Australian Government

Department of Education, Employment and Workplace Relations

AUMGTR3003 Perform minor modifications and repairs to electrical circuits and systems

Release: 1

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Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the application of the required skills and knowledge to test electrical circuits/systems and carry out modifications and minor repairs. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Application of the Unit

Application of the unit	The unit applies to the automotive and related component manufacturing environment and involves application of skills and knowledge at a production worker level. These skills and knowledge are to be used within the scope of the person's job and authority.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

Employability skills	This unit contains Employability Skills.

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.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Test systems/components and identify faults	1.1. Testing is carried out according to ***OHS*** and ***organisation requirements*** 1.2. Relevant information is accessed and interpreted from appropriate manufacturer specification 1.3. Tests are carried out to determine faults using appropriate tools and techniques 1.4. Faults are identified and preferred rectification procedures are determined 1.5. Testing is completed without causing damage to engine management systems or other electrical/electronic devices
2. Modify wiring/lighting of electrical systems	2.1. Modification is achieved without causing damage to any component or system 2.2. Electrical wiring/lighting systems are modified using appropriate tools and equipment
3. Complete minor modifications/repairs to electrical circuit wiring and components	3.1. Relevant information is accessed and interpreted from appropriate manufacturer specifications 3.2. Necessary repairs, component replacement and adjustments are carried out using appropriate ***tools***, ***materials*** and techniques

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills

- speak clearly and directly in order to inform team members of completed modifications/repairs
- apply teamwork to a range of situations
- solve problems particularly in teams in order to meet performance indicators
- show initiative in adapting to changing work conditions or contexts particularly when working across a variety of work areas
- access, interpret and apply information on relevant organisation policies, procedures and instructions, particularly to ensure appropriate tools and techniques are used to perform repairs, replacements and adjustments
- manage time when planning, preparing and organising work priorities
- take responsibility for organising own work priorities.

Required knowledge

- relevant Occupational Health and Safety and Environmental regulations and organisation policies and procedures needed to carry out work in a manner which ensures the safety of people, equipment and the environment.
- technical work documentation covering procedures, specifications, schedules and work plans or equivalent
- quality system documentation covering instructions, procedures, performance indicators and review processes or equivalent
- cost minimisation/waste avoidance policies, procedures and practices
- environmental protection requirements relating to the disposal of waste material
- established communication channels and protocols
- problem identification and resolution techniques
- electrical principles and circuit wiring characteristics
- circuit repair procedures
- electrical measuring and testing procedures
- vehicle safety requirements
- procedures to avoid damage to ECUs
- fault finding using aural, visual and functional assessments for damage, corrosion, wear and electrical defects

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, the Range Statement and the Assessment Guidelines for this Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the following is essential: • compliance with relevant legislative, regulations, standards, codes of practice and establish safe practices and organisation policies and procedures for managing personal work priorities • maintaining a working knowledge of current work systems and practices • working and communicating effectively and positively with others involved in the work • applying, within authority, the requirements of the job or work role in relation to: • achieving production goals • achieving work quality goals • responding positively to changing work requirements • contributing effectively to cost reduction initiatives • effectively applying problem solving techniques • modify activities to cater for variations in organisation context and environment • complete minor modifications/repairs to circuit wiring and components • test and identify faults in electrical circuits and systems • employ safe working practices • employ vehicle electronic systems and components protection procedures • complete organisation documentation - written / electronic
Context of and specific resources for assessment	• assessment of the competency should take place in a safe working environment in a passenger motor vehicle manufacturing plant or simulated environment using tools/equipment/machinery required for the production process without undue disruption to the production process • assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

EVIDENCE GUIDE	
	• assessment methods must confirm consistency and accuracy of performance (over time and in a range of organisation relevant contexts) together with application of underpinning knowledge • assessment methods must be by direct observation of tasks and include questioning on underpinning knowledge to ensure its correct interpretation and application • assessment may be applied under project related conditions (real or simulated) and require evidence of process • assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances.

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 in the Performance Criteria is detailed below. Add any 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.	
OHS requirements may include:	Legislation and regulations, organisational safety policies and procedures and may include: the use of personal protective equipment and clothing, rescue services, fire fighting organisation and equipment, first aid equipment, hazard and risk control and elimination, systems covering the use of hazardous materials and substances and manual handling procedures including lifting and carrying.
Organisation requirements may include:	• access and equity principles and practices • environmental management (waste disposal, recycling and re-use guidelines) • emergency and evacuation procedures • equipment use procedures • ethical standards • legal obligations • maintenance and storage procedures • organisational and site guidelines • policies and procedures relating to own role and responsibility • procedural manuals • quality assurance guidelines • quality and continuous improvement processes and standards • recording and reporting guidelines.
Tools and materials may include:	• hand tools, test lamps, multimeters • power/air tools, special tools for removal/replacement, special testing equipment • soldering equipment and cable terminations • electrical components, wiring, clips, globes, fuses, tapes.

Unit Sector(s)

Unit sector	Technical - Electrical and Electronic

Competency field

Competency field	Manufacturing - Bus, Truck and Trailer

Co-requisite units

Not applicable.