



Australian Government

Department of Education, Employment and Workplace Relations

AURE218708A Carry out repairs to single electrical circuits

Release: 1

AURE218708A Carry out repairs to single electrical circuits

Modification History

Not Applicable

Unit Descriptor

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| Unit descriptor | This unit covers the competence to test electrical circuits and carry out repairs in an automotive retail, service and/or repair context, including replacement of fuses, bulbs and terminals, wiring repairs, i.e. open circuits/short circuits/earthing. |
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Application of the Unit

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| Application of the unit | <p>The unit includes identification and confirmation of work requirement, preparation for work, testing of circuits and identification of faults/causes, repair and replacement of circuit components and completion of work finalisation processes, including clean-up and documentation.</p> <p>Work requires individuals to demonstrate judgement and problem-solving skills in managing own work activities and contributing to a productive team environment within the scope of this unit. This includes an understanding of the level of work to be performed.</p> <p>Work is carried out in accordance with award provisions.</p> |
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Licensing/Regulatory Information

Not Applicable

Pre-Requisites

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| Prerequisite units | | |
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| Prerequisite units | | |
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Employability Skills Information

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

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| Elements describe the essential outcomes of a unit of competency. | Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and 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 |
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| 1. Prepare for work | 1.1. Work instructions are used to determine job requirements, including method, process and equipment 1.2. Job specifications are read and interpreted 1.3. OHS requirements, including personal safety needs, are observed throughout the work 1.4. Equipment and tooling are identified and checked for safe and effective operation 1.5. Procedures are determined to minimise task time |
| 2. Test circuits/ components and identify faults | 2.1. Correct information is accessed and interpreted from manufacturer/component supplier specifications 2.2. Tests are carried out to determine faults using tooling and techniques 2.3. Circuits/components are tested without causing damage to component or system 2.4. Faults are identified and preferred repair action determined 2.5. Tests are carried out according to industry regulations/ guidelines, OHS, legislation and enterprise procedures/ policies |
| 3. Complete repairs to circuit wiring | 3.1. Correct information is accessed and interpreted from manufacturer/component supplier specifications 3.2. Repairs, component replacement and adjustments are carried out using tooling, techniques and materials 3.3. Repairs to circuit wiring are completed without causing damage to component or system 3.4. Repairs are carried out according to industry regulations/ guidelines OHS, statutory and enterprise procedures/ policies |
| 4. Clean up work area and maintain equipment | 4.1. Material that can be reused is collected and stored 4.2. Waste and scrap is removed following workplace procedures 4.3. Equipment and work area are cleaned and inspected for serviceable condition in accordance with workplace procedures 4.4. Unserviceable equipment is tagged and faults identified in accordance with workplace requirements 4.5. Operator maintenance is completed in accordance with manufacturer/component supplier specifications |

| ELEMENT | PERFORMANCE CRITERIA |
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| | and site procedures 4.6. Tooling and equipment is maintained in accordance with workplace procedures |

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 work orders, plans and safety procedures for circuit and component testing, and repair/component replacement
- technical literacy and communication skills sufficient to interpret and apply common industry terminology, and interpret technical information and specifications
- research and interpretive skills to locate, interpret and apply operational and safety information
- 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
- plain English literacy and communication skills in relation to dealing with others involved in the work
- questioning and active listening skills, for example when obtaining information on electrical repairs/replacement procedures
- plan and organise activities, including preparation and layout of worksite and obtaining of equipment and material to avoid backtracking or workflow interruptions
- 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 complete tests and measurements to determine electrical circuit/ component repair/replacement requirements
- use pre-checking and inspection techniques to anticipate planning and scheduling problems and avoid wastage of time and material
- manipulative and dexterity skills to perform electrical testing and repair/replacement procedures
- problem-solving skills for a range of procedural issues
- use workplace technology related to repairing electrical circuits, including use of specialist tooling, measuring equipment, computerised technology and

REQUIRED SKILLS AND KNOWLEDGE

communication devices and the reporting/documenting of results

Required knowledge

A working knowledge of:

