



Australian Government

AURKTJ111 Remove, inspect and fit earthmoving and off-the-road tyres

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Modification History

Release	Comments
1	This unit of competency was first released in AUR Automotive Retail, Service and Repair Training Package Release 9.0.

Application

This unit describes the performance outcomes required to remove, inspect and fit earthmoving and off-the-road (OTR) tyres to construction and mining vehicles. It involves removing the tyre from the rim, identifying and controlling risks, inspecting the tyre, assembling the wheel and rim, recommending required repair action, inflation, deflation, and preparing the tyre, wheel and rim assembly for use or storage.

It applies to those who fit tyres to wheel and rim assemblies of equal to or greater than 600 mm (24 inches) nominal diameter and classified as off-the-road, earthmover or industrial tyres.

Licensing/Regulatory Information

Licensing, legislative and certification requirements that apply to this unit can vary between States, Territories, and industry sectors, and must be sourced from state jurisdictions prior to applying the unit.

Pre-requisite unit(s)

No prerequisite units.

Competency field(s)

N/A

Unit sector(s)

Technical - Wheels and Tyres

Elements and Performance Criteria

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>

1. Assess and control risks	1.1 Identify hazards and control risks in the work environment according to workplace procedures 1.2 Identify and apply safety requirements to control hazardous tyre, wheel and rim assembly conditions, noting points where safety checks and controls are required 1.3 Obtain and interpret emergency procedures related to tyre inflation and be prepared for fires, accidents and emergencies
2. Prepare to remove tyre from wheel or rim	2.1 Obtain and interpret Original Equipment Manufacturer (OEM) instructions and specification, workplace procedures, safety information and applicable standards for earthmoving and OTR tyres 2.2 Obtain, interpret, clarify and confirm work requirements 2.3 Plan sequence of work, noting points where safety checks and controls are required 2.4 Select and wear personal protective clothing and equipment required for work activities 2.5 Coordinate and communicate planned activities with others at the site as per work requirements 2.6 Select and inspect tools and equipment according to OEM specification and workplace procedures 2.7 Identify tyre, wheel and rim components required to complete work activity 2.8 Clean tyre, wheel and rim assembly, and inspect visually for damage, wear, corrosion, foreign material, cracks and compatibility of components to assess potential health and safety threats according to workplace procedures
3. Deflate and remove tyre from wheel or rim	3.1 Deflate tyre according to OEM specification and workplace procedures 3.2 Verify appropriate deflation of tyre in line with workplace procedures, OEM requirements and Australian standards 3.3 Apply workplace procedures for the safe removal and purging of hazardous fill substances, tyre additive and nitrogen where required 3.4 Remove tyre according to workplace procedures and without causing injury or component damage

4. Inspect tyre, wheel or rim and recommend repair and replacement actions for unserviceable components	4.1 Clean and visually inspect tyre, wheel or rim for serviceability and compatibility for application according to workplace procedures, OEM specification and Australian standards 4.2 Record and report inspection findings according to workplace procedures 4.3 Document recommended repair and replacement actions and report to relevant personnel according to workplace procedures
5. Fit tyre to wheel or rim	5.1 Access and interpret workplace procedures and OEM specification for fitting tyres 5.2 Assess need for tyre additive and add where required 5.3 Fit tyre according to workplace procedures, OEM specification and Australian Standards 5.4 Perform post-fit inspections of tyre, wheel and rim assembly according to workplace procedures to confirm correct assembly, component compatibility, serviceability, and correct seating of components prior to inflation
6. Inflate tyre	6.1 Identify and apply tyre inflation safety procedures 6.2 Assess need for nitrogen and add where required 6.3 Inflate tyre for transport, storage or use according to workplace procedures and OEM specification 6.4 Monitor tyre, wheel and rim assembly during inflation according to workplace procedures 6.5 Verify inflation pressure according to workplace procedures and OEM specification
7. Complete work processes	7.1 Perform final inspection to ensure work meets workplace requirements and OEM requirements 7.2 Prepare tyre, wheel and rim assembly for use or storage according to workplace procedures 7.3 Inspect and store tools and equipment according to workplace procedures, tagging or reporting where necessary 7.4 Complete workplace documentation according to workplace procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance are not explicit in the performance criteria.

