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| Title | Overhaul electromagnetic switching devices | | |
| Level | 4 | Credits | 3 |

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| Purpose | <p>People credited with this unit standard are able to:</p> <ul style="list-style-type: none"> – identify and describe electromagnetic switching devices; – prepare electromagnetic switching device for overhaul; – dismantle electromagnetic switching device; – repair and replace faulty electromagnetic switching device components; and – test and re-commission electromagnetic switching device. |
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| Classification | Electrical Engineering > Electrical Installation and Maintenance |
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| Available grade | Achieved |
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Guidance Information

- 1 This unit standard has been developed for learning and assessment on-job.
- 2 Achievement of this unit standard does not by itself imply that trainees may legally perform prescribed electrical work in their own right. Until they are registered and licensed under the Electricity Act 1992, trainees are assisting, and must work under the supervision of a Supervisor of Electrical Work when carrying out prescribed electrical work. If the prescribed electrical work in question is carried out for reward the Supervisor of Electrical Work must hold a valid practising licence.
- 3 References
 Electricity Act 1992;
 Electricity (Safety) Regulations 2010;
 Health and Safety at Work Act 2015;
 AS/NZS 3000:2018, *Electrical installations (known as the Australian/New Zealand Wiring Rules)*, including Amendment 1;
 AS/NZS 3017:2007, *Electrical installations – Verification guidelines*;
 AS/NZS 3760:2010, *In-service safety inspection and testing of electrical equipment*, including Amendment 1;
 and all subsequent amendments and replacements.
- 4 Definitions
Electromagnetic switching devices – solenoids, relays, contactors, and circuit breakers that operate by electromagnetic methods.
 The term *current regulations and standards* is used in this unit standard to refer to the requirements of the above references.
 The term *safe and sound practice* relating to the installation of electrical equipment is defined in AS/NZS 3000:2018.

5 Range

Demonstration of *safe working practices*, and installation in accordance with *safe and sound practice* are essential components of assessment of this unit standard.

Outcomes and performance criteria**Outcome 1**

Identify and describe electromagnetic switching devices.

Range solenoid, relay, contactor, circuit-breaker.

Performance criteria

- 1.1 Electromagnetic switching devices are identified from pictorial or physical displays, verbal description, and an application requirement.
- 1.2 The operation of switching devices is described in terms of the electromagnetic principles they utilise.
- 1.3 Adjustable electromagnetic switching devices are identified, and the adjustment mechanism is described in terms of how it alters the operation of the device.

Outcome 2

Prepare electromagnetic switching device for overhaul.

Performance criteria

- 2.1 The reason for overhaul is established.

Range planned maintenance, failure, fault condition, re-deployment of device.
- 2.2 Overhaul procedure is planned.

Range isolation procedures, work area cleanliness, necessary tools and materials.

Outcome 3

Dismantle electromagnetic switching device.

Performance criteria

- 3.1 Position of components is marked prior to disassembly, and component clearances are recorded and compared with the manufacturer's specifications.
- 3.2 Device is dismantled in the order, and using methods, recommended by the manufacturer.

- 3.3 Components are cleaned and checked for deterioration in accordance with manufacturer's instructions.

Range terminals, contact pins, sliding parts, pole faces, contact faces, contact position, operating mechanisms, laminations, pole shading rings, fasteners, springs.

- 3.4 Test results are recorded in accordance with company requirements.

Outcome 4

Repair and replace faulty electromagnetic switching device components.

Performance criteria

- 4.1 Viability of repair or replacement of individual components is determined in terms of availability and cost of the component, the time available, manufacturer's recommendations, and supervisor's or customer's instructions.
- 4.2 Repair or replacement of components is carried out in accordance with manufacturer's recommendations.
- 4.3 Device is re-assembled in accordance with manufacturer's instructions.
- 4.4 Components are fastened without being distorted and clearances are set to manufacturer's tolerances.

Outcome 5

Test and re-commission electromagnetic switching device.

Performance criteria

- 5.1 Moving parts are checked for smooth and quiet operation.
- 5.2 Tests and certification are completed in accordance with current regulations and standards.
- 5.3 Results of all tests are compared with manufacturer's specifications.
- 5.4 Equipment is tested for operation according to manufacturer's specifications.
- 5.5 Documentation is completed in accordance with company requirements.

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 | 30 April 1997 | 31 December 2013 |
| Revision | 2 | 3 April 2001 | 31 December 2013 |
| Review | 3 | 26 May 2005 | 31 December 2027 |
| Rollover and Revision | 4 | 15 March 2012 | 31 December 2027 |
| Revision | 5 | 15 January 2014 | 31 December 2027 |
| Rollover and Revision | 6 | 28 January 2021 | 31 December 2027 |
| Review | 7 | 25 May 2023 | 31 December 2027 |

Consent and Moderation Requirements (CMR) reference

0003

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