



Australian Government

Assessment Requirements for AURBTR103 Retrofit electric drivetrain systems to bicycles

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:

- retrofit and modify three bicycles with different electric drivetrain systems in which the work must include one of each of the following types of electric drivetrains:
 - a rear wheel drive electric bicycle retrofit kit
 - a front wheel drive electric bicycle retrofit kit
 - a crank drive electric bicycle retrofit kit.

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 retrofit electric drivetrain systems to bicycles, including:
 - information provided by customer and supervisors
 - manufacturer specifications and procedures or equivalent documentation
- workplace procedures required to retrofit electric drivetrain systems to bicycles:
 - 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 retrofitting and modifying bicycles with electric drivetrain systems to include procedures for:

- working with electric battery technologies and the different risks with each chemistry
- working with system lubricants
- selecting and using personal protective equipment (PPE)
- environmental requirements, including procedures for:
 - disposal of dangerous goods and battery technology
 - handling materials and battery recycling protocols
- key requirements of Australian automotive code of practice: calibration and power output restrictions of electric and pedelec bicycles
- application, purpose and operation of retrofit electric bicycle systems and components, including:
 - wheel drive and crank drive kits
 - different battery chemistry, including:
 - lithium ion
 - lithium ion polymer
 - lithium cobalt
 - lithium manganese
 - lead acid
- procedures for identifying and repairing wiring looms
- procedures for routing cables and positioning looms
- procedures for mounting equipment, including:
 - battery packs
 - crank sets
 - brake levers
 - control units
 - wiring harnesses
 - wheel sets
- procedures for retrofitting and modifying electric bicycles, including:
 - determining original system fitted to the bicycle, including drive type and battery chemistry
 - determining retrofit and modification options, including:
 - determining required system performance output
 - appropriate retrofit kit type
 - component replacement, including battery, harness and controller
 - procedures for removing and replacing existing system components
- procedures for testing bicycle electrical drivetrain kit, including:
 - testing electrical faults with a digital multimeter
 - calibrating system controller to applicable standards
 - ensuring maximum bicycle speed is set according to standards.

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 retrofit of electric drivetrain systems to bicycles.

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, including location to test bicycle electronic drivetrain systems
- workplace instructions detailing job requirements
- manufacturer fitting instructions and specifications
- PPE required to install and adjust electric drivetrain systems
- bicycle electric drivetrain systems
- three different bicycles requiring the installation and adjustment of electric drivetrain systems
- tools and equipment appropriate for installing and adjusting electric drivetrain systems.

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>