

Title	Apply knowledge of aircraft electrical systems to the certification of aeronautical maintenance		
Level	6	Credits	30

Purpose	<p>This knowledge-based unit standard is one of a series intended for people certifying the release to service of aircraft or aeronautical components following maintenance or repair.</p> <p>People credited with this unit standard are able to certify the maintenance of aircraft avionics systems by applying knowledge of: electromechanical systems, power supply systems, power conversion equipment, ground and auxiliary power supplies, measuring instruments and warning indicators, power distribution, circuit controlling and protection devices, power utilisation components, and power utilisation systems to the certification of aeronautical maintenance.</p>
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Classification	Aeronautical Engineering > Aeronautical Maintenance Certification
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Available grade	Achieved
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Guidance Information

- 1 The Civil Aviation Authority of New Zealand (CAA) Aircraft Maintenance Engineer Licence – Subject 13, Electrical Systems is the national standard, and is linked to international standards.
- 2 This unit standard is aligned with the Civil Aviation Authority of New Zealand Advisory Circular AC66-2.13, Examination Syllabus for Subject 13, Electrical Systems and will be evidenced by meeting these requirements. This is available on the CAA website at <http://www.caa.govt.nz>.
- 3 *Applied knowledge* – will be in the context of aeronautical maintenance as defined by Civil Aviation Rules Part 1 as follows: ‘in relation to an aircraft or aircraft component, means all work and inspections performed to ensure the continued airworthiness of the aircraft or component, and all modifications’; will include making judgements regarding the scope, processes, and quality of maintenance for release to service certification; and will be in accordance with industry texts as defined by the candidate’s workplace or enterprise.

- 4 *Industry texts* include but are not limited to –
published aeronautical training manuals or text books;
enterprise exposition;
manufacturer publications;
government and local body legislation;
airworthiness or regulatory authority requirements.

Outcomes and performance criteria

Outcome 1

Apply knowledge of aircraft electromechanical systems to the certification of aeronautical maintenance.

Range pressurisation, air conditioning, fuel storage, fuel distribution, undercarriage, auto-braking, anti-skid, hydraulic.

Performance criteria

- 1.1 Knowledge of aircraft electromechanical systems and components is applied.
- 1.2 Knowledge of aircraft electromechanical system and component maintenance is applied.
- 1.3 Knowledge of aircraft electromechanical system and component inspection and certification is applied.

Outcome 2

Apply knowledge of aircraft power supply systems to the certification of aeronautical maintenance.

Performance criteria

- 2.1 Knowledge of aircraft battery systems is applied.
- 2.2 Knowledge of aircraft AC power generation and control is applied.
- Range frequency wild systems, constant frequency systems.
- 2.3 Knowledge of aircraft voltage regulation is applied.
- 2.4 Knowledge of aircraft electrical load sharing is applied.
- 2.5 Knowledge of aircraft air-driven generators is applied.

Outcome 3

Apply knowledge of aircraft power conversion equipment to the certification of aeronautical maintenance.

Performance criteria

- 3.1 Knowledge of aircraft electrical transformers is applied.
- Range power transformers, current transformers, auto-transformers, transformer ratings.
- 3.2 Knowledge of aircraft electrical rectifiers is applied.
- 3.3 Knowledge of aircraft electrical transformer-rectifiers is applied.
- 3.4 Knowledge of aircraft electrical inverters is applied.
- Range rotary inverter, static inverter.

Outcome 4

Apply knowledge of aircraft ground and auxiliary power supplies to the certification of aeronautical maintenance.

Performance criteria

- 4.1 Knowledge of aircraft ground power supplies is applied.
- Range AC, DC.
- 4.2 Knowledge of aircraft auxiliary power supplies is applied.

Outcome 5

Apply knowledge of aircraft measuring instruments, warning indicators and lights to the certification of aeronautical maintenance.

Performance criteria

- 5.1 Knowledge of aircraft DC meters is applied.
- 5.2 Knowledge of aircraft warning and indicating lights is applied.
- 5.3 Knowledge of aircraft magnetic indicators is applied.

Outcome 6

Apply knowledge of aircraft power distribution to the certification of aeronautical maintenance.

Performance criteria

- 6.1 Knowledge of aircraft electrical wires and cables is applied.
- 6.2 Knowledge of aircraft bonding, screening and electrical safety is applied.

6.3 Knowledge of aircraft power distribution is applied.

Outcome 7

Apply knowledge of aircraft electrical circuit controlling and protection devices to the certification of aeronautical maintenance.

Performance criteria

7.1 Knowledge of aircraft electrical circuit controlling devices is applied.

7.2 Knowledge of aircraft electrical circuit protection devices is applied.

Outcome 8

Apply knowledge of aircraft electrical power utilisation components to the certification of aeronautical maintenance.

Performance criteria

8.1 Knowledge of aircraft lighting is applied.

8.2 Knowledge of aircraft electrical load analysis is applied.

8.3 Knowledge of aircraft AC motors is applied.

8.4 Knowledge of aircraft AC actuators is applied.

Outcome 9

Apply knowledge of aircraft electrical power utilisation systems to the certification of aeronautical maintenance.

Performance criteria

9.1 Knowledge of aircraft gas turbine engine fuel control and metering systems is applied.

9.2 Knowledge of aircraft gas turbine engine air systems is applied.

9.3 Knowledge of aircraft starting and ignition systems is applied.

9.4 Knowledge of aircraft power augmentation systems is applied.

9.5 Knowledge of aircraft engine controls is applied.

9.6 Knowledge of aircraft turbo-propeller control systems is applied.

9.7 Knowledge of aircraft ice and rain protection systems is applied.

9.8 Knowledge of aircraft cabin heating systems is applied.

- 9.9 Knowledge of aircraft fire detection and extinguishing systems is applied.
- 9.10 Knowledge of aircraft smoke detection systems is applied.
- 9.11 Knowledge of aircraft flight control system components is applied.
- 9.12 Knowledge of aircraft galley and toilet systems is applied.

Planned review date	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	9 December 2010	31 December 2020
Review	2	28 September 2017	31 December 2024
Review	3	27 October 2022	N/A

Consent and Moderation Requirements (CMR) reference	0028
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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 Ringa Hora Services Workforce Development Council qualifications@ringahora.nz if you wish to suggest changes to the content of this unit standard.