



Australian Government

AURETB3001 Repair electric braking systems

Release 1

AURETB3001 Repair electric braking systems

Modification History

Release	Comment
Release 1	Replaces AURE311666A Repair electric braking systems Unit code updated to meet policy requirements Reference to OHS legislation replaced with new WHS legislation Licensing statement added to unit descriptor

Unit Descriptor

Unit descriptor	This unit covers the competence required to repair electric braking systems and associated components as fitted to vans and trailers. This unit of competency also applies to electric braking controllers fitted to vehicles and plant and equipment. Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.
-----------------	---

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, the repair and retesting of systems and associated electric braking system components and completion of work finalisation processes, including clean-up and documentation. Work requires individuals to demonstrate some judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.
-------------------------	---

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. Prepare for work	1.1. Work instructions are used to determine job requirements, including method, processes and equipment 1.2. Job specifications are read and interpreted 1.3. WHS 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 any component or system 2.4. Faults are identified and preferred repair action determined 2.5. Tests are carried out according to industry regulations/ guidelines, WHS legislation, statutory legislation and enterprise procedures/policies
3. Repair electric braking systems and/or associated components	3.1. Correct information is accessed and interpreted from manufacturer/component supplier specifications 3.2. Necessary repairs, component replacement and adjustments are carried out using tooling, techniques and materials 3.3. Electric braking system and/or associated component repair is completed without causing damage to any component or system 3.4. Retests are carried out to ensure correct and safe electric braking system service operation 3.5. Repairs/removal, replacement and adjustments are carried out according to industry regulations/guidelines WHS legislation, statutory legislation and enterprise/procedures policies 3.6. Workplace and equipment records are completed in accordance with workplace 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 procedures 4.3. Equipment and work area are cleaned and inspected for serviceable condition in accordance with workplace procedures

ELEMENT	PERFORMANCE CRITERIA
	4.4. Unserviceable equipment is tagged and faults identified in accordance with workplace requirements 4.5. Maintenance is completed in accordance with manufacturer/component supplier specifications and workplace 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 testing and repairing of electric braking systems
- 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 work site and the obtaining of equipment and materials to avoid any 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 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 the repair of electrical braking systems, including the use of specialist tooling and measuring equipment, computerised technology, communication devices and the reporting/recording of results

Required knowledge

A working knowledge of:

- WHS regulations/requirements, equipment, material and personal safety requirements
- operating principles of electric braking systems
- construction and operation of electric braking systems/components relevant to application
- types and layout of service/repair manuals (hard copy and electronic)
- pre-repair testing and fault identification procedures
- repair, removal, replacement and adjustment procedures
- post-repair testing 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 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
- testing a range of electric braking systems
- identifying faults and determining repair requirements
- repairing a range of electric braking systems to workplace and manufacturer/component supplier requirements
- retesting electric braking systems prior to returning to service
- completing workplace/equipment documentation.

Context of, and specific resources for assessment

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

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
- materials relevant to the repair of electric braking systems
- equipment, hand and power tooling appropriate to the repair of electric braking systems
- activities covering the 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

EVIDENCE GUIDE

- 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 not only to be satisfied under the particular circumstance, but 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

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.

Electric braking systems	Electric braking systems may be in light vehicles and plant and equipment fitted with electric van/trailer braking controllers or trailers fitted with electric brakes
Repair methods	Repair methods are to include: • visual, aural and functional assessment (including damage and corrosion) • testing under operating conditions • electrical/electronic testing • removal, dismantling, reassembly and refitting • repair and/or replacement of system components • road testing/retesting prior to placing back into service
WHS requirements	WHS 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/regulations/codes of practice and workplace policies and procedures
Safe operating procedures	Safe operating procedures may 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 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

RANGE STATEMENT	
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, company quality policy and standards and enterprise operations and procedures
Statutory/regulatory authorities	Statutory/regulatory authorities may include Federal, State and local authorities administering the applicable acts, regulations and codes of practice
Tooling and equipment	Tooling and equipment may include: hand tooling, vehicle lifting equipment and testing equipment, including multimeters, power tooling, air tooling, specialist tooling for removal/adjustment and brake decelerometer
Materials	Materials may include: spare parts, lubricants, fluids and cleaning materials
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: - 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 repair of electric braking 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 personnel - Australian Standards

Unit Sector(s)

Unit sector	Electrical
--------------------	------------

Co-requisite units

Not applicable.

Competency field

Competency field	Technical - Brakes
-------------------------	--------------------