

<b>Title</b>	<b>Apply avionic maintenance practices</b>		
<b>Level</b>	<b>4</b>	<b>Credits</b>	<b>20</b>

<b>Purpose</b>	<p>This unit standard is for people pursuing unit standards in the avionic repair and avionic maintenance domains. It covers electrical knowledge and generic maintenance practices which apply to avionic repair and maintenance activities.</p> <p>People credited with this unit standard are able to: demonstrate knowledge of direct and alternating current electrical circuits; select avionic and aircraft wiring components; and apply avionic repair and maintenance skills.</p>
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<b>Classification</b>	Aeronautical Engineering > Aeronautical Engineering - Core
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<b>Available grade</b>	Achieved
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### Guidance Information

- 1 All tasks must be carried out in accordance with enterprise procedures.
- 2 Definition  
*Enterprise procedures* – procedures used by the organisation carrying out the work and applicable to the tasks being carried out. Examples are – standard operating procedures, safety procedures, equipment operating procedures, codes of practice, quality management practices and standards, procedures to comply with legislative and local body requirements.
- 3 Standard industry practices referred to are those in the aviation industry, examples being Great Britain – Civil Aviation Authority, CAP 562: *Civil Aircraft Airworthiness Information and Procedures* (CAAIP) (London: TSO) and United States – Federal Aviation Administration, Advisory Circular 43.13, *Acceptable Methods, Techniques, and Practices – Aircraft Inspection and Repair* (US Dept of Transportation).
- 4 Competencies within this unit standard will be assessed in the work environment or by the use of simulated activities off the job.
- 5 The scope of the system that this standard relates to is described in ATA iSpec 2200, and applicable chapters.

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### Outcomes and performance criteria

#### Outcome 1

Demonstrate knowledge of direct current (DC) electrical circuits.

**Performance criteria**

- 1.1 Direct current (DC) sources are described in terms of their application to avionic components and systems.
- Range electron theory, static electricity, electrical terms, generation methods, electrical cells.
- 1.2 Direct current resistive circuits are described in terms of their application to avionic components and systems.
- Range resistance and resistors, circuit operation, electrical power, variable resistors.
- 1.3 Capacitors are described in terms of their application to and use in, avionic components and systems.
- Range capacitor principles, types, operation in circuits.
- 1.4 Magnetism is explained in terms of its characteristics and application to electrical circuits and avionic equipment.
- Range properties of magnets, terrestrial magnetism, magnetic fields, electromagnetic induction.
- 1.5 Direct current rotating machines are described in terms of principles of construction and operating characteristics.
- Range motors, generators.

**Outcome 2**

Demonstrate knowledge of alternating current (AC) circuits.

**Performance criteria**

- 2.1 Alternating current single-phase circuits are described in terms of their characteristics and application to avionic systems and equipment.
- Range electrical terms, reactance, impedance, series and parallel circuits, resonance, filter circuits, calculations performed.
- 2.2 Alternating current rotating machines are described in terms of principles of construction and operating characteristics.
- Range motors, generators.
- 2.3 Three phase alternating current is described in terms of its application to aircraft electrical systems.
- Range star and delta connection, line and phase values.

2.4 Transformers are explained in terms of types and principles of operation.

Range double-wound, autotransformer, variac.

### Outcome 3

Select avionic and aircraft wiring components.

#### Performance criteria

3.1 Aircraft wiring is selected to match circuit specifications.

Range insulation type, wire gauge, conductor material, wire numbering.

3.2 Avionic components are selected to match circuit specifications.

Range semiconductors, fuses, plugs, connectors, terminals, solenoids, relays, transformers, circuit breakers, switches, resistors, capacitors, batteries, ground points; by appearance, by symbols on circuit diagrams.

### Outcome 4

Apply avionic repair and maintenance skills.

#### Performance criteria

4.1 Circuit protection devices are tested in accordance with standard industry practices.

Range circuit breakers, fuses.

4.2 Avionic components are soldered in accordance with standard industry practices.

Range cup terminals, turret terminals, axial lead components, dual-in-line packages, coaxial plugs; tooling selected.

4.3 Electrostatic discharge damage is avoided in accordance with standard industry practices.

4.4 Electrical quantities are measured in accordance with standard industry practices.

Range continuity, insulation, voltage, current, resistance, frequency; in alternating and direct current circuits.

<b>Planned review date</b>	31 December 2027
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**Status information and last date for assessment for superseded versions**

Process	Version	Date	Last Date for Assessment
Registration	1	21 May 1996	31 December 2016
Revision	2	7 August 1997	31 December 2016
Revision	3	8 May 2001	31 December 2016
Review	4	19 May 2006	31 December 2016
Revision	5	21 September 2007	31 December 2016
Review	6	19 September 2013	31 December 2021
Review	7	26 March 2020	N/A
Rollover and Revision	8	26 April 2024	N/A

**Consent and Moderation Requirements (CMR) reference**

0028

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

**Comments on this unit standard**

Please contact Ringa Hora Services Workforce Development Council [qualifications@ringahora.nz](mailto:qualifications@ringahora.nz) if you wish to suggest changes to the content of this unit standard.