Skills	Description
Reading	- reads and interprets: - written information in workplace procedures, OEM instructions, and Work Health and Safety (WHS) requirements relating to removing, inspecting and fitting earthmoving and OTR tyres - charts, lists, drawings and other applicable documents.
Writing	- documents inspection findings and recommend repair and replacement actions - engages with workplace documents.
Oral communication	- asks questions to clarify inspection observations, instructions and procedures - reports inspection results - briefs team and customers
Numeracy	- reads and interprets metric and imperial systems of measurement - reads and interprets mathematical information, including charts and drawings - uses specialist tools and measuring equipment, including: - gauges and pressure regulators - pressure testing tools.
Digital literacy	uses workplace computerised technology and tools relating to the removal and refitting of earthmoving and OTR tyres.
Planning and organising	- plans and prioritises own work to achieve required outcomes - plans appropriate risk controls to minimise risks before, during and after the tyre fitting process.
Self-management	- selects and uses appropriate equipment, materials, processes and procedures - recognises own limitations when selecting and using tools and equipment and seek timely advice.

Problem-solving	• seeks information and assistance as required to solve problems • identifies tyre, wheel and rim assembly condition and performance • matches tyres to wheel and rim assemblies and vehicle type.
Teamwork	• works alongside other team members in a work environment, including those fulfilling other roles, such as riggers, dogmen, mechanics, tyre fitters, drivers and site operators.

Range of conditions

This section specifies 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.

Safety requirements may include:	• those prescribed under applicable standards, Work Health and Safety (WHS) Acts and regulations, and workplace policies and procedures • isolation procedures • inflation and deflation procedures • hazard control • manual-handling techniques • personal protective clothing and equipment • using tools and equipment • working with hazardous substances, including: • nitrogen gas • chemicals • hydraulic pressure • compressed air • polyurethane resin (PUR) tyre fill • tyre additive • calcium chloride
Hazardous conditions may include:	• using grinders • hard, soft or uneven ground conditions • line of fire during inflation of tyre • rupture of wheel and rim assembly

	• noise • vehicles/pedestrians/machinery/other personnel within the workplace • handling of tyres, rim components and assemblies
Hazardous tyre and wheel or rim conditions may include:	• damage • wear • corrosion • foreign material • cracks • heat damage, including pyrolysis • compatibility of rim components • hazardous fill substances, including nitrogen gas, and polyurethane resin (PUR) • under- or over-inflated tyre

Unit Mapping Information

Current Code and Title	Previous Code and Title	Comments	Equivalence
AURKTJ111 Remove, inspect and fit earthmoving and off-the-road tyres	AURKTJ011 Remove, inspect and fit earthmoving and off-the-road tyres	Updates made to Application, Elements, Performance Criteria, Range of Conditions, Performance Evidence, Knowledge Evidence, and Assessment Conditions	Equivalent

Assessment Requirements for AURKTJ111 Remove, inspect and fit earthmoving and off-the-road tyres

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Performance Evidence

The candidate must demonstrate they can perform the following according to the standards defined in the elements, performance criteria and foundation skills of this unit.

The candidate must demonstrate removing, inspecting, and refitting industrial earthmoving and OTR tyres on three of the following wheel and rim assemblies:

- divided wheel assembly
- three-piece rim assembly
- four-piece rim assembly
- five-piece rim assembly
- six-piece rim assembly
- double gutter rim assembly

The candidate must demonstrate they can perform the work using one of the following earthmoving and OTR tyre handlers at least once:

- vehicle loading crane fitted with a tyre handler attachment
- forklift-mounted tyre handler
- loader-mounted tyre handler

In undertaking the above, the candidate must:

- follow safe working procedures
- locate and interpret required documentation, policies and procedures
- mitigate site and task hazards, including two of the following hazardous substances:
 - chemicals
 - hydraulic pressure
 - compressed air
 - nitrogen gas
 - polyurethane resin (PUR) tyre fill

