

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; and – 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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Explanatory notes

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

Accident Compensation Act 2001;
 AS/NZS 3000:2007, *Electrical installations (known as the Australian/New Zealand Wiring Rules)*;
 AS/NZS 3439.4:2009, *Low-voltage switchgear and control gear assemblies – Particular requirements for assemblies for construction sites (ACS)*;
 Electricity Act 1992;
 Electricity (Safety) Regulations 2010;
 Health and Safety at Work Act 2015;
 The New Zealand Electrical Codes of Practice, available from [WorkSafe New Zealand](#);
 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 3000:2007.
- 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; and,
 - vi where appropriate manufacturers' instructions, specifications, and data sheets.

Outcomes and evidence requirements

Outcome 1

Maintain specialist tools used in switchboard manufacture.

Evidence requirements

- 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.

Evidence requirements

- 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.

Evidence requirements

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.

Evidence requirements

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 2021
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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

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>.

Please note

Providers must be granted consent to assess against standards (accredited) by NZQA, before they can report credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be granted consent to assess against standards by NZQA before they can register credits from assessment against unit standards.

Providers and Industry Training Organisations, which have been granted consent and which are assessing against unit standards must engage with the moderation system that applies to those standards.

Requirements for consent to assess and an outline of the moderation system that applies to this standard are outlined in the Consent and Moderation Requirements (CMR). The CMR also includes useful information about special requirements for organisations wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

Comments on this unit standard

Please contact The Skills Organisation reviewcomments@skills.org.nz if you wish to suggest changes to the content of this unit standard.