



Australian Government

Department of Education, Employment and Workplace Relations

AURE318966A Repair instruments and warning systems

Release: 1

AURE318966A Repair instruments and warning systems

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit covers the competence to test and repair instrument and warning systems, including gauges, warning lights (including dash lamps), engine shutdown systems, and audible reverse warning systems.
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Application of the Unit

Application of the unit	The unit includes identification and confirmation of work requirement, preparation for work, testing of systems and identification of faults/causes, repair and retesting of instruments and warning systems and completion of work finalisation processes, including clean-up and documentation. Hazard lights are included in AURE318866A Repair electrical systems. 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		

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 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 systems/ 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. Tests are completed 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. Repair instrument and warning systems and/or associated components	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. Instrument and warning systems repairs are completed without causing damage to component or system 3.4. Retests are carried out to ensure correct and safe instrument and warning system operation 3.5. Repairs are carried out according to industry regulations /guidelines, OHS, legislation and enterprise procedures/policies 3.6. Workplace and equipment documents are completed in accordance with site requirements
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 procedure 4.3. Equipment and work area are cleaned and inspected for serviceable condition in accordance with

ELEMENT	PERFORMANCE CRITERIA
	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 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 the repair of instruments and warning systems
- 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 instrument and warning system repair 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 instrument and warning system repair/replacement requirements
- use pre-checking and inspection techniques to anticipate planning and scheduling problems to avoid wastage of time and material
- manipulative and dexterity skills to perform instrument and warning system testing

REQUIRED SKILLS AND KNOWLEDGE

and repair/replacement procedures

- problem-solving skills for a range of procedural issues
- use workplace technology related to the repair of instruments and warning systems, including the use of specialist tooling and equipment, measuring equipment, computerised technology and communication devices and the reporting/documenting of results

Required knowledge

A working knowledge of:

- OHS regulations/requirements, equipment, material and personal safety requirements
- interpretation of technical material, graphic symbols and diagrams
- construction and operation of instruments and warning systems relevant to application
- types and layout of service/repair manuals (hard copy and electronic)
- testing procedures
- operation of instruments and warning systems relevant to application
- repair procedures
- 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 • 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 • testing and retesting of instruments and warning systems • repairing a range of instrument and warning systems to site and manufacturer/component supplier requirements • completing workplace and equipment documents.
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 repair of instruments and warning systems • equipment, hand and power tooling appropriate to the repair of instruments and warning systems • activities covering mandatory task requirements • specifications and work instructions.
Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of AUR05 Automotive Industry RS&R

EVIDENCE GUIDE

	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.

Instruments and warning systems

Instruments and warning systems include:

- gauges, warning lights, dash lamps, engine shutdown systems and audible reverse warning systems in all types of vehicles, craft

RANGE STATEMENT	
	and equipment
Repair methods	Repair methods are to include: testing dismantling, assembling, removal and replacement; fault finding using aural, visual and functional assessments for damage, corrosion, wear and electrical short/broken circuits; electrical measurements; diagnosing and determining repair requirements, electronic systems data (including fault codes, sensor measurement and control unit input/output signals); reading/interpreting wiring diagrams
Faults	Faults may include: gauge/instrument warning system not working, incorrect gauge/instrument readings, open circuits, short circuits, earthing
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 treatments associated with vehicular movement, toxic substances, electrical safety, machinery movement and operation, manual

RANGE STATEMENT	
	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, testing equipment, including multimeters, power tooling, air tooling, specialist tooling for removal/adjustment, oscilloscopes and scan tooling
Materials	Materials may include: • spare parts 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 and telephones and pagers
Information/documents	Sources of information/documents may include: • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data

RANGE STATEMENT

	sheets, diagrams or sketches • safe work procedures related to the repair of instruments and warning systems • 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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