



Australian Government

Department of Education, Employment and Workplace Relations

RIICBS310A Conduct patching operations

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This unit covers the conduct or patching operations in the civil construction industry. It includes planning and preparing, setting up patching truck, repairing damaged surfaces, carrying out operator maintenance, and cleaning up.

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

Refer to Unit Descriptor.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

<p>Elements describe the essential outcomes of a unit of competency.</p>	<p>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.</p>
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Plan and prepare	1.1. Access, interpret and apply <i>compliance documentation</i> relevant to the work activity 1.2. Obtain and confirm <i>safety requirements</i> from the <i>site</i> safety plan and organisational policies and procedures, and apply to the allotted task 1.3. Identify, obtain and implement <i>signage requirements</i> from the project <i>traffic</i> management plan 1.4. Select plant, <i>tools and equipment</i> to carry out tasks consistent with the requirements of the job, check for serviceability and rectify or report any faults 1.5. Identify, confirm and apply <i>environmental protection requirements</i> from the project environmental management plan
2. Set up patching truck	2.1. Carry out pre-operational checks on <i>patching operations truck</i> 2.2. Check operating components of the truck for serviceability 2.3. Check tank for prevention of contamination 2.4. Fill tank with the required materials to perform repair operations 2.5. Determine standard mix of emulsion ready for application to <i>surfaces</i>
3. Repair damaged surfaces	3.1. Carry out start-up, park, shutdown procedures 3.2. Position truck according to the range of the boom 3.3. Position boom manually or automatically over the <i>damaged surface</i> to be repaired 3.4. Blow area to be repaired free of dust and debris 3.5. Apply <i>patching material</i> to the defective area under the pressure of compressed air 3.6. Measure, calculate and record material quantities and additives for each site 3.7. Conduct, control and monitor <i>patching work</i> to ensure that materials are placed to specification

4. Carry out operator maintenance	4.1. Conduct fault finding inspections in accordance with manufacturer's specifications and organisational requirements 4.2. Maintain boom and tank to ensure good working order 4.3. Carry out routine operational servicing and lubrication tasks 4.4. Maintain equipment condition reports and records
5. Clean up	5.1. Clear work area and dispose of or recycle <i>materials</i> in accordance with project environmental management plan 5.2. 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 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 conduct patching operations:

- apply legislative, organisation and site requirements and procedures for conducting patching operations
- 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 patching operations:

- site and equipment safety requirements
- bitumen patching procedures
- bituminous materials and their characteristics
- aggregate properties and conformance
- pavement defects
- 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 requirements and application rates
- materials safety data sheets and materials handling methods
- project quality requirements
- civil construction terminology
- JSAs/safe work method statements

Evidence Guide

<p>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.</p>	
<p>Overview of assessment</p>	
<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"> • knowledge of the requirements, procedures and instructions for conducting patching operations • implementation of requirements, procedures and techniques for the safe, effective and efficient completion of patching operations • working with others to undertake and conduct patching operations that meet all of the required outcomes • consistent timely completion of patching operations that safely, effectively and efficiently meet the required outcomes • completion of patching operations for a minimum of 20m² of road surface defects by loading and mixing the specified materials and patching the damaged areas to specification • completion of all records of patching work undertaken and materials used for each site
<p>Context of and specific resources for assessment</p>	<ul style="list-style-type: none"> • 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. • 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.

	<ul style="list-style-type: none"> • 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. • Customisation of assessment and delivery environment to sensitively accommodate cultural diversity. • Aboriginal people and other people from a non English speaking background may have second language issues. • 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.
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"> • written and/or oral assessment of the candidate's required knowledge • observed, documented and/or first hand testimonial evidence of the candidate's: <ul style="list-style-type: none"> • implementation of appropriate requirement, procedures and techniques for the safe, effective and efficient achievement of required outcomes • consistent achievement of required outcomes • first hand testimonial evidence of the candidate's: <ul style="list-style-type: none"> • working with others to undertake and conduct patching operations
Guidance information for assessment	Consult the SkillsDMC User Guide for further information on assessment including access and equity issues.

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.

<p>Relevant compliance documentation may include:</p>	<ul style="list-style-type: none"> • legislative, organisational and site requirements and procedures • manufacturer's guidelines and specifications • graphical instructions, signage, work schedules/plans/specifications, work bulletins, charts and hand drawings, memos, maps, material safety data sheets (MSDS) and diagrams or sketches • safe work procedures or equivalent related to the conducting of patching operations • regulatory/legislative requirements pertaining to the conducting of patching operations • organisation work specifications and requirements • instructions issued by authorised organisational or external personnel • relevant Australian standards and Austroads • AAPA advisory notes and code of practice • quality requirements including dimensions, tolerances, standards of work and material standards as detailed in the project drawings, specifications and project documentation to meet client satisfaction • Employment and workplace relations legislation • Equal Employment Opportunity and Disability Discrimination legislation
<p>Safety requirements may include:</p>	<ul style="list-style-type: none"> • 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 • safe operating procedures including recognising

	<p>and preventing hazards associated with traffic, uneven/unstable terrain, poles, dirt mounds, overhead service lines, bridges, surrounding buildings, obstructions, structures, facilities, dangerous materials, recently filled trenches, other machines, personnel, traffic control, working in proximity to others, worksite visitors and the public</p> <ul style="list-style-type: none"> • safe parking practices including 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 • hazards and risks including uneven/unstable terrain, trees, fires, overhead and underground services, bridges, buildings, excavations, traffic, embankments, cuttings, structures and hazardous materials • emergency procedures related to equipment operation including emergency shutdown and stopping, extinguishing equipment fires, organisational first aid requirements and evacuation
Signage requirements may include:	<ul style="list-style-type: none"> • escort vehicle • highway traffic signs • site safety signage • temporary signage for the benefit of motorists and pedestrians • traffic conditions signage
Site may include:	<ul style="list-style-type: none"> • car parks • airport runways • container yards • hard stands • footpaths • bikeways • roadways
Traffic may include:	<ul style="list-style-type: none"> • congested urban environments • low traffic rural areas • off-road un-trafficked areas • buildings • parking sites • pedestrian areas
Tools and equipment may	<ul style="list-style-type: none"> • patching trucks with boom attachments • compressed air units

include:	
Environmental protection requirements may include:	<ul style="list-style-type: none"> • organisational/project environmental management plan • waste management • water quality protection • noise • vibration • dust and clean-up management
Patching operations truck refers to:	• a purpose built machine that is able to clean the area to be patched and apply bitumen emulsion and small size aggregate to fill/repair the area to be treated, set up to carry bitumen emulsion, aggregate, tools and equipment to prepare the patch, spray the emulsion and spread the aggregate
Damaged surfaces may include:	<ul style="list-style-type: none"> • pot holes • stripped or worn areas • other minor defects
Patching material may include:	• bitumen emulsion that is cationic and anionic
Patching work refers to:	<ul style="list-style-type: none"> • manual or automatic operating systems • vehicle being positioned so that hoses/boom are not run over, entangled or hit by other vehicles, correct pump pressure is used, area is patched to specification, and a lookout is used to watch hoses/boom and for other workers/public
Materials may include:	<ul style="list-style-type: none"> • bitumen emulsion • aggregates

Unit Sector(s)

Bituminous Surfacing

Competency field

Refer to Unit Sector(s).

Co-requisite units

Not applicable.