



**Australian Government**

# **AURHTB4004 Overhaul air braking systems and components**

**Release 1**

## AURHTB4004 Overhaul air braking systems and components

### Modification History

| Release   | Comment                                                                                                                                                                                                                                                                               |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Release 1 | <p>Replaces AURT411145A Overhaul air braking systems/components</p> <p>Unit code updated to meet policy requirements</p> <p>Minor changes to unit title</p> <p>Reference to OHS legislation replaced with new WHS legislation</p> <p>Licensing statement added to unit descriptor</p> |

### Unit Descriptor

|                 |                                                                                                                                                                                                                                                                                                      |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Unit descriptor | <p>This unit covers the competence required to carry out the overhaul of air braking systems/components</p> <p>Licensing, legislative, regulatory or certification requirements may apply to this unit in some jurisdictions. Users are advised to check with the relevant regulatory authority.</p> |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Application of the Unit

|                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Application of the unit | <p>The unit includes identification and confirmation of the work requirement, preparation for work, testing, analysis of results, disassembly, overhaul and reassembly of air braking systems and components and completion of work finalisation processes, including clean-up and documentation.</p> <p>Work involved includes vehicles fitted with air braking systems.</p> <p>Work requires individuals to demonstrate discretion, judgement and problem-solving skills in managing own work activities and contributing to a productive team environment.</p> |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Licensing/Regulatory Information

Not applicable.

## Pre-Requisites

Not applicable.

## Employability Skills Information

|                             |                                          |
|-----------------------------|------------------------------------------|
| <b>Employability skills</b> | 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 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. |
|-------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Elements and Performance Criteria

| ELEMENT                                                                     | PERFORMANCE CRITERIA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Prepare to test air braking systems/ components                          | 1.1. Nature and scope of the work requirements are identified and confirmed<br>1.2. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work<br>1.3. Procedures and information such as workshop manuals, specifications and tooling, are sourced<br>1.4. Method options are analysed and those most appropriate to the circumstances are selected and prepared<br>1.5. Technical and/or calibration requirements for testing air braking systems are sourced and support equipment is identified and prepared<br>1.6. Warnings in relation to working with air braking systems are observed |
| 2. Test air braking systems/ components and analyse results                 | 2.1. Methods for the conduct of the air braking systems tests are implemented in accordance with workplace procedures and manufacturer/component supplier specifications<br>2.2. Results are compared with manufacturer/component supplier specifications to indicate compliance or non-compliance<br>2.3. Results are documented with evidence and supporting information and recommendation(s) made<br>2.4. Report is forwarded to appropriate persons for action in accordance with workplace procedures                                                                                                                                                                       |
| 3. Prepare to disassemble and overhaul air braking systems/components       | 3.1. WHS requirements, including individual State/Territory regulatory requirements and personal protection needs are observed throughout the work<br>3.2. Procedures and information required are identified and sourced<br>3.3. Technical and tooling requirements for the disassembly and overhaul are identified and support equipment is identified and prepared                                                                                                                                                                                                                                                                                                             |
| 4. Carry out the overhaul and reassembly of air braking systems/ components | 4.1. Methods for the conduct of the overhaul and reassembly are implemented in accordance with workplace procedures and manufacturer/component supplier specifications<br>4.2. All adjustments made during the overhaul are in accordance with manufacturer/component supplier specifications                                                                                                                                                                                                                                                                                                                                                                                     |
| 5. Prepare vehicle/ equipment for use or storage                            | 5.1. Overhaul schedule documentation is completed<br>5.2. Final inspection is made to ensure protective guards, safety features and cowlings are in place                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

| ELEMENT | PERFORMANCE CRITERIA                                                                                                                                                                                                                            |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         | <p>5.3. Final inspection is made to ensure work is to workplace expectations</p> <p>5.4. Vehicle/equipment is cleaned for use or stored to workplace expectations</p> <p>5.5. Job card is processed in accordance with workplace procedures</p> |

## Required Skills and Knowledge

### REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

#### Required skills

- apply research and interpretive skills sufficient to locate, interpret and apply manufacturer/component supplier procedures, workplace policies and procedures
- apply analytical skills required for identification and analysis of technical information
- apply plain English literacy and communication skills in relation to dealing with customers and team members
- apply questioning and active listening skills for example when obtaining information from customers
- apply oral communication skills sufficient to convey information and concepts to customers
- apply planning and organising skills to own work activities, including making good use of time and resources, sorting out priorities and monitoring own performance
- interact effectively with other persons both on a one-to-one basis and in groups, including understanding and responding to the needs of a customer and working effectively as a member of a team to achieve a shared goal
- the capacity to apply problem-solving strategies in purposeful ways, both in situations where the problem and desired solution are clearly evident and in situations requiring critical thinking and a creative approach to achieve an outcome
- use mathematical ideas and techniques to calculate time, assess tolerances, apply accurate measurements, calculate material requirements and establish quality checks
- use workplace technology related to overhauling air braking systems/components, including the use of measuring equipment, computerised technology and communication devices and reporting/documenting of results

