



Australian Government

AURETR2006 Carry out soldering of electrical wiring and circuits

Release 1

AURETR2006 Carry out soldering of electrical wiring and circuits

Modification History

Release	Comment
Release 1	<p>Replaces AURE224008A Carry out soldering of electrical wiring/circuits</p> <p>Unit code updated to meet policy requirements</p> <p>Minor changes to unit title</p> <p>Reference to OHS legislation replaced with new WHS legislation</p> <p>Licensing statement added to unit descriptor</p>

Unit Descriptor

Unit descriptor	<p>This unit covers the competence to carry out soldering processes appropriate to electrical components/wiring/circuits.</p> <p>Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.</p>
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Application of the Unit

Application of the unit	<p>The unit includes identification and confirmation of work requirement, preparation for work, soldering and testing of joints and completion of work processes, including clean-up and documentation.</p> <p>Work involves the application of solder in electrical/electronic wiring and circuitry applications.</p> <p>Work requires individuals to demonstrate some judgement and problem-solving skills in safety equipment, soldering techniques, environmental issues, repair procedures and vehicle operational requirements.</p>
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains employability skills.
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Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare for work	<p>1.1. Work instructions are used to determine job requirements, including job sheets, quality and quantity of material</p> <p>1.2. Job specifications are read and interpreted</p> <p>1.3. WHS requirements, including personal protection needs, are observed throughout the work</p> <p>1.4. Material for repairs and replacements are selected and inspected for quality</p> <p>1.5. Correct hand and power tooling and safety equipment are selected and checked for safe use</p> <p>1.6. Products are determined to minimise waste material</p> <p>1.7. Procedures are identified for maximising energy efficiency while completing the job</p>
2. Prepare components/wiring/circuits, tooling and equipment for soldering	<p>2.1. Correct information is accessed and interpreted from manufacturer/component supplier specifications</p> <p>2.2. Materials/components to be joined are cleaned and solder/flux combinations identified</p> <p>2.3. Soldering equipment is prepared/cleaned</p> <p>2.4. Preparation is completed without causing damage to vehicle or component</p> <p>2.5. Preparation activities are carried out according to a standard that meets industry regulations/guidelines, WHS, legislation and enterprise procedures/policies</p>
3. Carry out soldering of components/wiring/circuits	<p>3.1. Correct information is accessed and interpreted from manufacturer/component supplier specifications</p> <p>3.2. Soldering is completed without causing damage to vehicle or component</p> <p>3.3. Soldering joint is tested prior to placing into service</p> <p>3.4. Soldering activities are carried out according to a standard that meets industry regulations/guidelines, WHS, legislation and enterprise policy/procedures</p>
4. Clean up work area and maintain equipment	<p>4.1. Material that can be reused is collected and stored</p> <p>4.2. Waste and scrap is removed following workplace procedures</p> <p>4.3. Equipment and work area are cleaned and inspected for serviceable conditions in accordance with workplace procedures</p> <p>4.4. Unserviceable equipment is tagged and faults identified in accordance with workplace</p> <p>4.5. Operator maintenance is completed in accordance with</p>

ELEMENT	PERFORMANCE CRITERIA
	<p>manufacturer/component supplier specifications and site procedures</p> <p>4.6.Tooling is maintained in accordance with workplace procedures</p>

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

- collect, organise and understand information related to soldering of electrical components/wiring, work orders, plans and safety procedures
- communicate ideas and information to enable confirmation of work requirements and specifications, coordination of work with site supervisor, other workers and customers, and the reporting of work outcomes and problems
- plan and organise activities, including preparation and layout of worksite and obtaining of equipment and material to avoid backtracking, workflow interruptions or wastage
- work with others and in a team by recognising dependencies and using cooperative approaches to optimise workflow and productivity
- use mathematical ideas and techniques to correctly calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- establish safe and effective work processes which anticipate and/or resolve problems and downtime, to systematically develop solutions to avoid or minimise reworking and avoid wastage
- use workplace technology related to soldering of electrical wiring/circuits, including the use of soldering tooling, measuring equipment and communication devices and the reporting/documenting of results

Required knowledge

A working knowledge of:

- WHS regulations/requirement, equipment material and personal safety requirements
- fluxes and their application
- types of material, including solder, electrical terminals, wires and circuits
- preparation and soldering procedures
- guidelines regarding acceptable solder tolerance levels to be considered and manufacturer/component supplier specification
- work organisation and planning processes
- enterprise quality processes

Evidence Guide

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment

Critical aspects for assessment and evidence required to demonstrate competency in this unit

It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstance in the critical aspects of:

- observing safety procedures and requirements
- communicating effectively with others involved in or affected by the work
- selecting methods and techniques appropriate to the circumstances
- completing preparatory activity in a systematic manner
- identifying, setting up, operating and maintaining heating equipment and hand tooling
- achieving soldering outcome and work quality relevant to application.

Context of, and specific resources for assessment

Application of competence is to be assessed in the workplace or simulated worksite.

Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints.

Assessment is to comply with regulatory requirements, including Australian standards.

The following resources should be made available:

- workplace location or simulated workplace
- material relevant to soldering of electrical wiring/circuits
- equipment, hand and power tooling appropriate to soldering of electrical wiring/circuits
- activities covering mandatory task requirements
- specifications and work instructions.

Method of assessment

- Assessment must satisfy the endorsed Assessment Guidelines of AUR12 Automotive Industry RS&R Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also

EVIDENCE GUIDE

	<p>reinforce the integration of key competencies</p> <ul style="list-style-type: none">• Assessment may be applied under project related conditions and require evidence of process• Assessment must confirm a reasonable inference that competence is able to be under the particular circumstance, and is able to be transferred to other circumstances• It is preferable that assessment reflects a process rather than an event and occurs over a period of time to cover varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other persons subject to agreed authentication arrangements• Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role
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Range Statement

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

WHS requirements	WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures, and may include: <ul style="list-style-type: none"> protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances
Personal protective equipment	Personal protective equipment is to include that prescribed under legislation/regulation/codes of practice and workplace policies and practices
Safe operating procedures	Safe operating procedures are to include, but are not limited to: <ul style="list-style-type: none"> the conduct of operational risk assessment and treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual and mechanical lifting and shifting, working in proximity to others and site visitors
Emergency procedures	Emergency procedures related to this unit are to include but may not be limited to: <ul style="list-style-type: none"> emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation
Environmental requirements	Environmental requirements are to include but are not limited to: <ul style="list-style-type: none"> waste management, noise, dust and clean-up management
Quality Requirements	Quality requirements are to include, but are not limited to: <ul style="list-style-type: none"> regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include: <ul style="list-style-type: none"> federal, state/territory and local authorities administering acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include:

RANGE STATEMENT	
	<ul style="list-style-type: none"> hand tooling and soldering equipment, including electric and gas-fired torches
Materials	<p>Materials may include:</p> <ul style="list-style-type: none"> cleaning substances, flux and solder
Communications	<p>Communications are to include, but are not limited to:</p> <ul style="list-style-type: none"> verbal and visual instructions and fault reporting and may include site specific instructions, written instructions, plans or instructions related to job/task, telephones and pagers
Information/documents	<p>Sources of information/documents may include:</p> <ul style="list-style-type: none"> verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches safe work procedures related to soldering of electrical wiring/circuits engineer's design specifications and instructions organisation work specifications and requirements instructions issued by authorised enterprise or external persons Australian Standards

Unit Sector(s)

Unit sector	Electrical
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Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Electrical and Electronic
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