- tyre additive
- complete workplace documentation, including:
 - risk assessments
 - WHS documentation
 - tyre change documentation.
- identify and control hazardous conditions in tyre, wheel and rim assemblies, including:
 - compatibility of components
 - corrosion
 - cracks
 - damage
 - foreign material
 - hazardous fill substances
 - heat damage, including pyrolysis
 - mechanical release of stored energy
 - wear
- deflate tyre and remove from wheel or rim without causing injury or component damage
- remove tyre from the wheel and rim assembly in accordance with workplace procedures
- clean and inspect tyre, wheel or rim assembly for serviceability
- inspect tyre, wheel or rim components and fasteners for cleanliness, damage, wear, corrosion, foreign material and cracks
- identify rim and component profile and matching requirements
- fit tyre to wheel or rim and conduct post-fit inspection
- inflate tyre, monitoring tyre, and wheel or rim assembly throughout
- retention/retorque the wheel assembly
- undertake post-work inspection and complete work processes

The above work must be performed on tyres fitted to wheel and rim assemblies of equal to or greater than 600 mm (24 inches) nominal diameter and classified as OTR, earthmover or industrial tyres.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- methods to locate and interpret information required to remove, inspect and fit earthmoving and OTR tyres, including:
 - OEM specification
 - applicable standards
 - workplace policies and procedures
 - tyre placards and markings
- applicable standards, including Australian standards relevant to removing, inspecting and fitting earthmoving and OTR tyres, wheels and rim assemblies:
 - AS 4457.1 Earth-moving machinery - Off-the-road wheels, rims and tyres - Maintenance and repair Part 1: Wheel assemblies and rim assemblies
 - AS 4457.2 Earth-moving machinery - Off-the-road wheels, rims and tyres - Maintenance and repair Part 2: Tyres
- WHS requirements, including statutory regulations, codes and standards relevant to removing, inspecting and fitting earthmoving and OTR tyres, including procedures for:
 - deflating and inflating tyres
 - hot and cold inflation tyre pressure
 - gauge pressure
 - overinflation and underinflation
 - risks and hazards associated with working with stored energy, including:
 - explosive or forceful separation of tyre, wheel or rim components
 - noise
 - loose or improperly secured wheel and rim assemblies
 - mechanical or uncontrolled release of stored energy, including
 - hydraulic pressure
 - pneumatic pressure
 - tyre ruptures or bursts
 - zipper failure
 - projectiles, flying debris or components from wheel and rim assemblies
 - wheel and rim disassembly
 - establishing exclusion zones
 - manual handling
 - overheating and heat damage to the tyre, including pyrolysis
 - using a Mechanical Interference Design (MID)
 - using a Mechanical Retention Design (MRD)

- wearing the correct personal protective clothing and equipment (PPE)
- workplace procedures required for removing, inspecting and fitting earthmoving and OTR tyres, including:
 - documentation procedures
 - establishing serviceability of tools and equipment
 - housekeeping procedures, including:
 - disposal of excess materials and scrap tyres
 - examination of tools and equipment
 - identification, tagging and isolation of faulty equipment
 - storage of equipment, tyres and wheel assemblies
 - hazard identification and risk control methods, including:
 - ballast identification, types and application
 - crack testing for rim components
 - crushing or trapping
 - falling or dropped objects
 - inflation and deflation, including pre- and post-checks
 - moving mobile plant
 - operating indoors, outdoors, underground, and at nighttime
 - overhead obstructions
 - projectiles, flying debris or components
 - rupturing wheel components
 - serviceability requirements relating to tyres, wheels and rims
 - suitability of the wheel or rim to the tyre
 - types and applications of tyre additives
 - tyre fill adding/removal methods
 - tyre fill identification, types and application
 - working on unstable ground
 - removal procedures of earthmoving and OTR wheel and rim assemblies, including:
 - pre-removal inspections
 - removal of wheel fasteners and retaining components
 - removal procedures for different wheel and rim assembly types, including:
 - one-piece wheels and rims

