



Australian Government

Department of Education, Employment and Workplace Relations

AURM441868B Select and prepare tyres and wheels for motorsport applications

Release: 1

AURM441868B Select and prepare tyres and wheels for motorsport applications

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit of competency describes the skills and knowledge required to select and prepare tyres and wheels for motorsport applications to optimise handling performance. It requires the technical ability to select and prepare tyres and wheels for use on a competition vehicle, fit tyre and wheel assemblies, prepare pre-race tyre and wheels, document post-race tyre and wheel data and adjust, as required. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.
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Application of the Unit

Application of the unit	This unit applies to individuals who select and prepare tyres and wheels used in motorsports to optimise handling performance. This includes mounting wheels, conducting pre-race preparation, and post-race maintenance stock control and storage procedures.
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Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Prerequisite units	

Employability Skills Information

Employability skills	This unit contains employability skills.
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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.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Determine and select competition vehicle tyres and wheels	1.1. Use controlling body and category rules, supplementary regulations, component supplier specifications and team instructions to specify task requirements, including design, quality, material, equipment and quantities 1.2. Observe occupational health and safety (OHS) requirements, including regulatory requirements, equipment and system isolation requirements, and personal protection needs, throughout the work 1.3. Use regulations and specifications/tolerances to identify a competitive advantage 1.4. Check specifications for required operating conditions and seek clarification of specifications, where required 1.5. Formulate tyre and wheel requirements according to known factors 1.6. Select tyre and wheel assemblies for application against requirements and document and report to appropriate persons
2. Prepare work area and equipment	2.1. Check tooling and equipment for safe and effective operation 2.2. Clean and lay out work area for job requirements 2.3. Report problems with the work area or the operation of equipment to appropriate persons
3. Mount tyre and wheel assembly to vehicle	3.1. Clean or treat mounting surfaces and threaded components and check for damage 3.2. Select tyre and wheel assemblies from stock according to markings (i.e. scrutineers/category officials or team markings) and check against criteria for an event 3.3. Inspect tyre and wheel assemblies for serviceability 3.4. Fit tyre and wheel assemblies using mounting sequence and techniques 3.5. Tension fasteners to team/component supplier specifications and engage fastener locking device, where fitted 3.6. Check during and after installation to ensure accurate and complete fitting 3.7. Report problems with tyre and wheel assemblies to appropriate persons
4. Conduct pre-race tyre and wheel preparation	4.1. Obtain recommended start/cold pressures and optimum operating/hot pressures 4.2. Set tyre inflation pressures to specifications

ELEMENT	PERFORMANCE CRITERIA
	4.3. Measure and document baseline tyre temperature, ambient and traction surface temperatures 4.4. Buff tyres, if specified 4.5. Fit and turn on tyre warmers, if specified (and if allowed in category rules)

ELEMENT	PERFORMANCE CRITERIA
5. Conduct post-race tyre and wheel maintenance	5.1. Check tyre pressures and temperatures at specified times and document data 5.2. Read tyre contact surface for handling and wear indications and document data 5.3. Question driver/rider for assessment of handling characteristics and document data 5.4. Source additional data, as required, and identify changes (if any) required to tyres and wheels prior to next race 5.5. Clean tyre contact surfaces, as required 5.6. Change tyres to different compound or pattern, as required 5.7. Change tyre pressures, as required 5.8. Tag or mark removed tyres for data audit trail
6. Clean up and complete documentation	6.1. Pack and store tyres 6.2. Assess tyre and wheel stock inventory and document and report to appropriate persons 6.3. Maintain tooling and return to storage 6.4. Complete team/component supplier documentation

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

Required skills include:

- technical skills to the level required to use workplace technology related to selecting and preparing tyres and wheels for motorsport applications, including tooling, equipment, calculators and measuring devices
- communication skills to the level required to communicate ideas and information to enable clarification of requirements, coordination of work with supervisors and other workers, and to report work outcomes and problems
- literacy skills to the level required to collect, organise and understand information related to selecting and preparing tyres and wheels for motorsport applications, team requirements, manufacturer/component supplier specifications and safety procedures
- numeracy skills to the level required to use mathematical ideas and techniques to correctly complete measurements and calculations required during the selection and preparation of tyres and wheels for motorsport applications

REQUIRED SKILLS AND KNOWLEDGE

- problem-solving skills to the level required to use pre-checking and inspection techniques to anticipate assembly problems in order to work efficiently and effectively
- team skills to the level required to work with others to foster the team by recognising dependencies and using cooperative approaches to optimise workflow and productivity
- planning skills to the level required to plan and organise activities, including the preparation and layout of the worksite, and the coordination of equipment, systems and materials to avoid backtracking, workflow interruptions or wastage

Required knowledge

Required knowledge includes:

