



Australian Government

PMBPROD367 Remove and replace conveyor belts

Release: 1

PMBPROD367 Remove and replace conveyor belts

Modification History

Release 1. Supersedes and is equivalent to PMBPROD367B Remove and replace conveyor belts

Application

This unit of competency covers the skills and knowledge required to remove and replace conveyor belts in contracted, on-site locations. It applies to all types of industrial conveyor belts (e.g. steel cord, fabric reinforced ply belts and solid woven belts) in standard configurations. Removal may be via de-tensioning and removal or by joining to a new belt for removal.

This unit of competency applies to experienced operators who are required to prepare equipment, tools, materials and conditions, use the appropriate removal method, track on and commission the new belt, make adjustments to remedy faults and non-conformity and solve problems within area of responsibility.

This unit of competency applies to an experienced operator demonstrating theoretical and technical knowledge and well developed skills in situations that require some discretion and judgement. The operator may work alone or as a member of a team or group and will work in liaison with other shift team members, team leader and supervisor, as appropriate.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil

Competency Field

Production

Unit Sector

Not applicable

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

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|---|---|-----|---|
| 1 | Plan for conveyor belt replacement | 1.1 | Review belt specifications and work order documentation |
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- 1.2 Identify hazards and risk controls
 - 1.3 Review plan to ensure that downtime is minimised, materials are used economically and quality standards are met
 - 1.4 Ensure that all permissions and permits have been obtained
 - 1.5 Ensure that all required equipment, tools and materials are available and have been checked for condition, quality and compliance tags
 - 1.6 Ensure that a safe work area has been established
- 2 **Remove and replace conveyor belt**
 - 2.1 Examine the conveyor system for and eliminate sources of potential belt damage
 - 2.2 Facilitate removal of conveyed materials from the belt
 - 2.3 Identify and eliminate any residual dangerous or hazardous substances or contaminants
 - 2.4 Ensure conveyor equipment is disengaged and locked out.
 - 2.5 Remove tension from belt, as required
 - 2.6 Set up equipment to appropriately support the removal and replacement of belt, without unnecessary twisting or bending
 - 2.7 Remove existing belt and track replacement belt onto rollers
 - 2.8 Store removed belt appropriately
 - 2.9 Ensure new belt is spliced according to procedures
- 3 **Commission conveyor belt**
 - 3.1 Inspect belt condition for imperfections or irregularities
 - 3.2 Start conveyor or monitor start up to procedures
 - 3.3 Monitor and adjust tracking, speed and tensions as required

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| | 3.4 | Observe belt in operation and identify conditions which may require emergency shutdown of equipment |
| | 3.5 | Give appropriate notice of any impending shutdown to procedures |
| | 3.6 | Follow shutdown procedures. |
| 4 | Clean work area. | |
| | 4.1 | Clean work area and return to approved condition |
| | 4.2 | Follow all waste and recycling procedures |
| | 4.3 | Complete 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 |

Foundation Skills

This section describes those required skills (language, literacy and numeracy) that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Regulatory framework The latest version of all legislation, regulations, industry codes of practice and Australian/international standards, or the version specified by the local regulatory authority, must be used.

Applicable legislation, regulations, standards and codes of practice include:

- health, safety and environmental (HSE) legislation, regulations and codes of practice relevant to the workplace, manual handling and hazardous materials
- Australian/international standards relevant to the materials being used and products being made
- any relevant licence and certification requirements.

All operations to which this unit applies are subject to stringent HSE requirements, which may be imposed through state/territory or federal legislation, and these must not be compromised at any time. Where there is an apparent conflict between performance criteria and such requirements the legislative requirements take precedence.

The regulatory framework will be reflected in workplace policies and procedures and is not required to be independently assessed.

Procedures All operations must be performed in accordance with relevant procedures.

Procedures are written, verbal, visual, computer-based or in some other form, and include one or any combination of:

- emergency procedures
- work instructions
- standard operating procedures (SOPs)
- safe work method statements (SWMS)
- formulas/recipes
- batch sheets
- temporary instructions
- any similar instructions provided for the smooth running of the plant.

Tools and equipment Tools and equipment include:

- hand tools (such as spanners, wrenches and hammers)
- power operated hand tools (such as drills, cutting disks and sanders)
- clips, pulling plates, steel cables (certified as required)

- belt winders, belt stands and winches.

Additional tools and equipment will be selected as required from:

- portable power generators and vulcanising equipment
- knives and other cutting instruments
- hoists/lifting equipment not requiring any special permits or licences
- manual handling aids, such as hand carts and trolleys
- relevant personal protective equipment (PPE).

Hazards

Hazards must be identified and controlled. Identifying hazards requires consideration of:

- weight, shape, volume of materials to be handled
- hazardous products and materials
- lifting, tracking and securing hazards
- rotational equipment or vibration
- sharp edges, protrusions or obstructions
- slippery surfaces, spills or leaks
- smoke, dust, vapours or other atmospheric hazards
- high temperatures
- electricity
- gas
- gases and liquids under pressure
- structural hazards
- equipment failures
- machinery, equipment and product mass
- other hazards that might arise.

Problems

Routine and non-routine problems must be resolved.

Non-routine problems must be resolved by applying operational knowledge to develop new solutions, either individually or in collaboration with relevant experts, to:

- determine problems needing action
- determine possible fault causes
- develop solutions to problems which do not have a known solution
- follow through items initiated until final resolution has occurred
- report problems outside area of responsibility to designated person.

