



Australian Government

AURKTB3001 Diagnose and repair mobile plant braking systems

Release 1

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Modification History

Release	Comment
Release 1	New unit of competency

Unit Descriptor

Unit descriptor	<p>This unit describes the performance outcomes required to repair braking systems and associated components. It involves identifying and confirming safety requirements, diagnosing deviations from correct operation, repairing mobile plant braking system components and associated systems, and undertaking post-repair testing procedures.</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>
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Application of the Unit

Application of the unit	<p>Work applies to the braking systems of mobile plant equipment in construction, mining and agricultural environments.</p> <p>This unit does not apply to work relating to anti-lock braking systems (ABS) or to air braking systems.</p>
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

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 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.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare to diagnose and repair a mobile plant braking system	<p>1.1. Workplace instructions are used to determine job requirements</p> <p>1.2. Workplace health and safety (WHS) requirements are observed and applied throughout the work</p> <p>1.3. Procedures and information are sourced and interpreted</p> <p>1.4. Safety issues and warnings in relation to working with heavy mobile equipment and its braking systems are identified and applied</p> <p>1.5. Diagnosis options are analysed and those most appropriate to the circumstances are selected and prepared</p> <p>1.6. Appropriate diagnostic tools and equipment are selected and prepared</p>
2. Diagnose a mobile plant braking system	<p>2.1. Diagnostic tests are performed according to workplace procedures and without causing damage to components or system</p> <p>2.2. Faults are identified from diagnostic test results and causes of faults are determined</p> <p>2.3. Diagnosis findings are reported according to workplace procedures, including recommendations for necessary repairs or adjustments</p>
3. Repair a mobile plant braking system	<p>3.1. Repair options are analysed and those most appropriate to the circumstances are selected and prepared</p> <p>3.2. Tools and testing equipment are identified and checked for safe and effective operation</p> <p>3.3. Repairs, component replacement and adjustment are carried out according to workplace procedures and manufacturer and component supplier specifications, and without causing damage to components or systems</p> <p>3.4. Post-repair testing of braking system is carried out according to workplace procedures and relevant legislation</p>
4. Clean up work area and finalise work processes	<p>4.1. Final inspection is made to ensure work is to workplace expectations and vehicle is presented ready for use</p> <p>4.2. Tools and equipment are checked and stored according to workplace procedures</p> <p>4.3. Workplace documentation is processed according to workplace procedures</p>

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- communication skills to:
 - clarify workplace instructions and determine job requirements
 - gain information from appropriate persons and assistance as required
 - coordinate work with site supervisor and other workers
 - report work outcomes and problems
- initiative and enterprise skills to:
 - adapt to new and emerging situations in the workplace relating to repairing mobile plant braking systems
- learning skills to:
 - ask questions to gain information
 - identify sources of information, assistance and expert knowledge to expand knowledge, skills and understanding
- literacy skills to:
 - read workplace instructions, specifications, warnings and technical procedures
 - produce clear and understandable workplace documentation
- numeracy skills to assess tolerances and apply accurate measurements and adjustments
- planning and organising skills to:
 - plan own work requirements and prioritise actions to achieve required outcomes and ensure tasks are completed on time
 - identify risk factors and take action to minimise risk
- problem-solving skills to:
 - determine job requirements
 - determine the underlying causes of faults
 - produce recommendations for necessary repairs or adjustments
- self-management skills to:
 - select and use appropriate equipment, materials, processes and procedures
 - recognise limitations and seek timely advice
- teamwork skills to work in a team, as applicable to the workplace's procedures and practices, to repair mobile plant braking systems
- technical skills to:
 - check and use mobile plant braking system testing and repair equipment
 - carry out measuring and testing, repair and adjustment procedures according to manufacturer and component supplier specifications
- technology skills to:

REQUIRED SKILLS AND KNOWLEDGE

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

- operate diagnostic and testing equipment
- conduct performance testing of components, systems and equipment
- use tools and equipment efficiently and safely
- store and care for components, parts, tools, test equipment and support equipment

Required knowledge

- WHS regulations, requirements, equipment and material relating to mobile plant braking systems, including personal safety requirements
- environmental regulations and requirements relating to mobile plant braking systems
- application, purpose and operating principles of mobile plant braking systems, including:
 - multi-disc wet braking systems, including associated cooling systems
 - disc braking systems
 - drum braking systems
- lifting and support procedures for mobile plant equipment
- testing procedures of mobile plant braking systems
- repair procedures of mobile plant braking systems
- post-repair testing procedures of mobile plant braking systems

