



Australian Government

UEEIC0021 Find and rectify faults in process final control elements

Release: 1

UEEIC0021 Find and rectify faults in process final control elements

Modification History

Release 1. This is the first release of this unit of competency in the UEE Electrotechnology Training Package.

Application

This unit involves the skills and knowledge required to find and rectify faults in process final control elements.

It includes working safely, interpreting valve specifications, applying knowledge of final control elements operating parameters, conducting tests and repairs, and completing the necessary service documentation.

Permits may be required for some work environments, such as confined spaces, working aloft, near live electrical apparatus and site rehabilitation.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

UEECD0007 Apply work health and safety regulations, codes and practices in the workplace

UEECD0051 Use drawings, diagrams, schedules, standards, codes and specifications

UEEIC0047 Use instrumentation drawings, specifications, standards and equipment manuals

UEEIC0023 Install instrumentation and control cabling and tubing

UEEIC0022 Install instrumentation and control apparatus and associated equipment

Competency Field

Instrumentation & Control

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

PERFORMANCE CRITERIA

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

1 Prepare to find and repair faults in final control elements

- 1.1** Work health and safety (WHS)/occupational health and safety (OHS) processes and workplace procedures for a given work area are identified, obtained and applied
- 1.2** WHS/OHS risk control measures and workplace procedures are followed in preparation for the work
- 1.3** Scope of final control element fault is obtained from documentation tests and/or work supervisor to determine work
- 1.4** Need to inspect, test and measure operating systems is determined in accordance with WHS/OHS requirements and workplace procedures
- 1.5** Advice is sought from work supervisor to ensure the work is coordinated effectively with others
- 1.6** Sources of materials required for work are determined in accordance with workplace procedures
- 1.7** Tools, equipment and testing devices required to carry out work are obtained in accordance with workplace procedures and checked for correct operation and safety

2 Find faults in final control elements and associated equipment

- 2.1** WHS/OHS risk control measures and workplace procedures for carrying out the work are followed
- 2.2** Apparatus is checked and isolated in accordance with WHS/OHS requirements and workplace procedures
- 2.3** Fault finding is approached using processes control valves, actuators and positioners using measured and calculated values in accordance with workplace procedures
- 2.4** Apparatus components are dismantled, as required, and parts stored to protect against loss or damage in accordance with workplace procedures
- 2.5** Faulty components are rechecked and fault status confirmed in accordance with workplace procedures
- 2.6** Unplanned situations are dealt with safely and with the approval of relevant person/s

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| | 2.7 | Fault-finding activities are carried out without damage to apparatus, circuits, the surrounding environment or services using sustainable energy principles |
| 3 Rectify faults in final control elements and associated equipment | 3.1 | WHS/OHS risk control measures and workplace procedures for carrying out the work are followed |
| | 3.2 | Apparatus is inspected and isolated in accordance with WHS/OHS requirements and workplace procedures |
| | 3.3 | Materials required to rectify faults are sourced and obtained in accordance with workplace procedures |
| | 3.4 | Rectification and repairs are conducted without damage to components, apparatus or circuits |
| | 3.5 | Repairs are tested in accordance with workplace procedures |
| | 3.6 | Apparatus is reassembled, tested and prepared for return to service |
| | 3.7 | Repairs are carried out without damage to apparatus, circuits, the surrounding environment or services using sustainable energy principles |
| 4 Complete and report fault-finding and rectification activities | 4.1 | WHS/OHS work completion risk control measures and workplace procedures are followed |
| | 4.2 | Work area is cleaned and made safe in accordance with workplace procedures |
| | 4.3 | Repairs to control valves is documented in accordance with workplace procedures |

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the UEE Electrotechnology Training Package

Companion Volume Implementation Guide.

Finding and rectifying faults in final control elements must include at least two of the following:

- final control elements
- associated equipment

Unit Mapping Information

This unit replaces and is equivalent to UEENEEI111A Find and rectify faults in process final control elements.

Links

Companion Volume implementation guides are found in VETNet - -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6>

Assessment Requirements for UEEIC0021 Find and rectify faults in process final control elements

Modification History

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions on at least two separate occasions and include:

- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements, including
 - using risk control measures
- applying variable speed drives (VSD)
- checking and isolating apparatus
- dealing with unplanned situations safely and with the approval of relevant person/s
- determining need for inspecting, testing or measuring operating systems
- determining sources of materials required for work
- dismantling apparatus components, as required, and storing to protect against loss or damage
- finding faults in final control elements and associated equipment
- measuring control valves actuators and positioners and calculating values to identify faults
- obtaining scope of final control element faults
- obtaining tools, equipment and testing devices required to carry out work
- preparing to find and repair faults in final control elements
- replacing/rectifying and repairing components without damage using sustainable energy principles
- sourcing and obtaining materials required to rectify faults.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions and include knowledge of:

- control valve body and trim types and flow characteristics
- control valve selection
- power cylinder (piston actuator) types
- problem-solving techniques
- relevant components, apparatus or circuits

- relevant control valves including:
 - control valves actuators and positioners measurements and calculations
- relevant industry standards
- relevant isolation procedures
- relevant job safety assessments or risk mitigation processes
- relevant manufacturer specifications and operating instructions
- relevant material, tools and equipment
- relevant rectification and repairs
- relevant VSD
- relevant WHS/OHS legislated requirements
- relevant workplace documentation
- relevant workplace instructions, policies and procedures
- self-acting pressure and temperature control valves
- spring opposed diaphragm actuator
- sustainable energy principles
- valve positioners.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated suitable workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- a range of relevant exercises, case studies and/or simulations
- relevant and appropriate materials, tools, facilities and equipment currently used in industry
- resources that current industry practices in relation to finding and rectifying faults in process final control elements and associated equipment
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

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