



Australian Government

**Assessment Requirements for MEA210
Inspect, test and troubleshoot basic aircraft
electrical systems and components**

Release: 2

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Modification History

Release 2. Equivalent to MEA210 Inspect, test and troubleshoot basic aircraft electrical systems and components with amended prerequisite name.

Performance Evidence

Evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria under the specified conditions of assessment, and must include:

- recognition of system and component defects/external damage, correct installation, connection of plugs, terminations, attaching hardware (including cabling/harnesses) and security in:
 - DC power generation systems, including regulation, distribution and control
 - battery installations
 - piston engine ignition and starting systems and components:
 - magnetos or coils
 - starter motors
 - ignition switches/start switches
 - ignition harnesses
 - low tension wiring
 - spark plugs
 - auxiliary starting devices
 - gas turbine engine ignition and starting systems (where applicable to the enterprise):
 - starter motors and starter/generators
 - high energy ignition units
 - control units
 - switches
 - batteries and associated mounting equipment, including related anti-vibration aids
 - motors and actuators in DC electrical systems
 - internal/external lighting systems, including controls
 - flap systems
 - landing gear systems
- applying logic processes, taking and interpreting electrical measurements, and using test equipment and appropriate wiring diagrams and manuals to isolate malfunctions in the above systems
- performing system functional tests and checks to isolate system faults and assess post-maintenance serviceability

- applying relevant WHS practices, including those relating to gas turbine engine high energy ignition units.

It is essential that system testing procedures, cleanliness requirements and safety precautions applicable to the electrical system being maintained are fully observed, understood and complied with. Ability to interpret inspection procedures and specifications (allowable limits) and apply them in practice across a range of inspection, testing and troubleshooting applications (including the timely involvement of supervisors or other trades) is critical.

Evidence of transferability of skills and knowledge related to inspection, testing and troubleshooting is essential. This is to be demonstrated through application across a range of aircraft electrical systems and components listed in the Range of Conditions.

Knowledge Evidence

Evidence required to demonstrate competency in this unit must be relevant to and satisfy all of the requirements of the elements and performance criteria and include knowledge of:

- DC circuit theory
- electrical system maintenance requirements and troubleshooting procedures
- the basic layout (block diagram level), function and operation of:
 - single generator DC power generation and distribution systems and components, including:
 - DC generators
 - alternator/rectifier generators
 - starter/generators
 - voltage regulators
 - circuit protection devices
 - bus bars
 - piston engine ignition and starting systems and components, including:
 - magnetos or coils
 - starter motors
 - ignition switches/start switches
 - ignition harnesses
 - low tension wiring
 - spark plugs
 - auxiliary starting devices
 - gas turbine igniter and starting systems and components, including specific WHS precautions:
 - starter motors and starter/generators
 - high energy ignition units
 - control units
 - switches
 - landing gear and flap systems and components, including:
 - motors

- actuators
- selector switches
- micro switches
- internal and external lighting systems and components
- batteries and associated mounting equipment, including related anti-vibration aids
- relevant WHS practices
- relevant maintenance manuals
- relevant regulatory requirements and standard procedures.

Assessment Conditions

- Competency should be assessed in the workplace or simulated workplace using tools and equipment specified in the maintenance manuals. It is also expected that general and special purpose tools, test and ground support equipment would be used where appropriate.
- The application of testing procedures should clearly indicate knowledge of system operation, the relationship of individual components and the links with other systems (if applicable) within the limits of the aircraft/system fault finding guide before undertaking any action. The work plan should take account of applicable safety and quality requirements in accordance with the industry and regulatory standards.
- The following conditions of assessment represent the requirements of the Regulators (ADF and CASA) and maintenance stakeholders and must be rigorously observed.
- A person cannot be assessed as competent until it can be demonstrated to the satisfaction of the workplace assessor that the relevant elements and performance criteria of the unit of competency are being achieved under routine supervision on electrical looms, cables and connection hardware, and on each system in the range of conditions and on at least one (1) major component/line replaceable unit (LRU) in each case, as follows:
 - DC generators and alternator/rectifier generators, and components of related single generator regulation and distribution systems
 - piston engine ignition and starting system components
 - specific components of DC electrical systems, such as flaps and landing gear, including related motors and actuators
 - gas turbine engine igniter and starting systems and components (may be omitted if not applicable to the enterprise)
 - aircraft lighting
 - aircraft main batteries (competency may be demonstrated through the performance of a battery check).
- This shall be established via the records in the Log of Industrial Experience and Achievement or, where appropriate, an equivalent Industry Evidence Guide (for details refer to the Companion Volume Assessment Guidelines).
- Assessors must satisfy the requirements of the National Vocational Education and Training Regulator (Australian Skills Quality Authority, or its successors).
- Where the unit is to be used for CASA licensing purposes the Assessor must also meet the criteria specified in the CASR Part 147 Manual of Standards.

- Individuals being assessed who have already attained MEA274 Maintain basic light aircraft electrical systems and components will have satisfied the requirements of this unit with regard to common range of conditions variables. The Log of Industrial Experience and Achievement records relating to MEA274 Maintain basic light aircraft electrical systems and components may be accepted as also meeting the evidence requirements for this unit in the applicable common areas.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=ce216c9c-04d5-4b3b-9bcf-4e81d0950371>