



Australian Government

UEEEL0034 Conduct mechanical tests on electrical machines and components

Release: 2

UEEEL0034 Conduct mechanical tests on electrical machines and components

Modification History

Release 2. Minor Change. Typographic error in prerequisites corrected.

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 conduct mechanical, safety and functional inspection and testing of electrical machines and their mechanical components.

It includes planning and conducting mechanical inspections and tests on electrical machines and components by working safely, setting up and conducting tests, taking measurements, interpreting and documenting test results, and completing workplace documentation.

The skills and knowledge described in this unit require a licence or permit to practice in the workplace where work is carried out on electrical installations which are designed to operate at voltages greater than 50 volt (V) alternating current (a.c.) or 120 V direct current (d.c.).

Competency development activities in this unit are subject to regulations directly related to licensing. Where a licence or permit to practice is not held, a relevant contract of training, such as an Australian Apprenticeship, may be required.

Additional and/or other conditions may apply in some jurisdictions subject to regulations related to electrical work. Practice in the workplace and during training is also subject to work health and safety (WHS)/occupational health and safety (OHS) regulations.

Pre-requisite Unit

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

UEECD0019 Fabricate, assemble and dismantle utilities industry components

UEECD0020 Fix and secure electrotechnology equipment

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

UEEEL0020 Solve problems in low voltage a.c. circuits

UEEEL0023 Terminate cables, cords and accessories for low voltage circuits

UEEEL0033 Conduct electrical tests on LV electrical machines

UEEEL0019 Solve problems in direct current (d.c.) machines

UEEEL0021 Solve problems in electromagnetic devices

UEEEL0024 Test and connect alternating current (a.c.) rotating machines

UEEEL0025 Test and connect transformers

and

UEECD0043 Solve problems in direct current circuits

or

UEECD0044 Solve problems in multiple path circuits

UEECD0046 Solve problems in single path circuits

and

UEEEL0074 Wind electrical coils

UEEEL0056 Place and connect electrical coils

UEEEL0068 Rewind three phase low voltage induction machines

or

UEEEL0003 Arrange circuits, control and protection for general electrical installations

UEEEL0008 Evaluate and modify low voltage heating equipment and controls

UEEEL0009 Evaluate and modify low voltage lighting circuits, equipment, and controls

UEEEL0010 Evaluate and modify low voltage socket outlets circuits

UEEEL0014 Isolate, test and troubleshoot low voltage electrical circuits

Competency Field

Electrical

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare to conduct mechanical tests on electrical machines and components

PERFORMANCE CRITERIA

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

- 1.1** WHS/OHS requirements and workplace procedures for a given work area are identified and applied
- 1.2** Existing WHS/OHS risk control measures for work preparation are followed

- 1.3 Scope of work is determined from job sheets, specifications and regulatory requirements
 - 1.4 Advice is sought from the work supervisor to ensure the work is coordinated effectively with others
 - 1.5 Machine data is obtained from data records or directly from measurements and recorded in accordance with workplace procedures
 - 1.6 Materials required for the work are obtained in accordance with workplace procedures
 - 1.7 Tools, equipment and testing devices needed to carry out work are obtained and checked for correct operation and safety
- 2 **Conduct mechanical tests on electrical machines and components**
 - 2.1 Existing WHS/OHS risk control work measures are followed
 - 2.2 Machines/equipment are checked and isolated in accordance with WHS/OHS requirements and workplace procedures
 - 2.3 Mechanical tests/measurements are conducted to establish operational condition of the machine
 - 2.4 Serviceability status of the machine is determined from test results and recorded
 - 2.5 Unplanned situations are responded to in accordance with workplace procedures in a manner that minimises risk to personnel and equipment
 - 2.6 Electrical coil work is completed within timeframe, environment and workplace conditions
- 3 **Complete workplace report**
 - 3.1 WHS/OHS work completion risk controls measures are followed
 - 3.2 Serviceability status of the machine, including specifications for any repair work required, is documented in accordance with workplace procedures and appropriate person/s notified

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.

- Conducting mechanical inspections and tests must include the following:
- at least one machine prior to routine maintenance, overhaul or repair
 - at least one machine after routine maintenance, overhaul or repair

Unit Mapping Information

This unit replaces and is equivalent to UEENEEG159A Conduct mechanical tests on electrical machines and components.

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 UEEEL0034 Conduct mechanical tests on electrical machines and components

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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 and workplace procedures and practices, including using risk control measures
- applying sustainable energy principles and practices
- completing workplace reports
- conducting mechanical inspections and tests on electrical machines and components, including:
 - determining the serviceability status of the machine correctly from inspection and test results
 - dismantling machine and storing parts securely
 - documenting the serviceability status of the machine clearly
 - setting up tests correctly
 - taking test and measurement readings accurately
- dealing with unplanned events in accordance with workplace procedures in a manner that minimises risk to personnel and equipment
- planning to conduct mechanical inspection and tests on electrical machines and components
- using tools safely in accordance with workplace procedures.

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:

- current industry practices and technologies
- electric motor mechanical measuring, inspection and testing devices and techniques
- devices and techniques for measuring geometric attributes, including a measuring device for geometric attributes, dynamic balancing and alignment of shafts
- operational inspection, test/measuring devices and their application

- set-up of test/measuring devices, including safety and set-up procedures
- storage, maintenance and care of test/measuring devices, including mechanical measuring and testing devices
- taking and interpreting readings, including taking and interpreting reading by the correct method, measuring roundness, dynamic balancing and aligning shafts
- relevant job safety assessments or risk mitigation processes
- relevant manufacturer specifications
- relevant safe working practices
- relevant WHS/OHS legislated requirements
- relevant workplace documentation
- relevant workplace policies and procedures
- sustainable energy principles and practices.

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 suitable simulated 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 other simulations
- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment (PPE) currently used in industry
- resources that current industry practices in relation to conducting mechanical inspections and tests on electrical machines and components
- applicable documentation, including workplace procedures, equipment specifications, regulations, relevant industry standards, codes of practice and operation manuals.

Links

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