work in instrumentation work environment
2. Assessment evidence may be collected from a real workplace or a simulated workplace in which instrumentation operations are carried out.
3. To demonstrate competence, minimum evidence of identify and rectify fault on at least three equipment.
4. All inspection, operation and maintenance procedures associated with the use of tools and equipment shall comply with manufacturers' guidelines and instructions
5. Troubleshooting includes but is not limited to pressure, level, density, flow measuring instruments and control equipment
6. Glossary of terms:
 - *specifications'* refers to any, or all of the following: manufacturers' specifications and recommendations, workplace specific requirements
7. Regulations and legislation relevant to this unit standard include the following:
 - Labour Act, No.11, 2007
 - Regulations relating to the health & safety of employees at work under Schedule 1 (2) of the Labour Act No.11 of 2007
 - And all subsequent amendments
8. Performance of all elements in this unit standard must comply with industry standards.

Quality Assurance Requirements

This unit standard and others within this subfield may be awarded by institutions which meet the accreditation requirements set by the Namibia Qualifications Authority and the Namibia Training Authority and which comply with the national assessment and moderation requirements. Details of specific accreditation requirements and the

national assessment arrangements are available from the Namibia Qualifications Authority and the Namibia Training Authority. All approved unit standards, qualifications and national assessment arrangements are available on the Namibia Training Authority website www.nta.com.na.

Elements and Performance Criteria

Element 1: Analyse fault report

Range

Analysis of the technical reports includes but is not limited to the interpretation of reports, formulating remedial steps, and adherence to safety precautions and regulations.

Performance Criteria

- 1.1 Workplace instructions, such as job cards, specifications and operational details are obtained, confirmed and applied.
- 1.2 Workplace inspection, devices defect identification, assessment of conditions and hazards of work requirements are carried out.
- 1.3 Safety requirements are followed in line with safety plans and policies.
- 1.4 Tools and testing equipment re sourced and implemented in the line with workplace procedures.
- 1.5 Materials requirements are identified and obtained in the line with workplace requirements.

Element 2: Inspect equipment components

Range

Visual inspections are carried out, but not limited to test components, loose connections, and corroded components.

Performance Criteria

- 2.1 Procedures and information required for testing electronic components and devices are identified and sourced in line with the workplace procedures.
- 2.2 Visual inspections are carried out in the line with workplace procedures.
- 2.3 Operational test of the components are conducted.

Element 3: Analyse equipment operation

Range

Safety interlocks and the process interlocks must be identified, but is not limited for testing the operational function of the equipment and devices.

Performance Criteria

- 3.1 Safety precautions are observed and adhered to in line with safety plans and policies.

- 3.2 Operational test of the systems are conducted.
- 3.3 Tools and equipment such as multi-meters and hand-held monitors are selected and used.
- 3.4 Diagnostic software is selected and used to determine system faults.
- 3.5 Probable root cause and location of faults is identified.
- 3.6 Steps required to address deficiencies are determined based on results of root cause analysis

Element 4: Identify type of system malfunction and equipment fault

Range

Identification of system malfunction and equipment fault includes, but not limited to identifying intermediate faults, removing of faulty components, obtaining and replacing of system components,

Performance Criteria

- 4.1 Non-compliance defects are identified and reported in the line with the workplace procedures.
- 4.2 Recommendations for rectifying defects are made in line with workplace procedures.
- 4.3 Equipment must be observed while it is in motion to verify proper functionality.
- 4.4 Procedures for removing and replacing components are followed and adhered to in line with manufacture' specification.
- 4.5 Appliance is isolated from power source.
- 4.6 Components or parts are marked or tagged during the dismantling to ensure correct and efficient reassembling and storing to protect them against loss or damage.
- 4.7 Replacement of components or parts is carried out in line with workplace procedures.

Element 5: Verify measurements and readings

Range

Verifying and testing of components includes, but is not limited to use of known references, parameters and testing equipment.

Performance Criteria

- 5.1 Certified testing instruments are used in line with the manufacturer specifications and workplace procedures.
- 5.2 Testing and measuring should be stable and accurate.

Registration Data

Subfield:	Electrical Engineering
Date first registered:	
Date this version registered:	
Anticipated review:	
Body responsible for review:	Namibia Training Authority