



**Australian Government**

# **PMBPROD340A Cure heavy off-the-road tyre repairs**

**Release 1**

# **PMBPROD340A Cure heavy off-the-road tyre repairs**

## **Modification History**

Release 1 - New unit of competency

## **Unit Descriptor**

This unit of competency covers the skills and knowledge needed to cure repairs to tyres defined by AS 4457.2-2008 Earth-moving machinery - Off-the-road wheels, rims and tyres - Maintenance and repair – Tyres (or its authorised replacement) or similar tyres.

## **Application of the Unit**

This competency is typically performed by operators applying knowledge of materials, knowledge and basic understanding of the tyre design, and product purpose and processes to the curing of repaired tyres. It also requires the use of some discretion and judgment to recognise and resolve a range of problems.

This unit covers curing using pressure curing systems, such as ‘Monarch’ (air bag) and ‘Thermopress’. For autoclave curing see PMBPROD375B Vulcanise products using an autoclave.)

This unit should be interpreted in line with AS 4457.2-2008 Earth-moving machinery - Off-the-road wheels, rims and tyres - Maintenance and repair – Tyres.

## **Licensing/Regulatory Information**

Not applicable.

## **Pre-Requisites**

Not applicable.

## **Employability Skills Information**

This unit contains employability skills.

## **Elements and Performance Criteria Pre-Content**

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

## Elements and Performance Criteria

- |   |   |     |  |
|---|---|-----|--|
| 1 | Prepare for job                             | 1.1 | Select required curing equipment   |
|   |   | 1.2 | Move tyre into suitable position for curing  |
|   |   | 1.3 | Secure tyre ready for curing   |
|   |   | 1.4 | Determine cure conditions required from injury dimensions, rubber compounds and equipment selected |
|   |   | 1.5 | Select curing equipment components to suit repairs to be cured                                     |
|   |   | 1.6 | Check and wear required personal protective equipment (PPE)  |
|   |   |     |  |
| 2 | Set up pressure curing system to procedures | 2.1 | Place and secure packing   |
|   |   | 2.2 | Position curing system components and secure   |
|   |   | 2.3 | Apply pressure appropriate to the system being used  |
|   |   | 2.4 | Check curing system is ready for the curing process  |
|   |   |     |  |
| 3 | Cure repair to procedures                   | 3.1 | Set temperature required for curing  |
|   |   | 3.2 | Monitor heat and pressure over the whole curing cycle and make adjustments if required             |
|   |   |     |  |
| 4 | Complete repair                             | 4.1 | Check heat and pressure cure cycle has completed   |
|   |   | 4.2 | Remove curing system   |
|   |   | 4.3 | Remove packing and any other ancillary materials used  |
|   |   | 4.4 | Inspect repair to ensure that it meets the standard  |
|   |   | 4.5 | Complete any required paperwork  |

## Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

### Required skills

Required skills include:

- using pressure curing systems according to the machine manufacturer's recommendations
- reading instrumentation
- communicating effectively
- working safely in accordance with operational requirements and safe systems of work
- reading and interpreting typical product specifications, job sheets and material labels as provided to operators
- writing to the level of completing workplace forms and production reports

### Required knowledge

Required knowledge includes:

- organisational procedures
- heavy off-the-road (HOTR) tyre construction, bias and radial
- methods of identifying lug/position identification
- tyre repair curing methods
- hazards and hazard controls associated with HOTR tyre repair curing
- repair material and supplier repair recommendations
- electrical equipment operation and safety

## Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria required skills and knowledge range statement and the Assessment Guidelines for the Training Package.

### Overview of assessment

#### Critical aspects for assessment and evidence required to demonstrate competency in this unit

Critical aspects for assessment and evidence are:

- tyre injury/repair is identified and appropriate action for curing determined
- consistent application of curing standards
- safety procedures are always followed.

#### Context of and specific resources for assessment

Assessment will occur on an HOTR tyre repair facility. 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.

#### Method of assessment

Competence in this unit may be assessed:

- by observation over a range of tyre curing procedures undertaken in the workplace
- 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 appropriate practical/simulation assessment will be combined with targeted questioning to assess the required knowledge, and theoretical assessment will be combined with appropriate practical/simulation or similar assessment.

#### Guidance information for assessment

Assessment processes and techniques must be appropriate to the language, competency and safety requirements of the site and consistent with workplace systems or procedures.

## 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.

### **Tyre securing methods**

Tyre securing methods may include, but are not limited to:

- mounts and stands
- chocks
- wall or floor mounted frames, manually, electrically or hydraulically operated

### **Location of repairs**

Repairs may be undertaken to the:

- tread or crown, including steel components
- shoulder
- sidewall
- bead area
- liner
- body cords

### **Curing equipment components**

Curing equipment components may include, but are not limited to:

- heat pads
- size and shape of air bags (for a Monarch system)
- contours (for a Thermopress system)
- hydraulic equipment operation
- pneumatic equipment operation
- compressor operation

### **Packing**

Packing includes, but is not limited to:

- tread voids
- flow blocks
- vent supports

Tread voids are the space between the lugs on the tread. Packing is typically done on voids adjacent to a repair.

### **Cure cycle**

Ensure that the repair has completed its required cure cycle and ensure that the temperature has been reduced to the manufacturer's recommendations, then release pressure.

### **Standards**

Standards may include, but are not limited to:

- AS 4457.2-2008 Earth-moving machinery - Off-the-road wheels, rims and tyres - Maintenance

and repair – Tyres

- Rubber Manufacturer's Association of America (RMA)
- Supplier standards, such as technical data sheets and manuals
- internal organisational standards

## **Procedures**

Procedures may be written, verbal, computer-based or in some other form. They may include but are not limited to:

- all work instructions
- standard operating procedures
- formulas/recipes
- batch sheets
- temporary instructions
- any similar instructions provided for the smooth running of the plant
- good operating practice as may be defined by industry codes of practice

Procedures would be expected to comply with any relevant government regulations.

## **Paperwork**

Paperwork may be paper or electronic-based.

## **Appropriate action**

Appropriate action includes but is not limited to:

- determining problems needing action
- accessing and applying relevant technical and plant data
- applying appropriate problem solving techniques to determine possible fault causes
- rectifying problem using appropriate solution within area of responsibility
- following through items initiated until final resolution has occurred
- reporting problems outside area of responsibility/ability to designated person

## **Health, safety and environment (HSE)**

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

## **Unit Sector(s)**

Not applicable.

## **Custom Content Section**

Not applicable.