



Australian Government

Department of Education, Employment and Workplace Relations

PMBPROD368B Repair conveyor belt carcass

Revision Number: 1

PMBPROD368B Repair conveyor belt carcass

Modification History

Not applicable.

Unit Descriptor

Unit descriptor

This competency covers the repair of conveyor belt carcasses and includes all belt types including steel cord and fabric plies. The repair may be on-site or in a repair facility.

Application of the Unit

Application of this unit

This competency applies to advanced operators who undertake the repair of conveyor belt carcasses, test them and return them to service. The key factors are the identification of the damage, planning and conducting repairs, cleaning up and checking the repairs for accuracy and serviceability. This competency is typically performed by operators working either independently or as part of a work team.

The operator will:

- plan the repair job
- select and arrange all equipment and materials to the site
- prepare the belt for repair
- repair the belt carcass
- inspect the repair and either approve the work or redo the work
- identify any hazards and take appropriate action
- clean up site, dispose of scrap and recycle materials where possible
- complete logs and reports.

This unit does not cover repairs to conveyor belt covers, see *PMBPROD369B Repair conveyor belt covers*.

Note that this competency unit covers repairs carried out in a workshop or other off-site facility. If the work involves on site work, then this competency should be considered in conjunction with *MSAOPS363A Organise on site work*.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisites

This unit of competency has the prerequisite of *PMBPROD265B Operate portable vulcanising equipment*.

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 belt carcass repairs.	1.1 Review belt specifications and work order documentation. 1.2 Identify hazards and risk controls. 1.3 Identify belt faults, consider reparability and decide on appropriate repair method. 1.4 Plan work, including sequences, times and process stages. 1.5 Plan to minimise downtime, economically use materials and meet repair quality specifications. 1.6 Assemble equipment, tools and materials required, checking them for condition, quality and compliance tags.
2. Conduct belt carcass repairs.	2.1 Select a well-ventilated work area for the repair and remove any contaminants. 2.2 Isolate equipment and tag according to procedures (if applicable). 2.3 Strip and remove damaged material. 2.4 Cut belt covers to the appropriate shape and angles, buff edges. 2.5 Prepare damaged area and cut repair materials to size as required. 2.6 Prepare and finish surfaces to be bonded according to procedures. 2.7 Apply bonding materials and conduct repair according to procedures. 2.8 Vulcanise belt repair (where required).
3. Check belt repair.	3.1 Check repairs meet quality specifications. 3.2 Further repair areas which do not meet quality specifications or tag for further treatment. 3.3 Inform customer when belt is ready for use, or prepare belt for storage or delivery.
4. Clean work area.	4.1 Clean, inspect and store tools and equipment used. 4.2 Tag unserviceable tools and equipment, identify faults and inform relevant personnel. 4.3 Clean work area and return to approved condition.

ELEMENT	PERFORMANCE CRITERIA
ELEMENT	Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.
	4.4 Dispose of waste or recycle according to procedures. 4.5 Complete appropriate workplace documentation.
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. 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 organization procedures 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 belt repairs. Application of approved hazard control, 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/or explain:

- impact of incorrect or faulty repair processes or materials
- production workflow sequences and inherent hazards with conveyors
- distinguish between causes of conveyor belt faults (eg abrasion, impact, tearing or other damage, mechanical problems, materials failure)
- stresses and tensions on working belts and the common failure causes
- correct selection and use of equipment, materials, processes and procedures
- products, materials and material characteristics
- effects of temperature, pressure and time on the curing process
- changes in conveyor and repair materials during the repair process
- requirements for cable lay up and ply replacement in forming a satisfactory repair, as applicable.

Competence also includes the ability to:

- plan own work, including predicting consequences and identifying improvements
- identify factors which may affect product quality or production output and appropriate remedies
- identify when the operator is able to rectify faults and when assistance is required.

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.

Numeracy is also required, eg to determine the angle and dimensions of the repair.

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.

Where the assessee does not currently possess evidence of competency in the following units of competency they may be co-assessed with this unit:

- *PMBPROD265B Operate portable vulcanising equipment*
- *PMBPROD369B Repair conveyor belt covers*
- *MSAOPS363A Organise on site work*

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 conveyor operating characteristics in relation to the condition of the belt
- plan own work process within organisational procedures and explain the reasons for the steps in the process
- take appropriate action to observe equipment, materials and products for out of specification results, make repairs and identify problems to be reported.

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

- production quality and output standards are met consistently
- problems are anticipated from process observations
- problems are efficiently resolved
- the repair runs consistently and smoothly.

Assessment method and context

Assessment will occur on a industrial belts and will be undertaken in a work-like environment.

Competence in this unit may be assessed:

- on a processing plant, allowing for operation under all normal and a range of abnormal conditions
- 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 applies to belt carcass repair activities in either on-site or repair facility circumstances. It includes the operation of all relevant additional equipment where that equipment is integral to the conveyor belt carcass repair 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:

- knives and cutting tools
- hoists/lifting equipment not requiring any special permits or licences
- hand tools (eg pliers, brushes)
- vulcanising equipment
- relevant personal protective equipment
- belt restraining devices
- portable power generating equipment.

Hazards

Typical hazards include:

- damaged rubber and cords
- dusts/vapours
- manual handling hazards
- cutting hazards
- working on belts in-situ (where appropriate)
- heat and pressure.

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:

- difficulties arising from the location
- contamination of materials

- communication problems (on-site)
- tool problems
- variations in materials and/or contamination of materials
- vulcanising problems.

Variables

Key variables to be monitored include:

- belt condition
- belt location
- degree of damage
- forces acting on the conveyor
- belt environmental conditions
- lock-out of equipment.
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Unit Sector(s)

Not applicable.