



Australian Government

Department of Education, Employment and Workplace Relations

AURE220140A Manufacture and repair wiring harness/looms

Release: 1

AURE220140A Manufacture and repair wiring harness/looms

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit covers the competence to manufacture and repair wiring harness/looms, including checking/testing of wiring harness/looms, deciding preferred repair action and the removal, replacement and labelling of wiring harness/loom.
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Application of the Unit

Application of the unit	The unit includes identification and confirmation of work requirement, preparation for work, manufacturing and repairing of harness/looms and completion of work finalisation processes, including clean-up and documentation. This unit is also applicable to wiring harness/looms fitted to flammable goods vehicle. Work requires individuals to demonstrate some judgement and problem-solving skills in managing own work activities and contributing to a productive team environment. Work is carried out in accordance with award provisions.
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Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		

Prerequisite units		

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 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
1. Prepare for work	1.1. Work instructions are used to determine job requirement, including method, processes 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. Check/test wiring harness/loom and decide preferred repair action	2.1. Correct information is accessed and interpreted from manufacturer/component supplier specifications 2.2. Visual checks are carried out to establish the extent of damage 2.3. Tests are carried out to determine faults using tooling and techniques 2.4. Faults are identified and preferred repair action is determined 2.5. Checking/testing is achieved without causing damage to component or system 2.6. Checks and tests are carried out according to industry regulations/guidelines and OHS and enterprise/ procedures policies
3. Remove, replace and label wiring harness/loom	3.1. Correct information is accessed and interpreted from manufacturer/component supplier specifications 3.2. Wiring harness/loom is labelled and removed using tooling and techniques 3.3. Associated components are labelled, removed and tagged for storage 3.4. Repaired/remanufactured harness/loom is correctly refitted to vehicle and reconnected according to manufacturer/component supplier specifications and/or labels 3.5. Removal, replacement and labelling is completed without causing damage to component or system 3.6. Removal/replacement and labelling is completed according to industry regulations/guidelines, OHS and enterprise/ procedures policies
4. Repair wiring harness/loom	4.1. Correct information is accessed and interpreted from manufacturer/component supplier specifications 4.2. Repairs are carried out using tooling, techniques and

ELEMENT	PERFORMANCE CRITERIA
	materials 4.3. All repairs are carried out according to industry regulations/guidelines OHS and enterprise/procedures policies
5. Manufacture wiring harness/loom	5.1. Electrical circuit wiring diagrams are accessed and interpreted from manufacturer/component supplier specifications 5.2. Harness/loom is manufactured to approved specifications using tooling, techniques and materials 5.3. Harness/loom is tested prior to placing in service and results are documented in accordance with enterprise policies and procedures 5.4. Manufacturing activities are carried out according to industry regulations/guidelines, OHS and enterprise/procedures policies
6. Clean up work area and maintain equipment	6.1. Workplace and equipment documents are completed in accordance with site requirements 6.2. Material that can be reused is collected and stored 6.3. Waste and scrap is removed following workplace procedures 6.4. Equipment and work area are cleaned and inspected for serviceable condition in accordance with workplace procedures 6.5. Unserviceable equipment is tagged and faults identified in accordance with workplace requirements 6.6. Operator maintenance is completed in accordance with manufacturer/component supplier specifications and site procedures 6.7. 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

REQUIRED SKILLS AND KNOWLEDGE

- safety procedures for repair/replacement/ manufacturing of wiring harness/looms
- 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
- technical literacy and communication skills sufficient to interpret and apply common industry terminology, and interpret technical information and specifications related to the repair/replacement/manufacturing of wiring harness/looms
- 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 installation, tests and measurements to ensure correct repair/manufacture of wiring harness/looms
- use pre-checking and inspection techniques to anticipate planning and scheduling problems, avoid wastage of time and material
- manipulative and dexterity skills to perform the repair/ manufacture of wiring harness/looms
- problem-solving skills for a limited range of procedural issues
- use workplace technology related to the manufacture and repair of wiring harness/looms, including the use of specialist tooling, measuring equipment, computerised technology and communication devices and the reporting/documenting of results

Required knowledge

A working knowledge of:

- OHS regulations/requirement, equipment, material and personal safety requirements
- interpreting wiring diagrams and graphic symbols
- cable types/sizes, current carrying capacity and their application
- wiring harness/loom checking and testing procedures (voltage drop and circuit performance)
- fault identification and repair procedures
- wiring harness/loom manufacture procedures
- removing and replacing procedures for wiring harness/looms
- 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 is fully observed and there is ability to transfer competence to changing circumstances and to respond to unusual situations 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
- selecting and using material for repair/manufacture of wiring harness/looms
- testing wiring harness/looms and locating faults
- performing electrical connections, including crimping and soldering
- removing and replacing wiring harness/looms
- manufacturing wiring harnesses
- repairing wiring harness/looms.

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 the manufacture and repair of wiring harness/looms
- equipment, hand and power tooling appropriate to the manufacture and repair of wiring harness/looms
- activities covering mandatory task requirements

EVIDENCE GUIDE	
	• specifications and work instructions.
Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of AUR05 Automotive Industry's 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 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	
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.	
Wiring harness/looms	Wiring harness/looms may be fitted to light

RANGE STATEMENT	
	vehicles, plant and equipment, heavy commercial vehicles and marine applications.
Faults	Faults may include: • short and open circuits, shorts to ground, frayed wires, insulation damage, burnt wiring and broken harnesses
Manufacture and repair methods	Manufacture and repair methods are to include: • fault-finding using aural, visual and functional assessments for damage, corrosion, wear and electrical defects, testing and electrical measurements, identifying faults, reading/interpreting wiring diagrams, repairing/replacing wiring and terminals, tagging disconnected components or wiring, soldering, crimping, harness/loom taping, adjustments and post-repair testing
Variables	Other variables may include: • fibre optics and multi flexing
Critical precautions	Critical precautions include: • 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	OHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures, and may include: • 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: • the conduct of operational risk assessment and

RANGE STATEMENT	
	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: • 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: • waste management, noise, dust and clean-up management
Quality requirements	Quality requirements are to include, but are not limited to: • regulations, including Australian Standards, internal company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include: • federal, state/territory and local authorities administering acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include: • hand tooling, cables of various types and sizes, electrical tape, terminals and fitting equipment
Materials	Materials may include: • spare parts, wire, tagging/labelling material and cleaning material
Communications	Communications are to include, but are not limited to: • 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	Sources of information/documents may include:

RANGE STATEMENT

	• 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 the manufacture and repair of wiring harness/looms • regulatory/legislative requirements pertaining to automotive industry, including Australian Design Rules • 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)

Unit sector	Electrical
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Co-requisite units

Co-requisite units	

Competency field

Competency field	
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