Evidence Guide

EVIDENCE GUIDE	
<p>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 the Training Package.</p>	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	<p>The evidence required to demonstrate competency in this unit must be relevant to workplace operations and satisfy all of the requirements of the performance criteria and required skills and knowledge.</p> <p>A person who demonstrates competency in this unit must be able to:</p> <ul style="list-style-type: none"> • observe safety procedures and requirements • communicate effectively with others involved in or affected by the work • select methods and techniques appropriate to the circumstances • complete preparatory activity in a systematic manner • diagnose and repair a range of mobile plant braking systems • conduct diagnosis and repair procedures according to workplace, manufacturer and component supplier requirements • present vehicle and equipment in a condition that complies with workplace requirements.
Context of, and specific resources for assessment	<p>Competency is to be assessed in the workplace or a simulated workplace environment that accurately reflects performance in a real workplace setting.</p> <p>Assessment is to occur:</p> <ul style="list-style-type: none"> • using standard workplace practices and procedures • following safety requirements • applying environmental constraints. <p>Assessment is to comply with relevant:</p> <ul style="list-style-type: none"> • regulatory requirements • Australian standards • industry codes of practice. <p>The following resources must be made available for the assessment of this unit:</p> <ul style="list-style-type: none"> • workplace location or simulated workplace • material relevant to the repair of mobile plant braking systems • equipment, hand and power tools appropriate to the repair of

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Overview of assessment

- mobile plant braking systems
- specifications and work instructions.

Method of assessment

Assessment must satisfy the endorsed Assessment Guidelines of this Training Package.

Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with the application of required skills and knowledge.

Assessment methods must be by direct observation of tasks and include questioning on required skills and knowledge to ensure correct interpretation and application.

Competence in this unit may be assessed in conjunction with other units which together form part of a holistic work role.

Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate the needs of diverse clients.

Assessment processes and techniques must be culturally sensitive and appropriate to the language, literacy and numeracy capacity of the candidate and the work being performed.

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. 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.

Workplace instructions may include:	<ul style="list-style-type: none"> • computer-generated instructions • verbal instructions • written instructions.
Job requirements may include:	<ul style="list-style-type: none"> • mobile plant equipment braking system diagnosis and repair methods, processes and equipment.
Workplace health and safety requirements:	<ul style="list-style-type: none"> • is to include that prescribed under individual legislation, regulations, codes of practice, and workplace policies and practices • may include: <ul style="list-style-type: none"> • protective clothing and equipment • use of tools and equipment • handling of material • use of fire-fighting equipment • first aid equipment • hazard control, including control of hazardous materials and toxic substances.
Procedures and information may include:	<ul style="list-style-type: none"> • verbal, written and graphical instructions • signage • work schedules, plans and specifications • work bulletins or memos • material safety data sheets (MSDS) • diagrams or sketches • safe work procedures relating to the repair and replacement of mobile plant braking systems • regulatory and legislative requirements relating to automotive industry • Australian Design Rules • engineer's design specifications and instructions • organisational work specifications and requirements • instructions issued by authorised workplace or external persons • Australian standards • heavy vehicle service requirements and repair manuals.
Safety issues and warnings	<ul style="list-style-type: none"> • safe use of tools and equipment

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must include:	<ul style="list-style-type: none"> • dangers associated with the workplace environment • hazard identification and control of hazardous materials and substances, including hydraulic fluid, brake fluid and brake lining fibres • machine tag-out, isolation and wheel chocking • stored fluid pressures from accumulators • high-pressure fluid hazards.
<i>Diagnostic tools and equipment</i> may include:	<ul style="list-style-type: none"> • hand tooling • oil pressure gauges • nitrogen test and charging equipment • lifting and slinging equipment • bleeding and brake testing devices • dust-extraction equipment.
<i>Diagnostic tests</i> may include:	<ul style="list-style-type: none"> • stall testing of service, park and secondary brakes • dynamic brake testing • friction material wear • brake drum component serviceability • disc brake component serviceability • multi-disc wet brake component serviceability • vehicle braking efficiency • accumulator pre-charge and oil application pressure testing.
<i>Faults</i> may include:	<ul style="list-style-type: none"> • poor performance of service, park or secondary brakes • failure or partial failure of service, park or secondary brakes • binding of service, park or secondary brakes.
<i>Diagnosis findings</i> may include:	<ul style="list-style-type: none"> • comparison of test results to manufacturer specifications • recommendations for repair, adjustment or replacement of parts.
<i>Repair options</i> may include:	<ul style="list-style-type: none"> • removal, replacement and adjustment procedures • dismantle, repair, re-assembly and adjustment procedures.
<i>Post-repair testing</i> may include:	<ul style="list-style-type: none"> • stall testing of service, park and secondary brakes • dynamic brake testing.

Unit Sector(s)

Competency field	Mechanical – Mobile Plant
Unit sector	Technical – Brakes

Custom Content Section

Not applicable.