



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **RIICRC321 Use automated paving guidance systems**

**Release: 1**

## **RIICRC321 Use automated paving guidance systems**

### **Modification History**

Not applicable.

### **Unit Descriptor**

This unit covers the use of automated paving guidance systems (APGS) in the control of concrete paving operations in the civil construction industry. It includes planning, preparing, setting-up, operating and shutting down operations for APGS. Licensing, legislative, regulatory and certification requirements that apply to this unit can vary between states, territories and industry sectors. Relevant information must be sourced prior to application of the unit.

### **Application of the Unit**

This unit is appropriate for those working in an operational role at worksites within:  
Civil construction

### **Licensing/Regulatory Information**

Not applicable.

### **Pre-Requisites**

Not applicable.

### **Employability Skills Information**

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.
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## Elements and Performance Criteria

1. Plan and prepare for operations	<p>1.1 Access, interpret and apply <b><i>compliance documentation</i></b> relevant to the work activity</p> <p>1.2 Obtain and confirm <b><i>safety requirements</i></b> from the <i>site</i> safety plan and organisational policies and procedures, and apply to the allotted <b><i>task</i></b></p> <p>1.3 Identify, obtain and implement signage requirements from the project <b><i>traffic</i></b> management plan</p> <p>1.4 Select <b><i>plant, tools and equipment</i></b> to carry out tasks consistent with the requirements of the job, check for serviceability and rectify or report any faults</p> <p>1.5 Identify <b><i>environmental protection requirements</i></b> from the project environmental management plan, and confirm and apply to the allotted task</p>
2. Setup automated paving guidance system	<p>2.1 Setup prisms within site tolerances and according to manufacturers specifications</p> <p>2.2 Locate <b><i>survey equipment</i></b> according to worksite and manufacturer's specifications</p> <p>2.3 Identify and establish control points and theodolite positions for planned operation</p> <p>2.4 Verify survey model is consistent with worksite plans</p> <p>2.5 Calibrate paver to tolerances within manufacturers and worksite specifications</p>
3. Operate automated paving guidance system	<p>3.1 Set <b><i>APGS</i></b> controls to automatic control settings</p> <p>3.2 Check signal inputs and automated control is operational</p> <p>3.3 Check freshly paved concrete for conformance against worksite model</p> <p>3.4 Conduct <b><i>paver/APGS</i></b> adjustments during operation</p>

	3.5 Reposition total station as required
4. Conduct shutdown operations	<p>4.1 Confirm instructions from supervisor prior to shutdown procedure</p> <p>4.2 Shutdown APGS in accordance with manufacturer's instructions</p> <p>4.3 Lower sensors on paver</p> <p>4.4 Clean, check, maintain and store total stations as per worksite requirements and manufacturer's instructions</p>

## Required Skills and Knowledge

### Required skills

Specific skills are required to achieve the Performance Criteria of this unit, particularly for its application in the various circumstances in which this unit may be used. This includes the ability to carry out the following, as required to APGS operations including:

- apply legislative, organisation and site requirements and procedures for conducting road paving operations
- apply legislative, organisation and site requirements and procedures for laying pavers
- organise work activities
- select and use relevant tools and equipment safely
- identify and report on hazards related to the worksite and work activity
- communicate effectively to receive and clarify work instructions

### Required knowledge

Specific knowledge is required to achieve the Performance Criteria of this unit, particularly for its application in the various circumstances in which this unit may be used. This includes knowledge of the following, as required to conduct APGS operations including:

- site and equipment safety requirements
- site communication and hand signals
- paver screed operations
- aggregate and gravel types and sizes
- longitudinal and transverse joints
- equipment types, characteristics, technical capabilities and limitations
- operational, maintenance and basic diagnostic procedures
- site isolation and traffic control responsibilities and authorities
- processes for the calculation of material uniformity and travel speed
- materials safety data sheets and materials handling methods
- quality requirements
- civil construction terminology
- safe operating techniques in all terrain
- JSAs/safe work method statements

## Evidence Guide

<p>Critical aspects for assessment and evidence required to demonstrate competency in this unit</p>	<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 concrete road paver operations</li> <li>• implementation of requirements, procedures and techniques for the safe, effective and efficient completion of APGS operations</li> <li>• working with others to undertake and complete APGS that meets all of the required outcomes</li> <li>• consistent timely completion of APGS operations that safely, effectively and efficiently meets the required outcomes</li> <li>• the conduct of APGS operations are to include the mandatory tasks from the unit scope and cover as a minimum:             <ul style="list-style-type: none"> <li>• setup, calibrate and pave for 200 meters within required conformance (3 times)</li> <li>• demonstrate ability to adjust paver (6 times):                 <ul style="list-style-type: none"> <li>• 2 times horizontal (1 positive, 1 negative)</li> <li>• 2 times vertical (1 positive, 1 negative)</li> <li>• 2 times combination of above</li> </ul> </li> </ul> </li> </ul>
<p>Context of and specific resources for assessment</p>	<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>• Assessment of this competency requires typical resources normally used in a resources and infrastructure sector environment. Selection and use of resources for particular worksites may differ due to the site circumstances.</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</li> </ul>

