

<b>RIIMPO319A</b>	<b>Conduct backhoe/loader operations</b>
<b>Unit descriptor</b>	This unit covers the conducting backhoe/loader operations in the civil construction industry. It includes: planning and preparing; conducting machine pre-operational checks; operating backhoe/loaders; lifting, carrying and placing materials; selecting, removing and fitting attachments; relocating the backhoe/loaders; carrying out machine operator maintenance; and cleaning up.
<b>Employability skills</b>	This unit contains employability skills.
<b>Application of the unit</b>	This unit is appropriate for those working in mobile plant operator roles, at worksites within: <ul style="list-style-type: none"> <li>• Civil construction</li> </ul>
<b>Competency field</b>	Mobile Plant Operations

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b>
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.
1. Plan and prepare	<ol style="list-style-type: none"> <li>1.1. Access, interpret and apply <b>compliance documentation</b> relevant to conduct <b>backhoe/loader tasks</b></li> <li>1.2. Obtain, confirm and apply <b>work instructions</b> to the allotted task</li> <li>1.3. Obtain, confirm and apply <b>safety requirements</b> to the allotted task</li> <li>1.4. Identify, obtain and implement signage requirements from the project traffic management plan</li> <li>1.5. Select plant, <b>tools and equipment</b> to carry out tasks that are consistent with the requirements of the job, check them for serviceability and rectify or report any faults</li> <li>1.6. Identify, confirm and apply <b>environmental</b> protection requirements from the project environmental management plan, to the allotted task</li> </ol>
2. Conduct machine pre-operational checks	<ol style="list-style-type: none"> <li>2.1. Carry out <b>pre-start, start-up, park and shutdown procedures</b></li> <li>2.2. Check machine controls and functions, including implements or other attachments, brakes and manoeuvrability for serviceability and rectify or report any faults</li> </ol>
3. Operate backhoe/loader	<ol style="list-style-type: none"> <li>3.1. Identify site hazards associated with backhoe/loader operations and use safe operating techniques to minimise risk</li> <li>3.2. Identify and apply operating techniques for backhoe/loader to achieve optimum output in accordance with design specifications while achieving specified tolerances</li> <li>3.3. Operate machine to work instructions</li> </ol>
4. Lift, carry and place materials	<ol style="list-style-type: none"> <li>4.1. Conduct <b>communication</b> practices associated with transportation and lifting of <b>materials</b></li> <li>4.2. Select and attach slings and lifting gear in accordance with safe working load requirements</li> <li>4.3. Establish weight of load</li> <li>4.4. Position and locate machinery to ensure stability to effectively shift materials according to job specifications</li> <li>4.5. Shift load safely and effectively</li> <li>4.6. Move load in accordance with conventional hand and</li> </ol>

ELEMENT	PERFORMANCE CRITERIA
	audible signals
5. Select, remove and fit attachments	5.1. Select <b>attachment</b> for the task 5.2. Remove and fit attachment 5.3. Test attachment to ensure correct fitting and operation 5.4. Use attachment in accordance with recommendations and design limits 5.5. Clean and store removed attachments in designated location
6. Relocate the backhoe/loader	6.1. Move backhoe/loader safely between worksites, observing relevant codes and traffic management requirements 6.2. Prepare backhoe/loader for relocation
7. Carry out machine operator maintenance	7.1. Park safely, shutdown and prepare machine for <b>maintenance</b> 7.2. Conduct inspection and fault finding 7.3. Remove, replace safely and effectively defective parts 7.4. Carry out regular programmed maintenance tasks
8. Clean up	8.1. Clear work area and dispose of or recycle materials in accordance with project environmental management plan 8.2. Clean, check, maintain and store plant, tools and equipment

### REQUIRED SKILLS AND KNOWLEDGE

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

#### Required skills

Specific skills are required to achieve the performance criteria in this unit, particularly for the application in the various circumstances in which this unit may be applied. This includes the ability to carry out the following as required to conduct backhoe/loader operations:

- apply legislative, organisation and site requirements and procedures
- apply site and equipment safety requirements
- apply techniques for calculating safe working loads
- apply backhoe/loader techniques related to essential tasks
- interpret drawings and sketches
- apply operational, maintenance and basic diagnostic procedures
- apply site isolation and traffic control responsibilities and authorities
- interpret materials safety data sheet and materials handling methods
- apply project quality requirements
- use civil construction terminology
- apply methods of changing machine attachments
- apply safe operating techniques in all terrain
- carry out basic earthworks calculations
- apply levelling techniques
- interpret JSA's/Safe work method statement

