



Australian Government

Department of Education, Employment and Workplace Relations

PMBPROD376A Splice steel cord conveyor belts

Revision Number: 1

PMBPROD376A Splice steel cord conveyor belts

Modification History

Not applicable.

Unit Descriptor

Unit descriptor

This competency covers splicing of steel cord, rubber conveyor belts. It covers the splicing of new or existing conveyor belts. The splicing may be on-site or in a repair facility.

Application of the Unit

Application of this unit

This competency applies to advanced operators who splice steel cord conveyor belts. The key factors are the ability to safely plan, conduct and inspect the splice. This competency is typically performed by operators working either independently or as part of a work team.

The operator will:

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

This competency unit does not cover splicing of solid woven conveyor belts (see *PMPROD377A*) or fabric ply conveyor belts (see *PMBPOROD376A*)

Note that this competency unit covers splicing 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 steel cord belt splice	1.1 Review belt specifications and work order documentation. 1.2 Identify hazards and risk controls. 1.3 Plan work, including sequences, times and process stages. 1.4 Plan to minimise downtime, economically use materials and meet splice quality specifications. 1.5 Assemble equipment, tools and materials required, checking them for condition, quality and compliance tags.
2. Prepare steel cord splice according to procedures.	2.1 Isolate equipment and conveyor systems as required. 2.2 Restrain belt or belt ends to ensure movement does not occur during splice. 2.3 Cut belt ends to the appropriate shape and angle. 2.4 Strip and remove belt covers and carcass material. 2.5 Cut out damaged cords as applicable. 2.6 Prepare surfaces for bonding. 2.7 Cut and lay up replacement cords in sequence as applicable. 2.8 Complete lay up of splice using appropriate materials.
3. Cure steel cord splice.	3.1 Check that splice meets quality requirements prior to curing. 3.2 Vulcanise splice according to procedures, as applicable.
4. Check steel cord splice.	4.1 Check repairs meet quality specifications. 4.2 Further repair products which do not meet quality specifications or tag for further treatment. 4.3 Inform customer when belt is ready for use, or prepare belt for storage or delivery.
5. Clean work area.	5.1 Clean, inspect and store tools and equipment used. 5.2 Tag unserviceable tools and equipment, identify faults and inform relevant personnel.

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.
	5.3 Clean work area and return to approved condition. 5.4 Dispose of waste or recycle according to procedures. 5.5 Complete appropriate workplace documentation.
6. Anticipate and solve problems.	6.1 Recognise a problem or a potential problem. 6.2 Determine problems needing priority action. 6.3 Refer problems outside area of responsibility to appropriate person, with possible causes. 6.4 Seek information and assistance as required to solve problems. 6.5 Solve problems within area of responsibility. 6.6 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, consumables for use in the splicing operation must be checked for compatibility with the belt and that materials are within recommended shelf life.

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 splicing. Application of approved hazard control, safety procedures and the use of PPE in relation to handling materials, equipment operation and clean up.

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

- impact of incorrect or faulty joining processes
- production workflow sequences and inherent hazards with conveyors
- 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 and time on the curing process
- changes in conveyor and joining materials during the joining process
- requirements for cable lay up and importance of cable separation distances in forming a satisfactory join.

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 conveyor belt and system specifications, job sheets and material labels as provided to operators.

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

Numeracy is also required, eg to ensure accuracy of measurements and integrity of the splice.

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 *PMBPROD265B Operate portable vulcanising equipment* it may be co-assessed with this unit.

This unit may also be co-assessed with *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 an industrial belt 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 workshop or conveyor manufacturing facility
- 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 splicing of steel cord rubber conveyor belts typically within the minerals industry. However, it includes all users of steel cord conveyor belts. It includes the operation of all relevant additional equipment where that equipment is integral to the belt splicing process.

Procedures

All operations are performed in accordance with procedures.

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

These may include:

- AS 3552-1988 Conveyor belting - Guide to splicing steel cord belting

Tools and equipment

This competency includes use of equipment and tools such as:

- manual handling aids
- hand winches
- portable power generators and vulcanising equipment
- knives and other cutting instruments
- portable hoists/lifting equipment not requiring any special permits or licences
- spanners, wrenches, hammers, etc
- power operated hand tools such as drills, cutting disks, sanders
- relevant personal protective equipment

Hazards

Typical hazards include:

- ragged edges and exposed metal
- cord material
- dust and debris from the belt and material being transported
- hazardous materials arising from the splicing process
- manual handling hazards
- knife, cutting and grinding disk hazards.

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:

- weight of the belting to be moved

- variations in materials
- contamination of materials
- lack of accessibility
- equipment malfunctions
- tooling problems.

Variables

Key variables to be monitored include:

- belt condition
- belt location
- degree and nature of any damage to belt
- weight of the belt
- forces acting on the conveyor belt
- environmental conditions
- tensioning systems
- gradient of belt
- belt strength rating.
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Unit Sector(s)

Not applicable.