



**Australian Government**

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

# **PMBPROD325B Lay on tyre retreads**

**Revision Number: 1**

## **PMBPROD325B Lay on tyre retreads**

### **Modification History**

Not applicable.

### **Unit Descriptor**

#### **Unit descriptor**

This competency covers the laying of retread on casings prepared from used tyres and the solving of routine problems. It applies to the rubber sector of the industry.

### **Application of the Unit**

#### **Application of this unit**

This competency is typically performed by advanced operators applying knowledge of materials, product purpose and processes to the operation of laying tyre retreads to produce product conforming to requirements. It also requires using a range of well developed skills requiring some discretion and judgement to recognise and resolve a range of problems.

The operator:

- start up tyre retread laying machinery
- check settings and adjustments of equipment
- monitor equipment and process operation
- make appropriate adjustments to correct materials, equipment or process variations
- solve retread laying equipment, material and process problems, seeking guidance where necessary or appropriate.

This unit does not include:

- inspection - see *PROD324 Inspect tyres for retreading*
- preparation - see *PROD266 Prepare tyre casings for retreading*.
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### **Licensing/Regulatory Information**

Not applicable.

## Pre-Requisites

### Prerequisites

This unit has **no** prerequisites.

## Employability Skills Information

### Employability Skills

The required outcomes described in this unit contain applicable Employability Skills. The Employability Skills Summary of the qualification(s) in which this unit is packaged will assist in identifying Employability Skill requirements.

## Elements and Performance Criteria Pre-Content

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b>
Elements describe the essential outcomes of a unit of competency	Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

## Elements and Performance Criteria

<b>ELEMENT</b> ELEMENT	<b>PERFORMANCE CRITERIA</b> Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.
1. Plan own work requirements.	1.1 Identify the most appropriate equipment to be used for production and upstream and downstream operations from production plan or request. 1.2 Identify and check materials required. 1.3 Implement measures to control identified hazards in line with procedures and duty of care. 1.4 Identify requirements for materials, quality, production and equipment checks.
2. Start up retread laying process to procedures.	2.1 Identify process settings required for product. 2.2 Set process to required settings. 2.3 Check materials are correct. 2.4 Take appropriate action for non-conforming materials. 2.5 Set up date, batch and materials markings to specifications, as required. 2.6 Complete pre-start checks. 2.7 Start up retread laying process.
3. Operate and make adjustments to the retread laying process to procedures.	3.1 Operate retread laying process, noting key variables. 3.2 Monitor product/process quality. 3.3 Make adjustments to remedy faults and non-conformity as required. 3.4 Establish a stable retread laying process. 3.5 Adjust process to minimise scrap and trim. 3.6 Clean, adjust and lubricate equipment as required.
4. Shut down equipment to procedures.	4.1 Determine type of shut down. 4.2 Leave machine in appropriate condition and with appropriate locks, tags or notices. 4.3 Complete relevant documentation. 4.4 Ensure area is clean and clear after the shutdown, in readiness for the next start-up.
5. Anticipate and solve problems.	5.1 Recognise a problem or a potential problem 5.2 Determine problems needing priority action. 5.3 Refer problems outside area of responsibility to appropriate person, with possible causes.

<b>ELEMENT</b> ELEMENT	<b>PERFORMANCE CRITERIA</b> Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.
	5.4 Seek information and assistance as required to solve problems. 5.5 Solve problems within area of responsibility. 5.6 Follow through items initiated until final resolution has occurred.

## Required Skills and Knowledge

This describes the essential skills and knowledge and their level required for this unit.

Application of knowledge of the materials, equipment and process sufficient to recognise material and equipment conditions which may lead to out of specification production. For example, the inspection and preparation of casings is crucial to the quality of a retreaded tyre. Therefore, it is important to check, once the casings have been prepared that there are no further problems with the casings prior to laying the retread.

Knowledge of organization procedures, quality requirements at each production stage and relevant regulatory requirements along with the ability to implement them within appropriate time constraints and work standards.

Application of the knowledge of managing risks using the hierarchy of controls applied to the retread laying process. Application of approved hazard control and safety procedures and the use of PPE in relation to handling materials, equipment operation and cleanup.

Competence includes the ability for the practical completion of the job to apply and explain:

- characteristics of materials and behaviour in relation to heat, pressure, flow rate and time
- function and operating principles of retread laying processes, equipment, machine components and ancillary equipment
- impact of tyre size, faulty tyres, speed rating, finished and second hand tyres, and aspect ration markings of tyres on product quality and production output
- phases of the retread laying cycle and the effect of the key variables on product quality, in order to make appropriate adjustments to process and equipment settings. For example, the adhesive laying phase is needed when laying pre-cured treads to the casings to bond tread during vulcanisation.
- processing behaviour of those polymers which are used in the workplace
- changes to materials at various stages of production
- waste management and importance of non-conforming materials
- impact of variations in raw materials and equipment operation in relation to final product.

