



Australian Government

AURM441868A Select and prepare tyres and wheels for motorsport applications

Release: 1

Modification History

Not Available

SELECT AND PREPARE TYRES AND WHEELS FOR MOTORSPORT APPLICATIONS

Unit Descriptor This unit covers the competence to select and prepare tyres and wheels for motorsport applications to optimise handling performance. This includes consideration of tyre life, traction surface conditions and types.

Unit Sector No sector assigned

ELEMENT	PERFORMANCE CRITERIA
1. Determine and select competition vehicle tyres and wheels	1.1 Controlling body and category rules, supplementary regulations, component supplier specifications and team instructions are used to develop task specifications including design, quality, material, equipment and quantities 1.2 OH&S requirements, including regulatory requirements, equipment and system isolation requirements and personal protection needs are observed throughout the work 1.3 Regulations and specifications/tolerances are examined for competitive advantage 1.4 Specifications are checked for required operating conditions and clarification of specifications is sought where required 1.5 Tyre and wheel requirements are calculated/determined according to known factors 1.6 Tyre and wheel assemblies are selected for application against requirements and are documented and reported to appropriate persons
2. Prepare work area and equipment	2.1 Tooling and equipment are identified and checked for safe and effective operation 2.2 Work area is cleaned and laid out for job requirements 2.3 Problems with the work area or the operation of equipment are identified and reported to appropriate persons
3. Mount tyre and	3.1 Mounting surfaces and threaded components are cleaned or

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| wheel assembly to vehicle | treated and checked for damage |
| | 3.2 Tyre and wheel assemblies are selected from stock according to markings (i.e. scrutineers/category officials or team markings) and checked against criteria for an event |
| | 3.3 Tyre and wheel assemblies are inspected for serviceability |
| | 3.4 Tyre and wheel assemblies are fitted using mounting sequence and techniques |
| | 3.5 Fasteners tensioned to team/component supplier specifications and fastener locking device engaged where fitted |
| | 3.6 During and after installation, checks are made to ensure accurate and complete fitting |
| | 3.7 Problems with tyre and wheel assemblies are identified and reported to appropriate persons |
| 4. Conduct pre-race tyre and wheel preparation | 4.1 Recommended start/cold pressures and optimum operating/hot pressures are obtained from tyre manufacturer |
| | 4.2 Tyre inflation pressures are set to specifications |
| | 4.3 Baseline tyre temperature, ambient and traction surface temperatures are measured and documented |
| | 4.4 Tyres are buffed if specified |
| | 4.5 Tyre warmers are fitted and turned on if specified (and if allowed in category rules) |
| 5. Conduct post-race tyre and wheel maintenance | 5.1 Tyre pressures and temperatures are checked at specified times and data documented |
| | 5.2 Tyre contact surface is read for handling and wear indications and data documented |
| | 5.3 Driver/rider is questioned for assessment of handling characteristics and data documented |
| | 5.4 Additional data is sourced as required and determination made of changes (if any) required to tyres and wheels prior to next race |
| | 5.5 Tyre contact surfaces are cleaned as determined |
| | 5.6 Tyres are changed to different compound or pattern as determined |
| | 5.7 Tyre pressures are changed as determined |
| | 5.8 Removed tyres are tagged or marked for data audit trail |
| 6. Clean up and complete documentation | 6.1 Tyres are packed and stored |
| | 6.2 Tyre and wheel stock inventory is assessed, documented and reported to appropriate persons |
| | 6.3 Tooling is maintained and returned to storage |

6.4 Team/component supplier documentation is completed

Required Skills and Knowledge

This describes the essential skills and knowledge and their level, required for this unit.

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.

