

Title	Interpret and use non-complex aircraft direct current (DC) electrical load circuit diagrams to repair faults		
Level	3	Credits	4

Purpose	People credited with this unit standard are able to: interpret non-complex aircraft DC circuit diagrams; use aircraft electrical component location diagrams; carry out fault analysis of non-complex load circuit faults; use basic electronic test equipment to check circuit parameters in-circuit; ensure electrical safety and isolation; and demonstrate techniques for repair of wiring faults and post-repair testing.
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Classification	Aeronautical Engineering > Aeronautical Engineering - Core
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Available grade	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 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 DC circuit diagrams.

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

Performance criteria

- 1.1 Applications of the principles of DC load circuit components are described in terms of aircraft electrical systems and circuit diagrams.
- 1.2 Standard symbols are used.
- 1.3 Operation of load circuits is explained with reference to current paths.

Outcome 2

Use aircraft electrical component location diagrams.

Performance criteria

- 2.1 Aircraft electrical components are located using location diagrams.

Outcome 3

Carry out fault analysis of non-complex load circuit faults.

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

Use electronic test equipment to check circuit parameters in-circuit.

Range may include but is not limited to – voltmeter, ohmmeter, ammeter, insulation resistance tester, bonding tester.

Performance criteria

- 4.1 Electronic test equipment is operated to obtain accurate results.
- 4.2 Equipment is operated in such a way that damage to test equipment and aircraft circuits cannot occur.

Outcome 5

Ensure 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 is used for power-on checks.
- 5.2 Safe circuit configuration is used for resistance checks and working on dangerous circuits.
- 5.3 Procedure is used for ensuring dangers are made evident to all tradesmen working on the aircraft.

Outcome 6

Demonstrate techniques for repair of wiring faults and post-repair testing.

Range aircraft wiring, connectors, splices and terminals, soldering, testing.

Performance criteria

- 6.1 Procedures for wiring repair and fabrication is demonstrated.
- 6.2 The tests for wiring and fabrications are explained in terms of their usage.
- 6.3 Continuity and insulation resistance tests are conducted.

Planned review date	31 December 2024
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	19 September 2013	31 December 2021
Review	2	26 March 2020	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 ServiceIQ qualifications@serviceiq.org.nz if you wish to suggest changes to the content of this unit standard.