



Australian Government

Department of Education, Employment and Workplace Relations

PMBPROD318C Build first stage tyres

Revision Number: 1

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Modification History

Not applicable.

Unit Descriptor

Unit descriptor

This competency covers the operation and adjustment of the first stage tyre building processes and the solving of routine and non-routine problems.

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 first stage tyre building equipment to produce first stage tyre carcasses. It also requires using a range of well developed skills requiring some discretion and judgment to recognise and resolve a range of problems.

The operator will:

- start up the first stage tyre building machine
- check settings and adjustments of equipment
- monitor equipment operation
- make appropriate adjustments to correct materials, equipment or process variations
- solve first stage tyre building equipment, material and process 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 equipment to be used 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, and production and equipment checks.
2. Start up the first stage tyre building machine 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 first stage tyre building machine.
3. Operate and make adjustments to the first stage tyre building process to procedures.	3.1 Operate first stage tyre building process, noting key variables. 3.2 Monitor controls/displays/terminals for production and process data. 3.3 Take samples as required and identify product out of specification. 3.4 Monitor product/process quality. 3.5 Maintain supply of material(s) as required. 3.6 Make adjustments to remedy faults and nonconformity as required. 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 shutdown. 4.2 Clean as required. 4.3 Leave machine in appropriate condition and with appropriate locks, tags or notices. 4.4 Complete relevant documentation. 4.5 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 problems. 5.2 Determine problems needing priority action. 5.3 Refer problems outside area of responsibility to

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.
	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 material and equipment conditions which may lead to out of specification production.

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

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

Knowledge and ability to identify the range of possible causes of product faults and take appropriate action.

Knowledge as a basis for solving process and material problems:

- function and operating principles of the tyre building equipment and machine components
- different components used in the tyre building process (eg tubeless liner, first and second [or third] ply, beadwire), the function of different components and the reasons for differences in types and number of components used in different products
- impact of machine speed, temperature, pressure, time during cycles on product quality and production output
- effect of unauthorised or emergency shutdown in relation to safety and production requirements
- waste management and importance of non-conforming materials
- material properties and their interactions with process conditions
- relationships between material properties and process conditions
- changes to polymer 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
- 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 first stage tyre building process
- identify factors which may affect product quality or production output and appropriate remedies
- identify 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, material labels, and machine control panels.

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 first stage type building 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
- all safety procedures are followed.

Assessment method and context

Assessment will occur on an industrial first stage tyre building machine and will be undertaken in a work-like environment.

Competence in this unit may be assessed:

- by using an appropriate, industrial first stage tyre building machine requiring demonstration of start-up, operation and shut down procedures.
- in a situation allowing for the generation of evidence of the ability to 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 applies to first stage type building machines. It includes the operation of all relevant additional equipment where that equipment is integral to the first stage 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:

- first stage tyre building machine
- components of the first stage tyre building machine (eg drum, extruder)
- hand tools as required
- knives for bias cutting different component layers
- relevant personal protective equipment.

Hazards

Typical hazards include:

- manual handling hazards
- cuts
- 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/s recorded in the procedures.

Typical process and product problems may include:

- equipment malfunction
- poorly aligned guides
- mould incorrectly placed on machine
- materials variations
- contaminated materials
- lack of adhesion
- process variations
- variations in rotation speed

- variations in temperature
- product distortion/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.

Variables

Key variables to be monitored include:

- speed
- temperature
- output rate
- product integrity and general conformance to specification
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Unit Sector(s)

Not applicable.