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| Unit scope | <ul style="list-style-type: none">• Work involves the selection and preparation of tyres and wheels used in motorsport applications to optimise handling performance including mounting wheels, conducting pre-race preparation and post-race maintenance and stock control and storage procedures• For the purpose of this unit of competence, a race is defined as each of the items in a program such as a heat, final, test run, time trial, promotional ride, etc. as distinct from a race meeting or event• Inspection for serviceability includes checking wheel condition (damage or fatigue), valve body/pressure relief valves, ensuring inner surface of wheel is free from contaminants (e.g. oil/grease, water, dirt/gravel) and checking tyre condition for signs of damage, excessive wear, flat spots, etc.• Competitive advantage may include technical advantage, psychological advantage or promotional advantage |
| Unit context | <ul style="list-style-type: none">• OH&S requirements include State/Territory and Commonwealth legislation, material safety management systems, controlling body requirements, manufacturer specifications and local safe operating procedures• Work is carried out in accordance with legislative obligations (including environmental requirements), health regulations, manual handling procedures and team insurance requirements• Work requires individuals to demonstrate discretion, judgement and problem-solving skills in the set up and operation of equipment• Competence may be demonstrated in workplaces involved in the development and maintenance of competition vehicles or in a workplace simulated facility |

Tooling and equipment	• Tooling and equipment may include, but are not limited to, 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 and hand tooling
Personal protective equipment	• Personal protective equipment is to include that prescribed under legislation, regulations and team policies and practices
Information and procedures	• Controlling body rules, category rules and supplementary regulations • Team procedures relating to selecting and preparing tyres and wheels for motorsport applications • Task instructions, including worksheets, checklists and plans • Team procedures relating to reporting and communication • Team procedures relating to the use of tooling and equipment • Manufacturer/component supplier specifications and application procedures for tyres and wheels • Australian Design Rules (where applicable)

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.

Critical aspects of evidence	• 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 select and prepare tyres and wheels for a competition
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vehicle on a minimum of two (2) different vehicles in situations involving:

- a variety of weather conditions, track conditions and driver/rider requirements
- Compliance 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

Underpinning knowledge

- 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
- OH&S policies and procedures

Specific key competencies, underpinning and employability skills required to achieve the performance criteria

These include a number of processes that are learned throughout work and life, which are required in most jobs. Some of these are covered by the national key competencies,

although others may be added. The details below highlight how these competencies are to be applied in the attainment of this unit.

Application of the key competencies in this unit are to satisfy the nominated level in which:

Level 1 - relates to working effectively within set conditions and

processes;

Level 2 - relates to the management or facilitation of conditions or processes; and

Level 3 - relates to the design, development and evaluation of conditions or process.

How will the candidate apply the following key competency in this unit? The candidate will need to:

Collect, analyse and organise information

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.

(Level 2)

Communicate ideas and information

Communicate ideas and information to enable clarification of requirements, coordination of work with supervisors and other workers and the reporting of work outcomes and problems.

(Level 2)

Plan and organise activities

Plan and organise activities including the preparation and layout of the worksite and the coordination of equipment, systems and material to avoid backtracking, workflow interruptions or wastage.

(Level 2)

Work with others and in a team

Work with others to foster the team by recognising dependencies and using cooperative approaches to optimise workflow and productivity.

(Level 2)

Use mathematical ideas and techniques

Use mathematical ideas and techniques to correctly complete measurements and calculations required during the selection and preparation of tyres and wheels for motorsport applications.

(Level 2)

Solve problems	Use pre-checking and inspection techniques to anticipate assembly problems, in order to work efficiently and effectively. (Level 2)
Use technology	Use workplace technology related to torquing and fastening including tooling, equipment, calculators and measuring devices. (Level 2)
Resource implications	• Access to competition vehicles and associated assembly tooling in real or simulated situations involving the application of selection and preparation techniques and the related computing, operational and inventory support systems • Access to real or simulated concepts, work areas, material, equipment and information on work specifications, customer requirements, organisational procedures, safety procedures and regulations and quality standards
Method of assessment	• Assessment methods must confirm consistency of performance over time and in a range of workplace contexts • Assessment should be by direct observation of tasks and questioning on underpinning knowledge • Assessment should be conducted over time and may be in conjunction with assessment of other units of competence
Context of assessment	• Assessment may occur on the job or in a workplace simulated facility with process equipment, material, work instructions and deadlines