Title	**Demonstrate systematic fault finding techniques in electrical appliance servicing**		
Level	**3**	**Credits**	**3**

Purpose	This unit standard covers systematic fault finding techniques applied to electrical appliances. It is intended for use in the training of electrical technicians and service persons. People credited with this unit standard are able to: – identify and verify faulty operation in electrical appliances; and – locate and diagnose faults in electrical appliances.

Classification	Electrical Engineering > Electrical Appliance Servicing

Available grade	Achieved

Prerequisites	For safety reasons, competency in this unit standard should be assessed only after competency in the following unit standards has been achieved, or equivalent knowledge and skills demonstrated: Unit 750, *Demonstrate knowledge of electrical test instruments and take measurements*; Unit 15851, *Demonstrate knowledge of electrical safety and safe working practices for electrical workers*; Unit 17799, *Demonstrate knowledge of testing for electrical safety for electrical appliance servicing - single-phase, or Unit 15852, Isolate and test low-voltage electrical subcircuits*; Unit 17802, *Replace fuses and plug-in miniature circuit breakers*; Unit 17803, *Select and connect flexible cords in single-phase plug-in and fixed wired applications*; Unit 17804, *Test single-phase electrical appliances*; Unit 17806, *Demonstrate knowledge of protection from the harmful effects of electricity*; Unit 17808, *Isolate electrical appliances from the supply*; Unit 26551, *Provide first aid for life threatening conditions*; Unit 26552, *Demonstrate knowledge of common first aid conditions and how to respond to them*.

Guidance Information

1 This unit standard has been developed for learning and assessment on-job.

2 Competency under this unit standard does not entitle the candidate to legally perform prescribed electrical work without adequate supervision until the candidate has been registered and licensed under the Electricity Act 1992.

3 References
Electricity (Safety) Regulations 2010;
Electricity Act 1992;
Health and Safety in Employment Act 1992, and associated regulations;
New Zealand Electrical Codes of Practice (Ministry of Business, Innovation and Employment, ISSN 0114-0663);
and all subsequent amendments and replacements.

4 Definitions
Current regulations and standards – refers to the requirements of the above legislation and standards, applied to the context in which the term is used.
Electrical technicians and service persons – for the purposes of this unit standard means, people who hold or who are working towards electrical registration as an Electrical Service Technician, Electrical Appliance Serviceperson (endorsed to disconnect and connect), or Electrical Appliance Serviceperson.
Industry acceptable time-frame – the length of time within which a competent person at this level could reasonably be expected to perform the task. In the appliance service industry time is a significant factor in judging competence. Assessors must therefore ensure that the time taken is representative of industry expectations for the type of servicing undertaken.

5 Range
- a Evidence of complex electrical, mechanical, or electronic module or component faults on four types of electrical appliances or power tools is required, which are relevant to the candidate's work environment.
- b Performance in relation to the outcomes of this unit standard must comply with current regulations and standards.
- c Performance of the outcomes of this unit standard is expected to be accomplished within industry acceptable time-frames (see Guidance Information note 4).
- d Performance in relation to the outcomes of this unit standard must be based on fault finding techniques, and not on trial and error replacement of parts.

Outcomes and performance criteria

Outcome 1

Identify and verify faulty operation in electrical appliances.

Performance criteria

1.1 Symptoms are identified by questioning customer or from information detailed on job card.

Range visual, sound, smell, timing of occurrences, departure from normal operation.

1.2 Symptoms are verified by direct observation.

Range visual, sound, smell, heat sensing where appropriate, checking of fault codes.

1.3 Fault codes are matched against the fault code table in the relevant service manual or service diagnostic book.

1.4 Alternative causes of the fault symptom are assessed and evaluated prior to making a decision as to the likely cause.

Range mechanical versus electrical; control circuit versus power circuit; external influences; module versus wiring and terminations; where appropriate, alternatives listed in service diagnostics book or service manual.

Outcome 2

Locate and diagnose faults in electrical appliances.

Performance criteria

2.1 Fault is located and diagnosed using logical, systematic analysis, supported by observation, measurements, and testing.

2.2 Fault is located and diagnosed using manufacturer's servicing data, service diagnostic books, or diagrams.

2.3 Fault repair is confirmed by operational testing.

This unit standard is expiring. Assessment against the standard must take place by the last date for assessment set out below.

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	28 January 2001	31 December 2013
Revision	2	3 April 2001	31 December 2013
Review	3	20 June 2006	31 December 2022
Rollover and Revision	4	20 September 2012	31 December 2022
Revision	5	15 January 2014	31 December 2022
Review	6	28 January 2021	31 December 2022

Consent and Moderation Requirements (CMR) reference	0003

This CMR can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.