

Title	Apply fundamental techniques for identifying and locating faults in electrical fittings or systems		
Level	3	Credits	4

Purpose	<p>This unit standard covers the basics of logical and systematic fault finding techniques for electrical fittings or systems.</p> <p>People credited with this unit standard are able to:</p> <ul style="list-style-type: none"> – describe fundamental techniques to identify the location and cause of faults in electrical fittings or systems; and – apply five fundamental techniques to identify the location and cause of faults in electrical fittings or systems.
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Classification	Electrical Engineering > Core Electrical
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Available grade	Achieved
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Explanatory notes

- 1 This unit standard has been developed for learning and assessment on-job or off-job with realistic simulations.
- 2 This unit standard and unit standards 15848, 29420, 29421, 29422, 29443, 29444, 29481, and 29483 meet the assessment requirements of ERAC CEPC 54.
- 3 Definitions

CEPC – Critical Essential Performance Capability.

Electrotechnology products or systems – may include but are not limited to – for example, a computer system, programmable logic controller system (PLC) for a single process, or professional radio receiver; or heavy electrical products, for example, factory generation system, components for national grid, industrial electric motor and controller, or equivalent.

EPC – Essential Performance Capability.

ERAC – Electrical Regulatory Authorities Council.

EWRB – Electrical Workers Registration Board.

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

Safe and sound practice – as it relates to the installation of electrical equipment is defined in AS/NZS 3000:2007, *Electrical Installations (known as the Australian/New Zealand Wiring Rules)*.
- 4 Range
 - a Faults may be at the level of electronic components, printed circuit boards, cards, wiring, electromechanical components, electromagnetic components, or other

- units or elements within larger systems such as dwellings, offices, factories, electricity supply facilities, or telecommunications systems.
- b The emphasis is on diagnosis using logical analysis of symptoms, observation, and measurement, rather than by trial and error.
 - c Electrical, radiation, and workshop or laboratory safety practices are to be observed at all times.
 - d All measurements are to be expressed in Système Internationale (SI) units and multipliers.
 - e Candidates may refer to current legislation and Standards during assessment.
 - f Demonstration of safe working practices and installation in accordance with *safe and sound practice* are essential components of assessment of this unit standard.
 - g All activities and evidence presented for all outcomes and evidence requirements in 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

Describe fundamental techniques to identify the location and cause of faults in electrical fittings or systems.

Evidence requirements

1.1 Describe three techniques to diagnose faults in electrical fittings or systems.

Range techniques may include but are not limited to – observation, simulation, measurement, identification of function loss, comparison, previous fault data including frequency of occurrence, manufacturers' documentation and diagnostic data, built-in diagnostics.

Outcome 2

Apply three fundamental techniques to identify the location and cause of faults in electrical fittings or systems.

Range evidence of different faults on different electrical fittings or systems is required.

Evidence requirements

2.1 With the aid of manufacturers' diagnostic data and without compromising the integrity of the products or systems, locate faults and identify the causes through logical analysis of symptoms, observation, simulation, and measurement.

2.2 Explain the logic of the diagnostic technique used to find each fault.

Planned review date	31 December 2019
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	21 July 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 (CMRs). 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 at reviewcomments@skills.org.nz if you wish to suggest changes to the content of this unit standard.