- OHS and environmental regulations/requirements, equipment, material and personal safety requirements
- electrical principles (including current, voltage, resistance, conductors, insulators)
- circuit types, diagrams, symbols and faults
- electrical measuring and testing procedures
- repair procedures
- procedures to avoid damage to electronic systems/ components
- enterprise quality procedures
- work organisation and planning processes

Evidence Guide

| EVIDENCE GUIDE | |
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| <p>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.</p> | |
| Overview of assessment | |
| Critical aspects for assessment and evidence required to demonstrate competency in this unit | <p>It is essential that competence is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations in the critical aspects of:</p> <ul style="list-style-type: none"> • 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. <p>Carry out repairs to electrical circuits covering open and short circuits and earthing, ensuring:</p> <ul style="list-style-type: none"> • safe and correct use of tooling and equipment • isolating power supply to components • testing and identification of faults • electrical connections, including crimping and soldering to specification • electrical repairs to specification. |
| Context of, and specific resources for assessment | <p>Application of competence is to be assessed in the workplace or simulated worksite.</p> <p>Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints.</p> <p>Assessment is to comply with regulatory requirements, including Australian Standards.</p> <p>The following resources should be made available:</p> <ul style="list-style-type: none"> • workplace location or simulated workplace • material relevant to repairing electrical circuits • equipment, hand and power tooling appropriate to repairing electrical circuits • activities covering mandatory task requirements • specifications and work instructions. |

| EVIDENCE GUIDE | |
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| Method of assessment | <ul style="list-style-type: none"> • Assessment must satisfy the endorsed Assessment Guidelines of AUR05 Automotive Industry Retail, Service and Repair 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 must reinforce the integration of key competencies • 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 |
| Guidance information for assessment | |

Range Statement

| RANGE STATEMENT | |
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| <p>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.</p> | |
| Repairing electrical circuits | <p>Repairing electrical circuits may include:</p> <ul style="list-style-type: none"> • replacement of fuses, bulbs and terminals, wiring repairs i.e. open circuits/short |

| RANGE STATEMENT | |
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| | circuits/earthing |
| Repair methods | <p>Repair methods are to include:</p> <ul style="list-style-type: none"> • electrical measurements • fault finding using aural, visual and functional assessments for damage, corrosion, wear and electrical defects • reading circuit diagrams • pre- and post-repair testing • testing and identifying faults • repairs and adjustments • soldering |
| Critical precautions | <p>Critical precautions include:</p> <ul style="list-style-type: none"> • manufacturer/component supplier procedures which must be applied as poor working practices are likely to damage electronic system ECUs and/or other components |
| OHS requirements | <p>OHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures, and may include:</p> <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 | <p>Personal protective equipment is to include that prescribed under legislation/regulations/codes of practice and workplace policies and practices</p> |
| Safe operating procedures | <p>Safe operating procedures are to include, but are not limited to:</p> <ul style="list-style-type: none"> • the conduct of operational risk assessment and treatments associated with vehicular movement, electrical safety, manual lifting and shifting and working in proximity to others and site visitors |
| Emergency procedures | <p>Emergency procedures related to this unit are to include but may not be limited to:</p> <ul style="list-style-type: none"> • operating safely in the event of fires, |

| RANGE STATEMENT | |
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| | 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: <ul style="list-style-type: none"> hand tooling, test lamp, multimeter, power/air tooling, specialist tooling for removal/replacement, special testing equipment and soldering equipment |
| Materials | Materials may include: <ul style="list-style-type: none"> spare parts, soldering consumables and cleaning material |
| Communications | Communications are to include, but are not limited to: <ul style="list-style-type: none"> verbal and visual instructions and fault reporting and may include site specific instructions, written instructions, sketches, diagrams or instructions related to job/task, telephones and pagers |
| Information/documents | Sources of information/documents may include: <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 repairing electrical circuits regulatory/legislative requirements pertaining |

RANGE STATEMENT

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| | <p>to automotive industry, including Australian Design Rules</p> <ul style="list-style-type: none"> • engineer's design specifications and instructions • organisation work specifications and requirements • instructions issued by authorised enterprise or external persons • Australian Standards |
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Unit Sector(s)

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| Unit sector | Electrical |
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Co-requisite units

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| Co-requisite units | |
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Competency field

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| Competency field | |
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