Title	**Carry out switchboard tests**		
Level	**4**	**Credits**	**9**

Purpose	This unit standard is for people engaged in the manufacture of switchboards in the electrotechnology industry. People credited with this unit standard are able to: – prepare to test switchboards; – test switchboards; and – check and set protection devices.

Classification	Electrical Engineering > Electric Switchboards

Available grade	Achieved

Explanatory notes

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

2 Achievement of this unit standard alone does not entitle trainees to legally perform prescribed electrical work without supervision. Until registered and licenced under the Electricity Act 1992, trainees are assisting, and must work under the supervision when carrying out prescribed electrical work. For non-prescribed electrical work, this statement does not apply.

3 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.

4 Definitions
CT – Current Transformers.
HV – High Voltage.
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 Competency may be demonstrated on the following test equipment, which may include but is not limited to – insulation tester, HV tester, current injection test set, ductor set, CT polarity test set;
  evidence is required of four tests – two below 800amps and two above 630amps.
- 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

Prepare to test switchboards.

Evidence requirements

1.1 Select the required safety and test equipment, and justify selection of equipment.

Range safety equipment may include but is not limited to – safety ropes and signs, safety clothing, documentation, isolation tags.

1.2 Identify and isolate components that may be damaged by the testing process.

1.3 Demonstrate safety procedures and practices, and evaluate the effectiveness and/or consequences of these procedures and practices.

1.4 Provide a risk assessment plan or self-assessment plan for testing electric switchboards.

1.5 Verify calibration of testing devices are current and correct operation with reference to test equipment records and/or manufacturers' instructions.

Outcome 2

Test switchboards.

Evidence requirements

2.1 Carry out switchboard tests.

Range tests may include but are not limited to – current injection, functional, high voltage, insulation, visual, mechanical interlock.

2.2 Validate and verify the test method and documentation for all board components and circuits.

2.3 Document test results and adjustments.

Outcome 3

Check and set protection devices.

Range may include but is not limited to – circuit breakers, protection relays, overloads.

Evidence requirements

3.1 Verify protection device trip settings against specifications.

3.2 Verify mechanical operations and interlocking of protection devices.

Replacement information	This unit standard replaced unit standard 24608 and unit standard 24609.

Planned review date	31 December 2021

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

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.