

Title	Use and maintain specialised tools for switchboard assembly and demonstrate mechanical fabrication skills		
Level	4	Credits	7

Purpose	<p>This unit standard is for people engaged in the manufacture of switchboards in the electrotechnology industry.</p> <p>People credited with this unit standard are able to:</p> <ul style="list-style-type: none"> – maintain specialist tools used in switchboard manufacture – use tools safely and accurately in switchboard manufacture – fabricate mounting components – demonstrate and apply knowledge of fixings and correct installation in a switchgear assembly.
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Classification	Electrical Engineering > Electric Switchboards
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Available grade	Achieved
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Guidance Information

1 This unit standard may be used for learning and assessment on-job.

2 References

- Accident Compensation Act 2001
- AS/NZS 3000 (version as cited in the Electricity (Safety) Regulations), *Electrical installations (known as the Australian/New Zealand Wiring Rules)*
- AS/NZS61439.4:2016, *Low-voltage switchgear and controlgear assemblies – Part 4: Particular requirements for assemblies for construction sites (ACS)* available at [Standards NZ](https://standards.nz)
- Electricity Act 1992
- Electricity (Safety) Regulations 2010
- Health and Safety at Work Act 2015
- The New Zealand Electrical Codes of Practice, available at WorkSafe New Zealand, worksafe.govt.nz and all subsequent amendments and replacements.

3 Definitions

Industry practice – those practices that competent practitioners within the industry recognise as current industry best practice.

Safe and sound practice – this relates to the installation of electrical equipment and is defined in AS/NZS 3000.

4 Range

- a Candidates may refer to current legislation and Standards during assessment.
- b Demonstration of safe working practices and installation in accordance with *safe and sound practice* are essential components of assessment of this unit standard.
- c The tools that may be used to demonstrate competency include but are not limited to – hydraulic cutters, saw busbar cutters, busbar punching and bending tools, sheet metal and chassis punching tools, torque wrench, hand and hydraulic crimping tools, hydraulic crimping dies, drill press; evidence of eight tools is required.
- d All evidence presented for assessment against this unit standard must be in accordance with:
 - i legislation
 - ii policies and procedures
 - iii ethical codes
 - iv Standards – may include but are not limited to those listed in Schedule 2 of the Electricity (Safety) Regulations 2010
 - v applicable site, enterprise, and industry practice
 - vi where appropriate manufacturers' instructions, specifications, and data sheets.

Outcomes and performance criteria

Outcome 1

Maintain specialist tools used in switchboard manufacture.

Performance criteria

- 1.1 Identify all wear points and verify correct operation before use.
- 1.2 Explain and demonstrate correct storage conditions for tools.
- 1.3 Lubricate and adjust tools in accordance with operating instructions.
- 1.4 Carry out calibration tests and adjustments in accordance with site safety and quality procedures.

Outcome 2

Use tools safely and accurately in switchboard manufacture.

Performance criteria

- 2.1 Identify and demonstrate the correct operation of tools.
- 2.2 Demonstrate tool-handling techniques in accordance with the manufacturers' safe use recommendations and industry safe working practice.
- 2.3 Select tools for each task in accordance with required accuracy, speed, safety, finish, quality, and cost effectiveness.

Outcome 3

Fabricate mounting components.

Performance criteria

3.1 Fabricate mounting components in accordance with job specifications.

Outcome 4

Demonstrate and apply knowledge of fixings and correct installation in a switchgear assembly.

Performance criteria

4.1 Select, explain, and use five fixings appropriate to the job specifications.

Range may include but is not limited to – high tensile bolts, screws, star washers, belleville washers, spring washers, rivets.

4.2 Explain selection process, limitations of fixing types, and suitable alternatives.

Range requirements include but are not limited to – tensile strength, conductivity or insulation, corrosion, electrical stresses, mechanical stresses, electromagnetic suitability, dissimilar metals, price materials.

4.3 Confirm fixings are installed to manufacturer design specifications.

Replacement information	This unit standard replaced unit standard 14971.
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Planned review date	31 December 2026
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	17 November 2016	N/A
Rollover and Revision	2	25 July 2024	N/A

Consent and Moderation Requirements (CMR) reference	0003
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

Comments on this unit standard

Please contact the Waihanga Ara Rau Construction and Infrastructure Workforce Development Council qualifications@WaihangaAraRau.nz if you wish to suggest changes to the content of this unit standard.