



Australian Government

UEEEL0017 Repair and maintain mechanical components of electrical machines

Release: 1

UEEEL0017 Repair and maintain mechanical components of electrical machines

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 repair and maintain mechanical components of electrical machine.

It includes working safely to industry standards in planning and repairing/maintaining mechanical components of electrical machines and documenting workplace activities.

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

UEECD0019 Fabricate, assemble and dismantle utilities industry components

UEECD0020 Fix and secure electrotechnology equipment

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

UEEEL0004 Carry out basic repairs to electrical components and equipment

Competency Field

Electrical

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

PERFORMANCE CRITERIA

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

1 Prepare to repair mechanical components

- 1.1** Work health and safety (WHS)/occupational health and safety (OHS) requirements and workplace procedures for a given work area are identified and applied
- 1.2** Existing WHS/OHS risk control measures and workplace procedures are followed in preparation for the repair work
- 1.3** Safety hazards not previously identified are reported on job safety assessments, risks assessed and risk control measures sought from work supervisor
- 1.4** Nature of repair work is obtained from workplace documentation or from work supervisor to determine scope of work to be undertaken
- 1.5** Advice is sought from the work supervisor to ensure work is coordinated effectively with others
- 1.6** Sources of materials required for work are determined in accordance with workplace instructions and procedures
- 1.7** Tools, equipment and testing devices needed to carry out work are obtained and checked for correct operation and safety
- 1.8** Appropriate machine is selected, checked for safety and prepared for any necessary machining operation
- 1.9** Cutting tools are selected, sharpened and set-up for each machining operation

2 Repair mechanical components

- 2.1** Existing WHS/OHS risk control measures and workplace procedures are followed
- 2.2** Circuits/machines/plant are checked and isolated in accordance with WHS/OHS requirements and workplace procedures
- 2.3** Component being machined is positioned and clamped in accordance with workplace procedures
- 2.4** Machining is carried out safely and to suit the mechanical component and material being machined in accordance with safe work practices and workplace procedures
- 2.5** Measurements are taken and confirmed to ensure repairs comply with technical industry standards, job

specifications and workplace requirements

- 2.6** Mechanical components are repaired in accordance with technical industry standards, job specifications and workplace requirements
- 2.7** Existing safe work methods for dealing with unplanned situations are discussed with appropriate person/s and documented
- 2.8** Unplanned situations are responded to in accordance with workplace procedures in a manner that minimises risk to personnel and equipment and with the approval of an authorised person
- 2.9** Ongoing checks of the quality of repair work are undertaken in accordance with workplace procedures
- 2.10** Repairs are carried out efficiently without unnecessary waste of materials and energy and damage to apparatus circuits, the surrounding environment or services

3 Complete work and report

- 3.1** WHS/OHS work completion risk control measures and workplace procedures are followed
- 3.2** Work area is cleaned and made safe in accordance with workplace procedures
- 3.3** Component fittings are aligned to verify repaired component/s conform to industry standards, job specifications and requirements
- 3.4** Work completion is documented and appropriate person/s notified 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.

Repairing and maintaining electrical machine components must include at least two of the following:

- shaft
- bearing housing
- end shield
- fan
- coupling
- machine housing

Unit Mapping Information

This unit replaces and is equivalent to UEENEEG164A Repair and maintain mechanical components of electrical machines.

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 UEEEL0017 Repair and maintain mechanical components of electrical machines

Modification History

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

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 documentation and reports
- inspecting and testing completed mechanical maintenance work
- machining mechanical components in accordance with safe working practices and workplace procedures
- maintaining mechanical components of electrical machines
- planning to repair/maintain mechanical components of electrical machines
- repairing mechanical component/s of electrical machines, including:
 - dealing with unplanned events in accordance with workplace procedures in a manner that minimises risk to personnel and equipment
 - documenting repairs in accordance with workplace procedures and instructions
 - establishing the scope of the repair work
 - repairing component to relevant industry standards
 - securing work piece/parts/components correctly
 - selecting appropriate repair method
 - sharpening cutting tools/twist drills correctly, as required.

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:

- dangers and safety precautions, including hazardous dust, cleaning material and safe working practices
- current industry practices and technologies
- machining industry practices and technologies

- relevant job safety assessments or risk mitigation processes
- relevant manufacturer specifications
- relevant WHS/OHS legislated requirements including relevant safe working practices
- relevant workplace documentation
- relevant workplace policies, procedures and instructions
- repairing mechanical components of electrical machines, including:
 - hazards and safety precautions
 - safe working practices
 - electrical machine bearings requirements, including:
 - bearing damage and remedial action
 - handling and storage of bearings
 - lubrication and calculation of bearing life
 - types, clearances, and techniques for removing and fitting bearings
 - machines couplings, including:
 - fitting and aligning couplings
 - fitting and aligning pulleys
 - types of belts and their applications
 - types of couplings and applications
 - machine components of electrical machines
 - machine faults, inspection and testing procedures
 - dismantling/assembling and repairing workplace procedures/instructions, including marking of electrical connections, recording positions of gears/pulleys/couplings, dismantle procedures, bearing removal/replacement and test run
 - brushes, including characteristics, types, selection and components
 - mechanical components removal and installation, including:
 - marking of winding connections
 - motor alignment
 - alignment workplace procedures/instructions
- 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 should reflect current industry practices in relation to repairing mechanical components of electrical machines
- applicable documentation, including workplace procedures, equipment specifications, regulations, relevant industry standards, codes of practice and operation manuals.

Links

Companion Volume implementation guides are found in VETNet - -

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