



Australian Government

Department of Education, Employment and Workplace Relations

PMBPROD335C Build second stage tyres

Revision Number: 1

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Modification History

Not applicable.

Unit Descriptor

Unit descriptor

This competency covers the production of 'green' tyres through the operation of the second stage tyre building machine.

Application of the Unit

Application of this unit

This competency is typically performed by advanced operators who are involved in the assembly of basic tyre components from intermediate production stages into a completed green tyre ready for curing. It also requires using a range of well developed skills requiring some discretion and judgement to recognised and resolve a range of problems.

The operator will:

- check job sheets for work to be done
- check setting and adjustments of equipment
- start up and shut down equipment
- monitor equipment operation
- make appropriate adjustments to correct materials, equipment or process variations
- solve routine production problems, seeking guidance where necessary or appropriate.
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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

ELEMENT	PERFORMANCE CRITERIA
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

ELEMENT ELEMENT	PERFORMANCE CRITERIA 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 job requirements of tyre to be built. 1.2 Identify and check materials required including additives and regrind and their amounts or percentages. 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 second stage tyre building equipment 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 tyre building equipment.
3. Operate and make minor adjustments to the process to procedures.	3.1 Load carcass onto building drum. 3.2 Monitor controls/displays/terminals for production and process data. 3.3 Identify product out of specification. 3.4 Monitor product/process quality. 3.5 Make adjustments to remedy faults and nonconformity as required. 3.6 Establish a stable tyre building process. 3.7 Adjust process to minimise scrap and trim. 3.8 Clean, adjust and lubricate equipment as required.
4. Shut down machine to procedures.	4.1 Determine type of shut down. 4.2 Select appropriate purging method. 4.3 Purge efficiently and adequately as required. 4.4 Leave machine in appropriate condition and with appropriate locks, tags or notices. 4.5 Complete relevant documentation. 4.6 Ensure area is clean and clear after the shutdown, in

ELEMENT	PERFORMANCE CRITERIA
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	readiness for the next start up.
5. Anticipate and solve problems.	5.1 Recognise a problem or a potential problem. 5.2 Determine problems need priority action. 5.3 Refer problems outside area of responsibility to appropriate person, with possible causes. 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 out of specification products, process problems and materials faults.

Knowledge of organization procedures, quality requirements at each stage of production 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 compound materials using and open mill blender. Application of approved hazard control and safety procedures and the use of PPE in relation to handling materials, equipment operation and cleanup.

Knowledge as a basis for solving processing and material problems including:

- the function of the tyre building equipment and machine components
- the terms radial force, inflation pressure, lateral force, internal force harmonics and concentricity
- different components used in the building process, eg steel belts, treads
- the function of different components, especially different tread compounds
- range of products made using this method
- reasons for differences in types and number of components used in different products
- monitor equipment operation and product quality
- material properties and their interactions with process conditions
- relationships between material properties and process conditions
- changes to material properties to better suit process requirements
- product problems related to material properties
- product problems related to process conditions
- adjustments to process conditions to meet material and product requirements.

Competence also includes the ability to:

- plan own work, including predicting consequences and identifying improvements
- identify when the operator is able to rectify faults, when assistance is required and who is the appropriate source for assistance
- identify and describe own role and role of others involved directly in the tyre building process
- identify factors which may affect product quality or production output and appropriate remedies
- pause or shut down equipment in abnormal circumstances
- explain the effect of unauthorised or emergency shutdown in relation to safety and production requirements.

Language, literacy and numeracy requirements

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

Writing is required to the level of completing workplace forms.

Basic numeracy is required, eg to determine that two 25 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 process characteristics 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 followed.

Assessment method and context

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

Competence in this unit may be assessed:

- by using an appropriate operating plant requiring demonstration of start-up, operation and shutdown procedures
- in a situation allowing for the generation of evidence of the ability to recognise, anticipate and respond to problems
 - by using a suitable simulation and/or a range of case studies/scenarios
 - through 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 unit covers the use of second stage type building machines. It includes the operation of all relevant additional equipment where that equipment is integral to the tyre building 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 competency includes use of equipment and tools such as:

- hand tools as required
- knives for bias cutting different component layers
- relevant personal protective equipment.

Hazards

Typical hazards include:

- manual handling
- cut hazards
- fumes/vapours
- noise, light, energy sources
- humidity, air temperatures, radiant heat
- stationary and moving machinery, parts and components.

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 process and product problems may include:

- equipment
- poorly aligned guides
- mould incorrectly placed on machine
- materials
- contaminated materials

- distorted/misshaped components
- poor adhesion
- process
- rotation speed
- temperature
- product
- protecting from contamination
- protecting from damage.

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.

Unit Sector(s)

Not applicable.