#### Required knowledge

A working knowledge of:

- WHS regulations/requirements, equipment, material and personal safety requirements
- dangers of working with air braking systems
- operating principles of air braking systems/components and their relationship to each other
- types and layout of service/repair manuals (hard copy and electronic)
- air braking systems inspection/service and repair procedures
- air braking systems overhaul procedures
- enterprise quality procedures
- work organisation and planning processes

## Evidence Guide

| <b>EVIDENCE GUIDE</b>                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Overview of assessment</b>                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Critical aspects for assessment and evidence required to demonstrate competency in this unit</b>                                                                                                                    | <p>It is essential that competence in this unit signifies ability to transfer competence to changing circumstances and to respond to unusual circumstances in the critical aspects of:</p> <ul style="list-style-type: none"> <li>• observing safety procedures and requirements</li> <li>• communicating effectively with others involved in or affected by the work</li> <li>• selecting methods and techniques appropriate to the circumstances</li> <li>• completing preparatory activity in a systematic manner</li> <li>• interpreting of the test results</li> <li>• conducting the overhaul in accordance with workplace and manufacturer/component supplier requirements</li> <li>• completing overhaul of a range of air braking systems and associated components within workplace timeframes</li> <li>• vehicle/equipment presentation to customer in compliance with workplace requirements</li> </ul> |
| <b>Context of, and specific resources for assessment</b>                                                                                                                                                               | <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"> <li>• workplace location or simulated workplace</li> <li>• materials relevant to overhauling air braking systems/components</li> <li>• equipment, hand and power tooling appropriate to overhauling air braking systems/components</li> <li>• activities covering the mandatory task requirements</li> <li>• specifications and work instructions</li> </ul>                                                                                                                                        |
| <b>Method of assessment</b>                                                                                                                                                                                            | <p>Assessment must satisfy the endorsed assessment guidelines of the automotive industry's RS&amp;R Training Package</p> <p>Assessment methods must confirm consistency and accuracy of</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

**EVIDENCE GUIDE**

|  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>performance together with application of underpinning knowledge</p> <p>Assessment must be by direct observation of tasks, with questioning on underpinning knowledge and it must also reinforce the integration of key competencies</p> <p>Assessment may be applied under project related conditions (real or simulated) and require evidence of process</p> <p>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</p> <p>It is preferable assessment reflects a process rather than an event and occurs over a period of time to cover the varying quality circumstances. Evidence of performance may be provided by customers, team leaders/members or other appropriate persons subject to agreed authentication arrangements</p> <p>Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role</p> |
|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## 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.

|                                       |                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Overhaul methods and sequences</b> | Overhaul methods and sequences are to include the complete dismantling of component parts, measuring and evaluation of wear, the replacement, repair, rebuilding or reconditioning of parts comparable to original parts, the assembly of parts, performance of functional testing and the completion of records                                                                              |
| <b>WHS</b>                            | WHS requirements are to be in accordance with legislation/regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of materials, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances |
| <b>Personal protective equipment</b>  | Personal protective equipment is to include that prescribed under legislation/regulations/codes of practice and workplace policies and practices                                                                                                                                                                                                                                              |
| <b>Safe operating procedures</b>      | 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 and mechanical lifting and shifting, working in proximity to others and site visitors                                                            |
| <b>Emergency procedures</b>           | Emergency procedures related to this unit are to include, but are not limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation                                                                                                                                                                                     |
| <b>Environmental requirements</b>     | Environmental requirements are to include but are not limited to waste management, noise, dust and clean-up management                                                                                                                                                                                                                                                                        |
| <b>Quality requirements</b>           | 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                                                                                                                                                                                               |
| <b>Statutory/regulatory</b>           | Statutory/regulatory authorities may include Federal, State/Territory and local authorities administering acts, regulations                                                                                                                                                                                                                                                                   |

| <b>RANGE STATEMENT</b>       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>authorities</b>           | and codes of practice                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Tooling and equipment</b> | Tooling and equipment may include hand tooling, meters, gauges and load testing devices                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Materials</b>             | Materials may include fluids, spare parts and cleaning materials                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Communications</b>        | 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Information/documents</b> | Sources of information/documents may include: <ul style="list-style-type: none"><li>• verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, memos, material safety data sheets, diagrams or sketches</li><li>• safe work procedures related to the overhaul of air braking systems and components</li><li>• regulatory/legislative requirements pertaining to the automotive industry, including Australian Design Rules</li><li>• engineer's design specifications and instructions</li><li>• organisation work specifications and requirements</li><li>• instructions issued by authorised enterprise or external persons</li><li>• Australian Standards</li></ul> |

## Unit Sector(s)

|                    |                            |
|--------------------|----------------------------|
| <b>Unit sector</b> | Mechanical - Heavy Vehicle |
|--------------------|----------------------------|

## Co-requisite units

Not applicable.

## Competency field

|                         |                    |
|-------------------------|--------------------|
| <b>Competency field</b> | Technical - Brakes |
|-------------------------|--------------------|