#### Required knowledge

Specific knowledge is required to achieve the Performance Criteria of this unit, particularly its application in a variety of circumstances in which the unit may be used. This includes knowledge of the following, as required to conduct backhoe/loader operations:

- backhoe/loader types, characteristics, technical capabilities and limitations
- basic principles of soil technology for civil works
- site and equipment safety requirements
- techniques for calculating safe working loads
- backhoe/loader techniques related to essential tasks
- processes for interpreting drawings and sketches

**REQUIRED SKILLS AND KNOWLEDGE**

- operational, maintenance and basic diagnostic procedures
- site isolation and traffic control responsibilities and authorities
- materials safety data sheet and materials handling methods
- project quality requirements
- civil construction terminology
- methods of changing machine attachments
- safe operating techniques in all terrain
- basic earthworks calculations
- civil construction activity sequences of road construction, earthworks and drainage
- levelling techniques
- JSA's/Safe work method 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>Relevant compliance documentation</b> may include:	<ul style="list-style-type: none"> <li>• legislative, organisation and site requirements and procedures</li> <li>• manufacturer's guidelines and specifications</li> <li>• Australian standards</li> <li>• codes of practice</li> <li>• Employment and workplace relations legislation</li> <li>• Equal Employment Opportunity and Disability Discrimination legislation</li> </ul>
A <b>backhoe/loader</b> is:	<ul style="list-style-type: none"> <li>• a self-propelled wheeled machine with a main structural support designed to carry both a front-mounted bucket loading mechanism and a rear-mounted backhoe</li> </ul>
<b>Backhoe/loader tasks</b> are to include:	<ul style="list-style-type: none"> <li>• mixing materials, stripping/spreading topsoils and materials, trench excavation, backfilling, lifting and carrying materials, loading dump trucks, wagons, hoppers, chutes and cutting/boxing</li> </ul>
<b>Backhoe/loader tasks</b> may include:	<ul style="list-style-type: none"> <li>• scrub clearing, ripping, compacting, cutting, batters and benches, rock breaking, demolition and any activities associated with the attachments listed</li> </ul>
A <b>skid steer loader</b> is:	<ul style="list-style-type: none"> <li>• a self-propelled wheeled machine in which steering is accomplished by skidding or reversing the wheels or tracks on one side of the machine. It has an integral front-mounted bucket-supporting structure and linkage, which loads or excavates through forward motion of the machine, and lifts, transports and discharges material</li> </ul>
<b>Skid steer loader</b> may include:	<ul style="list-style-type: none"> <li>• compacting, truck excavation, lifting and carrying materials, cutting batters and benches, rock breaking and any activities associated with attachments listed</li> </ul>
<b>Skid steer loader tasks</b> are to include:	<ul style="list-style-type: none"> <li>• stripping/ spreading topsoil and materials, backfilling, lifting, loading vehicles, excavations, mixing materials and site clean up</li> </ul>
<b>Work instructions</b> may include:	<ul style="list-style-type: none"> <li>• plans, specifications, quality requirements and operational details</li> </ul>

<b>RANGE STATEMENT</b>	
	<ul style="list-style-type: none"> <li>quality requirements may include but not be limited to dimensions, tolerances, standards of work and material standards as detailed in the project drawings, specifications and project documentation to meet client satisfaction</li> </ul>
<b>Safety requirements</b> are to be:	<ul style="list-style-type: none"> <li>in accordance with State or Territory legislation and regulations, organisational safety policies and procedures, and project safety plan</li> </ul>
<b>Safety requirements</b> may include:	<ul style="list-style-type: none"> <li>protective clothing and equipment, use of tools and equipment, workplace environment and safety, handling of materials, use of fire fighting equipment, use of First Aid equipment, hazard control and hazardous materials and substances</li> <li>personal protective equipment is to include that prescribed under legislation, regulation and workplace policies and practices</li> <li>safe operating procedures which are to include but not be limited to recognising and preventing hazards associated with underground and overhead services, other machines, personnel, restricted access barriers, traffic control, working at heights, working in proximity to others, worksite visitors and the public</li> <li>safe parking practices which is to include but not be limited to ensuring access ways are clear, equipment/ machinery is away from overhangs and refuelling sites, safe distance from excavations, and secured from unauthorised access or movement</li> <li>hazards and risks may include but not be limited to uneven/unstable terrain, trees, fires, overhead and underground services, bridges, buildings, excavations, traffic, embankments, cuttings, structures and hazardous materials</li> <li>emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping, extinguishing fires, organisational First Aid requirements and evacuation</li> </ul>
<b>Tools and equipment</b> are to include:	<ul style="list-style-type: none"> <li>hand tools and maintenance equipment relevant to the particular loader and may include lifting equipment</li> </ul>
<b>Environmental requirements</b> are to include:	<ul style="list-style-type: none"> <li>organisational/project environmental management plan, waste management, water quality protection, noise, vibration, dust and clean-up management</li> </ul>
<b>Communications practices</b> are to include:	<ul style="list-style-type: none"> <li>verbal instructions and fault reporting and may include two way radio, hand signals, mobile phone, site specific instructions, written instructions or instructions related to job/task</li> <li>on site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues</li> </ul>
<b>Materials</b> may include:	<ul style="list-style-type: none"> <li>clays, silts, stone, gravel, mud, rock, sand, topsoil,</li> </ul>

