



Australian Government

UEERA0059 Prepare and connect refrigerant tubing and fittings

Release: 2

UEERA0059 Prepare and connect refrigerant tubing and fittings

Modification History

Release 2. This minor update is the second release of this unit of competency in the UEE Electrotechnology Training Package.

Incorrect Performance Criteria numbering in Element 1 fixed.

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 prepare and connect refrigeration and air conditioning piping/tubing and fittings.

It includes cutting, bending and connecting copper tubes to copper tubes and to brass and steel fittings by flaring and swaging using compression fittings and silver brazing.

The skills and knowledge in this unit will be applied by refrigeration and air conditioning technicians during the installation, service and repair of refrigeration and air conditioning systems.

To undertake this unit, the learner must have a Trainee Refrigerant Handling Licence as it includes work on refrigeration and air conditioning equipment that carries the risk of a fluorocarbon refrigerant being emitted.

The skills and knowledge described in this unit require a national Refrigerant Handling Licence as it includes work on refrigeration and air conditioning equipment that carries the risk of a fluorocarbon refrigerant being emitted while decanting the refrigerant or manufacturing, installing, commissioning, servicing, maintaining or decommissioning refrigeration and air conditioning equipment.

The skills and knowledge described in this unit may, in some jurisdictions, also require a licence or permit to practice in the workplace subject to regulations for undertaking refrigeration and air conditioning 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

Competency Field

Refrigeration and air-conditioning

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare to fabricate tubing and attach fittings for refrigeration and/or air conditioning system

PERFORMANCE CRITERIA

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

1.1 WHS/OHS hazards, risk control methods, relevant standards, codes and legislation are obtained and applied

1.2 Safety hazards which have not previously been identified are reported and advice on risk control measures is sought from supervisor

1.3 Nature of work is obtained from documentation or supervisor to determine scope of work to be undertaken

1.4 Advice is sought from supervisor to ensure work is coordinated effectively with others

1.5 Materials required for the work are accessed in accordance with workplace procedures

1.6 Tools, equipment and testing devices to carry out work are obtained and checked for correct operation and safety

2 Fabricate tubing and attach fittings for refrigeration and/or air conditioning system

2.1 Tasks are completed in accordance with workplace safety procedures

2.2 Relevant safe work methods are used to cut, flare, swage, bend and silver braze tubing and fittings as they apply to refrigeration and/or air conditioning systems

2.3 Refrigerant tubing and fittings are silver brazed with the use of dry nitrogen to prevent contamination

2.4 Fabricated tubing and fittings are prepared without waste of materials or damage/contamination to apparatus, the

surrounding environment or services using relevant workplace sustainable energy practices in accordance with workplace procedures

- 2.5 Quality checks are carried out regularly in accordance with workplace procedures, instructions/or specifications, including dimensions and pressure testing

3 Complete work and report 3.1 Worksite is cleaned and made safe in accordance with workplace procedures

- 3.2 Supervisor is notified of task completion 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.

Preparing and connecting refrigerant tubing and fittings must include at least the following:

- cutting, flaring, bending and swaging using compression fittings, silver brazing copper tube to copper tube and brass and steel fittings
- piping/tubing and fittings for high-pressure refrigerants

Unit Mapping Information

This unit replaces and is equivalent to UEENEEJ102A Prepare and connect refrigerant tubing and fittings.

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 UEERA0059 Prepare and connect refrigerant tubing and fittings

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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 industry standards, codes of practice, regulations and work health and safety (WHS)/occupational health and safety (OHS) requirements, including using risk control measures
- applying sustainable energy principles and practices
- completing documentation and reporting requirements
- identifying and monitoring hazards and using applicable safety data sheets (SDS)/material safety data sheets (MSDS)
- preparing, fabricating and attaching refrigerant tubing and fittings, including:
 - attaching fittings correctly
 - conducting component quality checks
 - cutting, bending and joining refrigerant piping and tubing using appropriate tools and equipment, including compression fittings and high-pressure refrigerants
 - silver brazing copper tubes and fittings using dry nitrogen
- setting up equipment safely.

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:

- copper tube grades, including types, properties, applications and handling
- dissimilar metals, including:
 - aluminium
 - brass

- steel
- stainless steel
- potential hazards with refrigerant tubing and fittings
- refrigerant tubing and fittings techniques, including:
 - annealing
 - bending
 - cutting
 - flaring
 - tube expanding
 - joining
 - silver brazing
 - use of dry nitrogen
- refrigeration copper tube fittings and access valves
- relevant legislation, industry standards, codes of practice and regulations
- relevant manufacturer specifications
- relevant risk mitigation processes, including safe working practices
- relevant WHS/OHS legislated requirements
- relevant workplace documentation
- relevant workplace policies and procedures
- SDS/MSDS
- sustainable energy principles and practices
- tools and equipment, including care and maintenance.

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 workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in 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, equipment and personal protective equipment (PPE) currently used in industry
- applicable documentation, including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

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