Title	**Demonstrate knowledge of non-complex aircraft alternating current (AC) electrical systems**		
Level	**3**	**Credits**	**4**

Purpose	People credited with this unit standard are able to: interpret non-complex aircraft AC circuit diagrams; identify AC components and systems used in aircraft and their locations; carry out fault analysis of non-complex load circuit faults logically, based on known symptoms using aircraft electrical circuit diagrams; demonstrate knowledge of basic electronic test equipment used to check voltage and resistance readings in-circuit; and describe electrical safety and isolation.

Classification	Aeronautical Engineering > Aeronautical Engineering - Core

Available grade	Achieved

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

4 The scope of the system that this standard relates to is described in ATA iSpec 2200, chapter 24.

Outcomes and performance criteria

Outcome 1

Interpret non-complex aircraft AC circuit diagrams.

Range circuit diagrams may include but is not limited to – series, parallel, connections; using switches, lamps, ammeters, voltmeters, fuses, resistors, batteries, relays, motors, generators, capacitors, inductors, alternators, circuit breakers, battery chargers.

Performance criteria

1.1 Applications of the principles of AC load circuit components are described in terms of aircraft electrical systems and circuit diagrams.

1.2 Circuit diagram symbols are interpreted.

1.3 Operation of load circuits is explained with reference to current paths.

Outcome 2

Identify AC components and systems used in aircraft and their locations.

Range may include but is not limited to – AC generators, lighting, AC starter generators, instruments, indication, radar, communication and navigation systems.

Performance criteria

2.1 Aircraft electrical components are located using the manufacturer location diagrams.

2.2 AC systems are identified with their location described.

Outcome 3

Carry out fault analysis of non-complex load circuit faults logically, based on known symptoms using aircraft electrical circuit diagrams.

Range examples of faults – open and short circuits, high resistance, low resistance, low insulation resistance.

Performance criteria

3.1 Fault area is located using aircraft electrical circuit diagrams.

3.2 Fault area is isolated logically based on symptoms.

3.3 Test points are selected logically within bracketed fault area.

Outcome 4

Demonstrate knowledge of basic electronic test equipment used to check voltage and resistance readings in-circuit.

Range analogue and digital, voltmeter, ohmmeter, ammeter, insulation resistance, bonding tester.

Performance criteria

4.1 Electronic test equipment used to obtain accurate results is described.

4.2 Safe operation of equipment is explained.

Range explanation includes – operation procedures that avoid damage to test equipment and aircraft circuits.

Outcome 5

Describe electrical safety and isolation.

Range removal of fuses and tripping of circuit breakers, placarding of fuses and circuit breakers, batteries disconnected, ground power removed.

Performance criteria

5.1 Safe circuit configuration for power-on checks is described.

5.2 Safe circuit configuration for resistance checks and working on dangerous circuits is described.

5.3 Correct procedures for ensuring dangers are made evident to all tradesmen working on the aircraft is described.

Planned review date	31 December 2027

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	19 September 2013	31 December 2017
Review	2	17 September 2015	31 December 2017
Revision	3	21 July 2016	31 December 2021
Revision	4	28 June 2018	31 December 2021
Review	5	26 March 2020	N/A
Rollover and Revision	6	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 if you wish to suggest changes to the content of this unit standard.