Non-routine problems are unexpected problems or variations of previous problems and include one or more of:

- variations in quality
- incorrect or faulty joining processes
- emergency situations
- intermittent faults.

Operational knowledge includes one or more of:

- procedures
- training
- technical information, such as journals and engineering specifications
- remembered experience
- relevant knowledge obtained from appropriate people.

Routine problems are predictable and have known solutions and include one or more of:

- processing problems
- equipment malfunctions
- obstructions and impediments to removal and fitting on new belt
- worn or malfunctioning rollers, drums or propulsion equipment
- lack of accessibility
- tool problems.

Unit Mapping Information

Release 1. Supersedes and is equivalent to PMBPROD367B Remove and replace conveyor belts

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=932aacef-7947-4c80-acc6-593719fe4090>

Assessment Requirements for PMBPROD367 Remove and replace conveyor belts

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria and demonstrate the ability to:

- read and interpret procedures, job specifications, instruments/control panels, material labels and safety data sheets (SDS)
- ensure safety preparations are undertaken and permissions/permits are in place
- prepare conveyor system and belt for removal
- remove belt
- track replacement belt onto rollers
- monitor key variables, including:
 - belt condition
 - belt location
 - gradient of belt
 - tracking variables
 - types of scrapers
 - skirting systems used
 - degree of damage
 - weight of the belt
 - forces acting on the conveyor belt
 - environmental conditions
 - lock-out of equipment
- inspect belt splice and belt condition
- start conveyor or monitor start-up to procedures
- make adjustments to remedy faults and nonconformity
- safely shut down equipment in normal and abnormal circumstances
- leave machine in appropriate condition with any required locks, tags or notices
- identify hazards and apply relevant hazard controls
- apply safety procedures
- apply housekeeping procedures
- apply waste management procedures
- recognise early warning signs of equipment/processes needing attention or with potential problems
- distinguish between causes of problems, including:

- operational problems
- materials properties
- process variables
- raw material variations/contamination
- process abnormalities
- procedural errors
- recognise and prioritise problems requiring action
- resolve routine and non-routine problems
- communicate effectively with team/work group and supervisors
- complete workplace records
- do basic arithmetical manipulations, including additions, subtractions, divisions, fractions and percentages.

Knowledge Evidence

Must provide evidence that demonstrates knowledge relevant to their job sufficient to operate independently and to solve routine and non-routine problems, including knowledge of:

- function and operating principles of conveyor systems and ancillary equipment
- stresses and tensions on working belts and common causes of failure
- types and application of joining methods
- impact of incorrect or faulty joining processes
- products, materials and material characteristics for splicing belts
- effects of temperature, pressure and time on the curing process
- changes in conveyor and joining materials during the joining process
- equipment certification requirements applicable to belt removal/replacement
- impact of variations in raw materials and equipment operation in relation to final product
- routine and non-routine problems that may arise, the range of possible causes and appropriate actions
- organisation procedures relevant to the work environment/job role
- hierarchy of control
- hazards that may arise in the job/work environment and:
 - their possible causes
 - potential consequences
 - appropriate risk controls.

Assessment Conditions

- The unit should be assessed holistically and the judgement of competence shall be based on a holistic assessment of the evidence.
- In all plants it may be appropriate to assess this unit concurrently with units such as:
 - teamwork
 - communication

- *PMBPROD265 Operate portable vulcanising equipment*
- *MSAPMOPS363 Organise on site work*
- relevant belt splicing unit/s.
- The collection of performance evidence is best done from a report and/or folio of evidence drawn from:
 - a single project which provides sufficient evidence of the requirements of all the elements and performance criteria
 - multiple smaller projects which together provide sufficient evidence of the requirements of all the elements and performance criteria.
- A third-party report, or similar, may be needed to testify to the work done by the individual, particularly when the project has been done as part of a project team.
- Assessment should use a real project in an operational workplace. Where this is not possible or where personal safety or environmental damage are limiting factors assessment must occur using a sufficiently rigorous simulated environment that reflects realistic operational workplace conditions. This must cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.
- Assessment in a simulated environment should use evidence collected from demonstration of skills and one or more of:
 - walk-throughs
 - pilot plant operation
 - industry-based case studies/scenarios
 - 'what ifs'.
- Knowledge evidence may be collected concurrently with performance evidence or through an independent process, such as workbooks, written assessments or interviews.
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications associated with this unit.
- The regulatory framework will be reflected in workplace policies and procedures and is not required to be independently assessed.
- Foundation skills are integral to competent performance of the unit and should not be assessed separately.
- Assessors must satisfy the assessor competency requirements that are in place at the time of the assessment as set by the VET regulator.
- In addition the assessor or anyone acting in subject matter expert role in assessment shall demonstrate both technical competency and currency. If the assessor cannot demonstrate technical competency and currency they shall assess with a subject matter expert who does meet these requirements.
- Technical competence can be demonstrated through one or more of:
 - relevant VET or other qualification/Statement of Attainment
 - appropriate workplace experience undertaking the type of work being assessed under routine and non-routine conditions

- appropriate workplace experience supervising/evaluating the type of work being assessed under routine and non-routine conditions
- Currency can be demonstrated through one or more of:
 - being currently employed undertaking the type of work being assessed
 - being employed by the organisation undertaking the type of work being assessed and having maintained currency in accordance with that organisation's policies and procedures
 - having consulted/had contact with an organisation undertaking the type of work being assessed within the last twelve months, the consultation/contact being related to assessment
 - conducting on the job training/assessments of the type of work being assessed
 - being an active member of a relevant professional body and participating in activities relevant to the assessment of this type of work.

Links

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