<b>RANGE STATEMENT</b>	
	blended materials, organic materials, typical construction site materials/waste and bituminous mixes <ul style="list-style-type: none"> <li>rock types may include metamorphic, igneous and sedimentary</li> </ul>
<b>Attachments</b> may include:	<ul style="list-style-type: none"> <li>extending devices, tilt bucket, buckets, compaction wheel, ripper, plate compactor, rock breaker, auger, broom, mower/slasher, forklift, 4 in 1 bucket and free/rock grab</li> </ul>
Operator <b>maintenance</b> is to include:	<ul style="list-style-type: none"> <li>cleaning, authorised servicing and the monitoring, recording and reporting of faults. It may also include the conduct of authorised minor replacements and the provision of assistance to maintenance personnel during maintenance and repair activities</li> </ul>

<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>The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the performance criteria, required skills and knowledge and the range statement of this unit and include evidence of the following:</p> <ul style="list-style-type: none"> <li>• knowledge of the requirements, procedures and instructions for conducting backhoe/loader operations</li> <li>• implementation of requirements, procedures and techniques for the safe, effective and efficient completion of backhoe/ loader operations, including: <ul style="list-style-type: none"> <li>◦ in a minimum of two different soil types and</li> <li>◦ to include the mandatory tasks: mixing materials, stripping/spreading topsoils and materials, trench excavation, backfilling, lifting and carrying materials, loading dump trucks, wagons, hoppers, chutes, and cutting/boxing</li> </ul> </li> <li>• working with others to undertake and complete backhoe/ loader operations that meet all of the required outcomes</li> <li>• consistent timely completion of backhoe/loader operations that safely, effectively and efficiently meet the required outcomes</li> </ul>
<b>Context of and specific resources for assessment</b>	<ul style="list-style-type: none"> <li>• This unit must be assessed in the context of the work environment. Where personal safety or environmental damage are limiting factors, assessment may occur in a simulated environment provided it is realistic and sufficiently rigorous to cover all aspects of workplace performance, including task skills, task management skills, contingency management skills and job role environment skills.</li> <li>• The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job.</li> <li>• Customisation of assessment and delivery environment to sensitively accommodate cultural diversity.</li> <li>• Aboriginal people and other people from a non English speaking background may have second language issues.</li> <li>• Assessment of this competency requires typical resources normally used in the work environment. Selection and use of resources for particular worksites may differ due to site circumstances.</li> <li>• Where applicable, physical resources should include equipment modified for people with</li> </ul>

<b>EVIDENCE GUIDE</b>	
	<p>disabilities.</p> <ul style="list-style-type: none"> <li>• Access must be provided to appropriate learning and/or assessment support when required.</li> </ul>
<b>Method of assessment</b>	<p>This unit may be assessed in a holistic way with other units of competency. The assessment strategy for this unit must verify required knowledge and skill and practical application using more than one of the following assessment methods:</p> <ul style="list-style-type: none"> <li>• written and/or oral assessment of the candidate's required knowledge</li> <li>• observed, documented and/or first hand testimonial evidence of the candidate's: <ul style="list-style-type: none"> <li>◦ implementation of appropriate requirement, procedures and techniques for the safe, effective and efficient achievement of required outcomes, including: <ul style="list-style-type: none"> <li>- in a minimum of two different soil types and</li> <li>- the mandatory tasks: mixing materials, stripping/spreading topsoils and materials, trench excavation, backfilling, lifting and carrying materials, loading dump trucks, wagons, hoppers, chutes, and cutting/boxing</li> </ul> </li> <li>◦ consistently achieving the required outcomes</li> </ul> </li> <li>• first hand testimonial evidence of the candidate's: <ul style="list-style-type: none"> <li>◦ working with others to undertake and complete the backhoe/loader operations</li> </ul> </li> </ul>
<b>Guidance information for assessment</b>	<p>Consult the SkillsDMC User Guide for further information on assessment including access and equity issues.</p>