

<b>Title</b>	<b>Install electric motors and diagnose and repair faults</b>		
<b>Level</b>	<b>4</b>	<b>Credits</b>	<b>5</b>

<b>Purpose</b>	People credited with this unit standard are able to: <ul style="list-style-type: none"> <li>– install electric motors and a variable frequency drive; and</li> <li>– diagnose and repair electric motor faults.</li> </ul>
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<b>Classification</b>	Electrical Engineering > Electrical Installation and Maintenance
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<b>Available grade</b>	Achieved
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### Guidance Information

- 1 This unit standard has been developed for learning and assessment on-job. However, it may be assessed in a classroom, workshop, or simulated work environment.
- 2 Unit standard or equivalent prior knowledge and skills recommended:
  - Unit 32626, *Demonstrate knowledge of capacitors, inductors, and electronics in the electrical trade*;
  - Unit 32629, *Demonstrate knowledge of electric motors and alternators*;
  - Unit 32641, *Demonstrate knowledge of electric motors and motor faults*.
- 3 Definitions
  - AC – alternating current.
  - Safe and sound practice* – as it relates to the installation of electrical equipment is defined in AS/NZS 3000.
  - VFD – variable frequency drive.
- 4 References
  - AS/NZS 3000 (version as cited in the Electricity (Safety) Regulations), *Electrical Installations (known as the Australian/New Zealand Wiring Rules)*;
  - AS/NZS 3760:2010, *In-service safety inspection and testing of electrical equipment*;
  - AS/NZS 4836:2011, *Safe working on or near low-voltage electrical installations and equipment*;
  - AS/NZS 5761:2011, *In-service safety inspection and testing - Second-hand equipment prior to sale*;
  - AS/NZS 5762:2011, *In-service safety inspection and testing - Repaired electrical equipment*;
  - Electricity (Safety) Regulations 2010;
  - or any current subsequent amendments and replacements.

- 5 This unit standard can be used together with other relevant unit standards, additional learning and workplace training to meet the requirements of the Electrical Workers Registration Board (EWRB) core competencies, available at <https://www.ewrb.govt.nz>.
- 6 This unit standard applies to installations and equipment rated above extra-low voltage unless specifically stated.
- 7 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 All activities and evidence presented for all outcomes and performance criteria 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.
- 8 Candidates are expected to locate and reference the relevant clauses in the Standards that relate to the electrical work being undertaken.

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## Outcomes and performance criteria

### Outcome 1

Install electric motors and a variable frequency drive.

Range one single-phase, one three-phase AC induction motor, one VFD.

### Performance criteria

1.1 Wire electric motors and VFD.

1.2 Commission electric motors and a VFD.

### Outcome 2

Diagnose and repair electric motor faults.

Range two motors.

### Performance criteria

2.1 Use fault finding procedures to diagnose electric motor faults.

Range motor faults may include but are not limited to – supply, field, armature, stator, rotor, mechanical faults.

2.2 Provide a customer report on repair or replacement options.

2.3 Repair or replace motors diagnosed with a fault.

Range must include – relevant installation tests.

<b>Planned review date</b>	31 December 2026
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#### Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	24 March 2022	N/A

<b>Consent and Moderation Requirements (CMR) reference</b>	0003
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

#### Comments on this unit standard

Please contact Waihanga Ara Rau Construction and Infrastructure Workforce Development Council at [qualifications@waihanga.nz](mailto:qualifications@waihanga.nz) if you wish to suggest changes to the content of this unit standard.