



Australian Government

AURBTR002 Install and adjust bicycle electronic gear shifters

Release: 1

AURBTR002 Install and adjust bicycle electronic gear shifters

Modification History

Release	Comment
Release 1	New unit of competency.

Application

This unit describes the performance outcomes required to install and adjust electronic gear shifters on bicycles. It involves preparing for the work, selecting components, selecting and using specialist tools and equipment, interpreting fitting instructions, assembling components to bicycles, testing electronic gear shifters according to manufacturer instructions and specifications, and completing workplace processes and documentation.

It applies to those working in the bicycle retail, service and repair industry.

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.

Competency Field

Bicycles

Unit Sector

Technical – Electrical and Electronic

Elements and Performance Criteria

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Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold and italicised text is used, further information is detailed in the range of conditions section.

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1. Prepare to install electronic gear shifting components	1.1 Job requirements are determined from workplace instructions 1.2 Electronic gear shifter fitting instructions and specifications are sourced and interpreted 1.3 Electronic gear shifting unit is identified and selected 1.4 Hazards associated with the work are identified and risks are managed 1.5 Tools and equipment, including personal protective equipment (PPE), are selected and checked for serviceability 1.6 Work is planned and procedures are determined to minimise waste and use time efficiently
2. Install electronic gear shifting components	2.1 Electronic gear shifting components are identified and checked for damage or missing parts according to manufacturer specifications and parts lists 2.2 Replacement options and techniques are identified and confirmed 2.3 Electric cables are installed according to fitting instructions, workplace procedures, and safety and environmental requirements 2.4 Electronic front junction control boxes and battery are installed according to component manufacturer specifications 2.5 Handle bar brake levers and shifters are fitted and electric cables connected using manufacturer specialist tools 2.6 Front and rear derailleurs are fitted and electric cables connected using manufacturer specialist tools 2.7 Electric cables are secured according to manufacturer specifications and workplace procedures
3. Adjust electronic rear derailleur gear shifting components	3.1 Control device on junction box is activated to allow adjustments to be made 3.2 Chain is positioned on front and rear gear rings according to manufacturer specifications 3.3 Rear derailleur adjustment controls are operated until chain runs smoothly 3.4 Control device on junction box is returned to operational shift mode according to manufacturer specifications 3.5 Rear derailleur operation is checked to ensure it operates according to manufacturer specifications
4. Complete work	4.1 Final inspection is made to ensure work is to workplace

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processes	expectations and bicycle is presented ready for use 4.2 Work area is cleaned, waste and non-recyclable materials are disposed of, and recyclable material is collected and stored 4.3 Tools and equipment are checked, reported if faulty, and stored according to workplace procedures 4.4 Workplace documentation is processed according to workplace procedures

Foundation Skills

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

Skills	Description
Learning skills to:	locate appropriate sources of information efficiently.
Writing skills to:	legibly and accurately fill out workplace documentation, including inspection reports.
Oral communication skills to:	ask questions to clarify instructions and procedures.
Numeracy skills to:	use basic mathematical operations, including addition and subtraction, to calculate fitting measurements.
Problem solving skills to:	identify bicycle electronic gear shifting component defects and potential problems.
Technology skills to:	use specialist tools and equipment to install and adjust bicycle electronic gear shifting components.

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. Bold italicised wording, if used in the performance criteria, is detailed below.

<i>Safety and environmental requirements</i> must include:	• work health and safety (WHS) and occupational health and safety (OHS) requirements, including procedures for: • manually handling bicycles and gear shifters • identifying workplace hazards • using tools and equipment, including PPE • environmental requirements, including procedures for disposing of waste materials.
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Unit Mapping Information

No equivalent unit.

Links

Companion Volume implementation guides are found in VETNet -

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

Assessment Requirements for AURBTR002 Install and adjust bicycle electronic gear shifters

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Performance Evidence

Before competency can be determined, individuals must demonstrate they can perform the following according to the standard defined in this unit's elements, performance criteria, range of conditions and foundation skills:

- install and adjust electronic gear shifting components on two different bicycles.

Knowledge Evidence

Individuals must be able to demonstrate knowledge of:

- work health and safety (WHS) and occupational health and safety (OHS) requirements relating to installing and adjusting bicycle electronic gear shifters, including procedures for:
 - manually handling bicycles and gear shifters
 - identifying workplace hazards
 - using tools and equipment, including personal protective equipment (PPE)
- environmental requirements, including procedures for disposing of waste materials
- key bicycle terminology relating to electronic gear shifting components
- purpose and features of bicycle electronic gear shifting systems
- principles of electronic gear shifting operation
- types and use of tools and equipment used to install and adjust bicycle electronic gear shifters
- techniques and processes for installing and adjusting bicycle electronic gear shifting components, including:
 - identification of bicycle electronic gear shifter components, materials and specifications
 - fault and damage identification
 - measuring techniques
 - electronic gear shifter adjustment techniques

- electronic gear shifter testing procedures
- methods of protecting bicycles from damage when installing and adjusting bicycle electronic gear shifting components.

Assessment Conditions

Assessors must satisfy NVR/AQTF assessor requirements.

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 electronic gear shifters they have installed and adjusted, 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:

- bicycle workplace or simulated workplace, including location to test bicycle electronic gear shifters
- workplace instructions detailing job requirements
- manufacturer fitting instructions and specifications
- PPE required to install and adjust bicycle electronic gear shifting components
- bicycle electronic gear shifting components
- two different bicycles requiring the installation and adjustment of electronic gear shifting components
- tools and equipment appropriate for installing and adjusting bicycle electronic gear shifters.

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