



Australian Government

Assessment Requirements for MEA211

Inspect, test and troubleshoot advanced aircraft electrical systems and components

Release: 1

Assessment Requirements for MEA211 Inspect, test and troubleshoot advanced aircraft electrical systems and components

Modification History

Release 1 - New unit of competency

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 include:

- recognition of system and component defects/external damage, correct installation, connection of plugs, terminations, attaching hardware (including cabling/harnesses) and security in:
 - DC and AC power generation systems, including regulation, distribution and control
 - inverters (rotary and static)
 - battery installations, including temperature monitoring systems
 - gas turbine and piston engine ignition and starting systems (where applicable to the enterprise)
 - propeller systems
 - internal/external lighting systems, including controls
 - landing gear systems, including anti-skid
 - flight controls
 - fire warning and extinguishing
 - air cycle air conditioning and combustion heating systems
 - equipment cooling and ventilation
 - fuel storage and distribution
 - master and central warning
- applying logic processes, taking and interpreting electrical measurements, using test equipment and appropriate wiring diagrams and manuals to isolate electrical system malfunctions in the above systems
- performing system functional tests and checks to isolate system faults and assess post-maintenance serviceability
- applying WHS requirements applicable to the maintenance of aircraft electrical systems
- using approved maintenance documentation and aircraft publications relating to the electrical systems being maintained.

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.

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:

- the basic layout (block diagram level), function and operation of the following systems:
- DC and AC power multi-generator systems, including regulation, distribution and control
- inverters (rotary and static)
- battery installations, including temperature monitoring systems
- gas turbine and piston engine ignition and starting systems
- propeller systems

- internal/external lighting systems, including controls
- landing gear systems, including anti-skid
- flight controls
- fire warning and extinguishing
- air cycle air conditioning and combustion heating systems
- equipment cooling and ventilation
- fuel storage and distribution
- master and central warning
- explaining basic principles/functions, relating to the above systems and associated with:
 - basic DC and AC circuit theory
 - DC generator characteristics
 - alternator characteristics
 - starter generator characteristics
 - DC and AC motors
 - rotary and static inverter operation
- WHS requirements applicable to the maintenance of aircraft electrical systems, including gas turbine engine high energy ignition units
- electrical system maintenance requirements and troubleshooting procedures
- 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, and 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 of and performance criteria of the unit of competency are being achieved under routine supervision on a system and at least one (1) item from each of:
 - DC and AC power generation and distribution systems and components, including generators, alternators, starter generators and related control, regulation and distribution system components
 - transformer rectifier units and inverters
 - batteries and related bus tie or interlock system components and battery temperature monitoring systems
 - motors and actuators
 - components of gas turbine and/or piston engine ignition and starting systems (may be omitted if not applicable to the enterprise)
 - external/internal lights
 - electrical components specific to systems, such as air cycle air conditioning, combustion heating, equipment cooling, anti-icing and de-icing, landing gear, anti-skid, flight control, master and central warning, fuel storage and distribution, fire warning and extinguishing and engine/propeller control.
- 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 MEA210 Inspect, test and troubleshoot basic aircraft electrical systems and components will have covered inspection, testing and troubleshooting of DC power generation and DC systems and components. The Log of Industrial Experience and Achievement records relating to MEA210 Inspect, test and troubleshoot basic aircraft electrical systems and components may be accepted as also meeting the evidence requirements for this unit in the applicable areas.

- Advice in MEA210 Inspect, test and troubleshoot basic aircraft electrical systems and components regarding the coverage provided by MEA274 Maintain basic light aircraft electrical systems and components should also be taken into consideration if the individual has attained that unit rather than MEA210 Inspect, test and troubleshoot basic aircraft electrical systems and components.

Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=ce216c9c-04d5-4b3b-9bcf-4e81d0950371>