Skill to identify the range of possible causes of product faults.

Competence also includes the ability to:

- plan own work, including predicting consequences and identifying improvements
- maintain output and product quality using appropriate instruments, controls, test information and readings
- identify and describe own role and role of others involved directly in the retread laying process
- identify factors which may affect product quality or production output and appropriate remedies
- identify when the when assistance is required to solve problems.

### Language, literacy and numeracy requirements

This unit requires the ability to read and interpret typical product specifications, job sheets and material labels as provided to operators.

Writing is required to the level of completing workplace forms and production reports.

Basic numeracy is required, eg to determine how many 2 kg, 3 kg and 5 kg bags are needed to make up a requirement for 50 kg.

## Evidence Guide

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 this training package.

### Overview of assessment

A holistic approach should be taken to the assessment.

Assessors must be satisfied that the person can consistently perform the unit as a whole, as defined by the Elements, Performance Criteria and skills and knowledge.

### Critical aspects for assessment and evidence required to demonstrate competency in this unit

It is essential that competence is demonstrated in the knowledge and skills defined in this unit. These may include the ability to:

- identify critical materials properties and retread laying process variables in relation to the process requirements and the end product
- make adjustments to the process as required
- identify and take appropriate action on problems and potential problems.

Consistent performance should be demonstrated. For example, look to see that:

- the process runs consistently and smoothly, with the minimum need for human intervention
- all safety procedures are always followed.

### Assessment method and context

Assessment will occur on an industrial retread laying machine(s) and equipment and will be undertaken in a work-like environment.

Competence in this unit may be assessed:

- by use of appropriate, industrial retread laying equipment and machinery requiring demonstration of start up, operation and shut down procedures
- in a situation allowing the generation of evidence of the ability to recognise, anticipate and resolve problems
- by use of a suitable simulation and/or a range of case studies/scenarios
- by a combination of these techniques.

In all cases it is expected that practical assessment will be combined with targeted questioning to assess the underpinning knowledge and theoretical assessment will be combined with appropriate practical/simulation or similar assessment. Assessors need to be aware of any cultural issues that may affect responses to questions.

Assessment processes and techniques must be culturally appropriate and appropriate to the oracy, language and literacy capacity of the assessee and the work being performed.

### Specific resources for assessment

This section should be read in conjunction with the Range Statement for this unit of competency. Resources required include suitable access to an operating plant or equipment that allows for appropriate and realistic simulation. A bank of case studies/scenarios and questions will also be required to the extent that they form part of the assessment method.

Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunchroom. No other special resources are required.

Access must be provided to appropriate learning and/or assessment support when required. Where applicable, physical resources should include equipment modified for people with disabilities.

## 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. Add any 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. Where reference is made to industry codes of practice, and/or Australian/international standards, the latest version must be used.

### Context

This competency applies to tyre retreading. It includes the operation of all relevant additional equipment where that equipment is integral to the tread lay-up process.

### Procedures

All operations are performed in accordance with procedures.

Procedures include all relevant workplace procedures, work instructions, temporary instructions and relevant industry and government codes and standards.

### Tools and equipment

This unit of competency includes use of equipment and tools such as:

- manual handling aids (eg hand carts and trolleys)
- powered equipment/aids (eg compression rollers, staplers, cutting instruments and stone grinders)
- tread application equipment (eg semiautomatic builders to applying cured or uncured tread)
- moulds (for mould cure process)
- ancillary equipment (eg guide lights)
- hand tools (eg for roughing the surface, cutting and stapling the tread)
- raw materials (eg moulded tread and cushion gum)
- relevant personal protective equipment.

### Hazards

Typical hazards include:

- fumes/vapours
- cutting tools
- manual handling hazards
- noise
- moving components of machinery and equipment.

### Problems

'Anticipate and solve problems' means resolve a wide range of routine and non-routine problems, using product and process knowledge to develop solutions to problems which do not have a known solution/a solution recorded in the procedures.

Typical routine faults include:

- incorrect tread selected



- incorrect tyre inflation pressure.

Non-routine faults, which may have multiple causes include:

- faulty casings
- contamination of materials.

Typical process and product problems may include:

- equipment malfunction
- poorly aligned tread
- tread too long/short
- wrong tread profile.

Appropriate action for problems outside of area of responsibility may be reporting to an appropriate person.

Appropriate action for solving problems within area of responsibility includes asking questions and seeking assistance from appropriate persons/sources.

### **Variables**

Key variables to be monitored include:

- speed (including equipment speed, laying of cured and uncured tread)
- pressure
- colour
- tyre components
- tread alignment
- product integrity and general conformance to specification and quality sample.
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### **Unit Sector(s)**

Not applicable.