



Australian Government

Assessment Requirements for AURBTJ103 Design and build bicycle wheels

Release: 1

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Modification History

Release	Comments
Release 1	This version first released with AUR Automotive Retail, Service and Repair Training Package Version 6.0

Performance Evidence

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

- design and build at least three different bicycle wheels to specification, with each wheel including the following:
 - lacing a 32 hole three-cross spoke pattern
 - disc and non-disc brake specific patterns.

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 design and build bicycle wheels, including:
 - information provided by customers and supervisors
 - manufacturer specifications and procedures or equivalent documentation
- workplace procedures required to design and build bicycle wheels, including:
 - establishing serviceability of tools and equipment
 - documentation procedures
 - housekeeping procedures, including:
 - examination of tools and equipment
 - storage of equipment
 - identification, tagging and isolation of faulty equipment
 - disposal of excess materials
 - recycling procedures
- work health and safety (WHS) requirements relating to designing and building bicycle wheels, including procedures for:
 - manually handling bicycle wheels

- identifying workplace hazards
- using tools and equipment, including personal protective equipment (PPE)
- environmental requirements, including procedures for disposing of waste materials
- job requirements for spoke patterns, wheel components and wheel materials
- key bicycle terminology relating to wheel build for different bicycle types
- key features to be considered in wheel design:
 - hubs, spoke and rim selection
 - 32 hole three-cross spoke pattern
 - disc and non-disc brake specific patterns
 - symmetrical and asymmetrical patterns
 - wheel dynamics and loading
- wheel and hub mechanical principles
- bicycle wheel components and their specifications, including:
 - steel, aluminium and composite material rims
 - high flange, low flange and integrated brake hubs
 - metal and composite hub material
 - steel, aluminium and composite spoke material
 - straight gauge, double butted and bladed spokes
 - spoke nipples
 - spoke lacing patterns
- types and use of tools and equipment used to design and build bicycle wheels
- techniques for designing and building bicycle wheels, including:
 - material used in bicycle wheels
 - selecting and checking of personal protective equipment
 - planning time efficient build sequence and post-build testing
 - lacing and tensioning spoke pattern
 - calculating spoke lengths
 - assembly, truing and tensioning of wheels
 - symmetrical and asymmetrical patterns of wheels
 - wheel dynamics and loading
 - torque measurement and adjustment of wheels
 - wheel and hub testing procedures.

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 bicycle wheels they have designed and built, e.g. build 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:

- bicycle workplace or simulated workplace
- workplace instructions detailing job requirements
- manufacturer and technical bicycle wheel specifications
- PPE required to design and build bicycle wheels
- wheel components specified in the range of conditions
- three different bicycle wheels as specified in the performance evidence requiring a complete build
- tools and equipment appropriate for designing and building bicycle wheels.

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

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b4278d82-d487-4070-a8c4-78045ec695b1>