- rim- or hub-mounted split rims
 - multipiece lock rings assemblies
 - divided wheel assemblies
 - identification of wheel and rim components and matching criteria
- fitting and refitting procedures of earthmoving and OTR tyres, including:
 - checking correct assembly
 - identifying compatible and serviceable components
 - OEM rim and component tolerance checks
 - methods for fitting multipiece and divided wheel assemblies
 - post-fitting inspection
- earthmoving and OTR vehicle tyres, wheels and rim assembly information including:
 - types and classifications of earthmoving and OTR tyres, rims and wheel assemblies
 - types of retaining systems, tools and equipment for removing and fitting earthmoving and OTR wheel and rim assemblies
 - workplace tyre management systems, including:
 - paper-based tyre management systems
 - digital tyre management systems
 - identifying tyre pressure monitoring systems (TPMS) in assemblies

Assessment Conditions

Competency is to be assessed in the workplace or a simulated environment that accurately reflects performance in a real workplace setting.

Assessment must include direct observation of tasks.

Where assessment of competency includes third-party evidence, individuals must provide evidence that links them to the earthmoving and OTR tyres that they have worked on, e.g. repair orders.

Assessors must verify performance evidence through questioning on skills and knowledge to ensure correct interpretation and application.

The following resources must be made available:

- a workplace or simulated workplace that reflects workplace conditions - where simulation is used, it must reflect real working conditions by modelling industry operating conditions and contingencies, as well as using suitable facilities, equipment and resources
- repair orders and workplace instructions relating to removing, inspecting and fitting earthmoving and OTR tyres, wheels and rim assemblies

- WHS requirements, including statutory regulations, codes and standards relevant to removing, inspecting and fitting earthmoving and OTR tyres
- OEM specification and procedures or equivalent documentation to remove, inspect and fit earthmoving and OTR tyres
- applicable standards and guidance notes, including Australian standards relevant to removing, inspecting and fitting earthmoving and OTR tyres, wheels and rim assemblies:
 - AS 4457.1 Earth-moving machinery - Off-the-road wheels, rims and tyres - Maintenance and repair Part 1: Wheel assemblies and rim assemblies
 - AS 4457.2 Earth-moving machinery - Off-the-road wheels, rims and tyres - Maintenance and repair Part 2: Tyres
- workplace procedures relevant to removing, inspecting and fitting earthmoving and OTR tyres
- earthmoving and OTR tyre handling equipment, including one of the following:
 - vehicle loading crane fitted with a tyre handler attachment
 - forklift-mounted tyre handler
 - loader-mounted tyre handler
- earthmoving and OTR tyres, wheels and rim assemblies of equal to or greater than 600mm (24 inches) nominal diameter and classified as off-the-road or earthmover tyres
- earthmoving and OTR tyres, wheels and rim assembly components:
 - anti-corrosion additives
 - bead seat band
 - bolts
 - cleats
 - diffuser discs
 - flanges
 - lockrings
 - nuts
 - O-ring
 - rim/wheelbase
 - TPMS sensors
 - valve componentry
- tyre, wheel and rim assembly OEM specification and workplace instructions
- tools and equipment required for removing, inspecting and fitting earthmoving and OTR tyres:

- air compressors
- bead breakers
- gauges
- hand tools
- hydraulic tools
- inflation and deflation tools and pressure gauges
- inspection stands
- lock ring catcher
- mufflers
- pneumatic tools
- power tools
- rim and wheel assembly stands
- soft face hammers
- tyre handling equipment
- tyre levers
- wire brushes
- personal protective clothing and equipment required for the activities described in the performance evidence

The assessment must:

- be demonstrated in the workplace or in a simulated environment that reflects workplace conditions
- be conducted in a safe environment
- be assessed in compliance with relevant policies, procedures, processes and operational manuals directly related to the industry sector for which it is being assessed
- confirm consistent performance can be applied in a range of relevant workplace circumstances

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Link

Companion volumes, including implementation guides, are found on the national training register - <https://training.gov.au/training/details/AUR>.