	<p>environment to sensitively accommodate cultural diversity.</p> <ul style="list-style-type: none"> <li>• Aboriginal people and other people from a non English speaking background may have second language issues.</li> <li>• Where applicable, physical resources should include equipment modified for people with disabilities. Access must be provided to appropriate learning and/or assessment support when required.</li> </ul>
Method of assessment	<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:</li> <li>• implementation of appropriate requirement, procedures and techniques for the safe, effective and efficient achievement of required outcomes</li> <li>• consistent achievement of required outcomes</li> <li>• first hand testimonial evidence of the candidate's:</li> <li>• working with others to undertake and complete concrete road paver operations</li> </ul>
Guidance information for assessment	<p>Consult the SkillsDMC User Guide for further information on assessment including access and equity issues.</p>

## Range Statement

<p><b>Relevant compliance documentation may include:</b></p>	<ul style="list-style-type: none"> <li>• legislative, organisational and site requirements and procedures</li> <li>• manufacturer's guidelines and specifications</li> <li>• Australian standards</li> <li>• Employment and workplace relations legislation</li> <li>• Equal Employment Opportunity and Disability Discrimination legislation</li> </ul>
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<p><b>Safety requirements may include:</b></p>	<ul style="list-style-type: none"> <li>• OHS requirements in accordance with state or territory legislation and regulations, organisational safety policies and procedures, and project safety plan, including 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>• safe operating procedures including recognising and preventing hazards associated with high voltage power lines, uneven/unstable terrain, trees, overhead service lines, bridges, surrounding buildings, obstructions, structures, facilities, dangerous materials, recently filled trenches, other machines, personnel, traffic control, working at heights, working in proximity to others, worksite visitors and the public</li> <li>• safe parking practices including ensuring access ways are clear, equipment/machinery is away from overhangs and refuelling sites, safe distance are kept from excavations, and areas secured from unauthorised access or movement</li> <li>• recognising hazards and risks including 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 equipment operation including emergency shutdown and stopping, extinguishing equipment fires, organisational first aid requirements and evacuation</li> </ul>
<p><b>Site may include:</b></p>	<ul style="list-style-type: none"> <li>• formed/prepared roads</li> <li>• pads</li> <li>• highways</li> <li>• freeways</li> <li>• car parks</li> <li>• container yards</li> <li>• hard stands</li> <li>• footpaths and bikeways</li> </ul>
<p><b>Task may include:</b></p>	<ul style="list-style-type: none"> <li>• mixing and spreading granular materials</li> <li>• spreading concrete materials</li> <li>• mixing and spreading stabilised materials</li> <li>• spreading bituminous materials</li> </ul>



<b>Traffic</b> may include:	<ul style="list-style-type: none"> <li>• congested urban environments</li> <li>• low traffic rural areas</li> <li>• off-road un-trafficked areas</li> <li>• parking sites</li> <li>• pedestrian areas</li> </ul>
<b>Plants, tools and equipment</b> may include:	<ul style="list-style-type: none"> <li>• shovels</li> <li>• measuring tapes</li> <li>• depth gauges</li> <li>• standard tool kits</li> <li>• string lines</li> <li>• thermometers</li> <li>• straight edges</li> </ul>
<b>Environmental protection requirements</b> may include:	<ul style="list-style-type: none"> <li>• organisational/project environmental management plan</li> <li>• waste management</li> <li>• water quality protection</li> <li>• noise</li> <li>• vibration</li> <li>• dust and clean-up management</li> </ul>
<b>Survey equipment</b>	<ul style="list-style-type: none"> <li>• theodolite</li> <li>• automated laser device</li> <li>• stringlines and markers</li> </ul>
<b>Paver</b>	<ul style="list-style-type: none"> <li>• automated screed leveller</li> </ul>
<b>APGS</b>	<ul style="list-style-type: none"> <li>• GPS</li> <li>• automated laser detection systems</li> <li>• positioning systems</li> </ul>

## Unit Sector(s)

Road and Pavements Construction and Maintenance (General).

## Custom Content Section

Not applicable.