- controlling body rules, category rules and supplementary regulations, manufacturer/component supplier specifications (e.g. wheel size, application and pressures both cold and hot) and team requirements/job specifications
- wheel and tyre types, manufacturer/component supplier markings, function, application and limitations, including specifications, handling characteristics and manufacturer/component supplier recommendation for use
- tyre and wheel serviceability inspection techniques
- reading tyres for handling and wear indications
- driver/rider debriefing
- tyre temperature testing
- tyre measurement, including stagger calculations
- tyre buffing, cleaning and warming
- tyre and wheel storage methods
- markings by scrutineers/category officials or team markings
- record keeping techniques
- procedures for reporting equipment faults and component defects
- OHS policies and procedures
- applicable commonwealth, state or territory legislation, regulations, standards and codes of practice, including OHS, personal safety and environment, relevant to selecting and preparing tyres

Evidence Guide

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

Assessors must be satisfied that the candidate can competently and consistently:

- interpret and apply team requirements, controlling body and category rules and supplementary regulations
- correctly apply and use safety equipment and personal protective equipment
- follow task instructions, operating procedures and inspection processes to:
 - minimise the risk of injury to self or others
 - prevent damage to competition vehicle or equipment
 - achieve required outcomes within team time and quality standards
- correctly prepare and fit tyres and wheels to a minimum of two (2) different vehicles in differing situations
- comply with tyre and wheel manufacturer/component supplier recommendations for use
- work effectively with others
- modify activities to cater for variations in workplace context and environment.

Context of, and specific resources for assessment

- The application of competency is to be assessed in the workplace or a simulated environment that reflects as far as possible the actual working environment.
- Assessment is to occur using standard and authorised work practices, safety requirements and environmental constraints.
- Assessment is to comply with relevant regulatory requirements, including specified Australian standards.
- Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.
- The following resources should be made available:
 - access to competition vehicles
 - associated assembly tooling
 - related computing, operational and inventory support

EVIDENCE GUIDE

systems

- work areas
- material and equipment
- information on work specifications
- customer requirements
- organisational procedures
- safety procedures and regulations
- quality standards.

EVIDENCE GUIDE	
Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of this Training Package. • Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of Required Skills and Knowledge. • Assessment methods must be by direct observation of tasks and include questioning on Required Skills and Knowledge to ensure its correct interpretation and application. • Assessment may be applied under project-related conditions (real or simulated) and require evidence of process. • Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • Competence in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Guidance information for assessment	Assessment processes and techniques must be culturally sensitive and appropriate to the language and literacy capacity of the candidate and the work being performed.

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. Bold italicised wording, if used in the performance criteria, is detailed below. 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) may also be included.	
Inspection for serviceability	Inspection for serviceability may include: • checking wheel condition for damage or fatigue • valve body/pressure relief valves • ensuring inner surface of wheel is free from contaminants (e.g. oil/grease, water and dirt/gravel)

RANGE STATEMENT	
	checking tyre condition for signs of damage, excessive wear and flat spots

RANGE STATEMENT	
Competitive advantage	Competitive advantage may include: • technical advantage • psychological advantage • promotional advantage
OHS requirements	OHS requirements are to be in accordance with applicable commonwealth, state or territory legislation and regulations, and organisational safety policies and procedures, and may include: • personal protective equipment and clothing, including closed-in shoes, long trousers, handling gloves and other equipment • safety equipment • first aid equipment • hazard and risk control • elimination of hazardous materials and substances • manual handling, including shifting, lifting and carrying • emergency procedures • team insurance requirements • material safety management systems • controlling body requirements • manufacturer/component supplier specifications • local safe operating procedures
Legislative requirements	Legislative requirements are to be in accordance with applicable commonwealth, state or territory legislation, regulations, certification requirements and codes of practice, and may include: • award and enterprise agreements • industrial relations • Australian standards • Australian Design Rules • confidentiality and privacy • OHS • the environment • equal opportunity • anti-discrimination • duty of care • health regulations

RANGE STATEMENT	
Tooling and equipment	Tooling and equipment may include: • pit lane/service area specified tooling • lifting devices • air tooling • torque wrenches • tyre hardness test instruments • air pressure gauges • tyre buffers and cleaners • tyre heaters • pyrometers • hand tooling
Information and procedures	Information and procedures may include: • controlling body rules, category rules and supplementary regulations • event scheduling and location details • team procedures and standards related to: • selecting and preparing tyres and wheels for motorsport applications • reporting and communication • use of tooling and equipment • emergency service contacts and team persons emergency contacts • team emergency and event procedures for accidents or injury • work instructions, including worksheets, material safety data sheets (MSDS), assembly procedures, plans, drawings, designs and checklists • manufacturer/component supplier specifications and application procedures for test equipment and material • Australian Design Rules (where applicable) • safety body publications • environmental, hazardous chemicals and dangerous goods legislation and local requirements relating to the disposal and use of fuels, lubricants, coolants and cleaning agents

Unit Sector(s)

Unit sector	Motorsport
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Co-requisite units

Co-requisite units		

Competency field

Competency field	
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